

**Childbirth Experiences and Mother-Infant Relationships in Uganda**

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**Declaration**

I declare that this thesis is my original piece of work and that it has not previously been presented either in part or its entirety for another degree or qualification at any other University or institution of learning.

## **Dedication**

I dedicate this thesis to my wife Ruth and children Samantha, Ryan and Stefanie who have selflessly allowed me time away from home to pursue this PhD. I am eternally indebted to you all.

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## **List of Abbreviations**

<b>AIDS</b>	Acquired Immune Deficiency Syndrome
<b>ANC</b>	Antenatal Care
<b>ASQ</b>	Attachment Styles Questionnaire
<b>EA</b>	Emotional Availability
<b>EmOC</b>	Emergency Obstetric Care
<b>EPDS</b>	Edinburgh Postnatal Depression Scale
<b>IES</b>	Impact of Events Scale
<b>IES-R</b>	Impact of Events Scale-Revised
<b>IWM</b>	Internal Working Model
<b>MMR</b>	Maternal Mortality Ratio
<b>MDGs</b>	Millennium Development Goals
<b>NHP</b>	National Health Policy
<b>PTS</b>	Posttraumatic Stress
<b>PTSD</b>	Posttraumatic Stress Disorder
<b>PTSD</b>	FC Posttraumatic Stress Disorder Following Childbirth
<b>RPOC</b>	Retained Products of Conception
<b>SDGs</b>	Sustainable Development Goals
<b>TBA</b> s	Traditional Birth Attendants
<b>UBOS</b>	Uganda Bureau of Statistics
<b>UNCST</b>	Uganda National Council of Science and Technology
<b>WHO</b>	World Health Organisation

## **Childbirth experiences and mother-infant relationships in Uganda**

### **Abstract**

A high proportion of women in sub-Saharan Africa survive severe negative childbirth experiences each year, yet little is known about the psychological impact of maternal experiences on the mother and her baby in those countries. There is evidence from high income countries that the effects of posttraumatic stress symptoms following childbirth on mothers and their families can be long lasting. The aim of this exploratory mixed methods study was to examine the possible association between childbirth experiences and mother-infant interactions in a purposive sample of high risk mothers who delivered at an urban tertiary hospital in Uganda. The sample comprised of 49 mothers aged between 18-38 years and their 4-5-month-old babies. Each mother-infant dyad was observed in a 10-minute video recorded social interaction at home. All mothers completed self-report questionnaires assessing demographic factors, childbirth experiences, posttraumatic stress symptoms arising from labour and delivery, postpartum depression and maternal attachment style. Individual narrative interviews with 41 mothers were conducted exploring their experiences of pregnancy, labour, delivery and time spent at the hospital post-delivery. Quantitative data was analysed using descriptive statistics, Pearson correlations, ANOVA, and hierarchical multiple regressions and the narratives using structural narrative analysis. The findings were integrated using the weave strategy.

Quantitative findings showed that fear of death, emergency caesarean section and prolonged labour were the most common problems during labour and delivery. Childbirth experiences were negatively associated with mother-infant interactions. Posttraumatic stress symptoms and postnatal depression were not associated with mother-infant interactions. The women's experiences at the hospital partially predicted mother-infant interactions. Women's narratives showed that experiences of childbirth were influenced by the mothers' level of planning for pregnancy, personal circumstances, and cultural and religious beliefs about childbirth. The mothers' experiences of childbirth demonstrated elements of restitution, chaos and quest narratives, mirroring aspects of illness narratives seen in populations living with chronic health conditions. These findings show that negative childbirth experiences present risks to both women's postnatal mental health and their interactions with their infants. Two urgently required interventions for this population of women and their babies should involve 1) hospital organisational changes and staff training on quality intrapartum care. 2) Development and provision of trauma and attachment-based interventions for mothers and their infants.

# 1 CHAPTER ONE: INTRODUCTION

## 1.1 Introduction

Globally, maternal health has raised significant interests among various stakeholders. The situation regarding maternal health in Uganda in recent years presents a mixed picture. For example, substantial gains have been realised in reducing maternal mortality ratio (MMR) in the past two decades from 780 deaths per 100,000 live births in 1990 (WHO, 2015) to the current 343 deaths per 100,000 live births (WHO, 2016). Despite the decline, Uganda's MMR of 343 is still higher than the 2030 United Nation's Sustainable Development Goals (SDGs) target (WHO, 2016) indicating a lot remains to be done. Moreover, it is estimated that globally for every woman who dies due to pregnancy and childbirth complications, 20 women survive with several maternal morbidities (Reichenheim, Zylbersztajn, Moraes & Lobato, 2009). To date, little has been done to address maternal morbidity including the psychological impact of negative childbirth experiences on mothers in low income countries (Hardee, Gay, & Blanc, 2012). Recent maternal health reports show several challenges in obstetric care in Uganda's hospitals (e.g., Bangser et al., 2011; Balikuddembe, Byamugisha, & Sekikubo; 2011; Kigenyi, Tefera, Nabiwemba, & Orach, 2013). These challenges in childbirth increase the risks of maternal morbidity to thousands of Ugandan women. It is however not clear how Ugandan women perceive their childbirth experiences and the quality of life the affected mothers go on to live postpartum. Uganda has one of the highest fertility rates in sub Saharan Africa at 5.8 births per woman (WHO, 2015) indicating further risks for maternal morbidity among women of childbearing age.

Research from high income countries shows increasing evidence of posttraumatic stress symptoms (PTS) following childbirth (e.g., Ayers, Joseph, McKenzie-McHarg, Slade, & Wijma, 2008; McKenzie-McHarg et al., 2015). Maternal complications such as obstructed labour, emergency caesarean section, and premature births have particularly been associated

with high PTS symptoms postpartum (Ayers et al., 2008). Similar obstetric complications are common in Uganda's tertiary hospitals (Kaye et al., 2014) thus potentially resulting in PTS symptoms among the affected mothers. It is, however, well known that subjective perceptions of childbirth trauma might significantly be influenced by several factors such as culture (e.g., Chalmers, 2012; Kyomuhendo, 2009) and quality of obstetric care (e.g., Chalmers, 2012; Chang Lee et al, 2009; Young, 2009) among others. These factors might therefore have different implications for the women's experiences of childbirth in different parts of the world. Nevertheless, maternal postnatal mental health especially regarding PTS symptoms arising from childbirth experiences among Ugandan mothers needs to be examined due to the importance of its implications for the mothers and their children (McKenzie-McHarg et al., 2015) For example, posttraumatic stress disorder (PTSD) or PTS symptoms arising from childbirth have been found to have a negative effect on maternal relationships with the child, often persisting long after the traumatic birth event (e.g., Ayers, Eagle, & Waring, 2006; Ionio & Di Blasio, 2014; Seng et al., 2013).

Research shows that disrupted mother-infant relationships have several negative outcomes for the child including insecure attachment and reduced emotional functioning, mental health and academic achievement (e.g., Biringen et al, 2014; Cassidy, 2008). Postnatal PTSD or the experience of PTS symptoms as well as more general negative childbirth experiences have been found to negatively affect early mother-infant relationships (e.g., Parfitt and Ayers, 2009; Reisz, Jacobvitz, & George, 2015; Seng et al., 2013; van Ee, Kleber, & Mooren, 2012). There is however a dearth of knowledge from low income countries about the impact of negative childbirth experiences on maternal postnatal mental health especially PTS symptoms and subsequent mother-infant relationships. In this mixed methods, exploratory study, I sought to examine a sample of high risk Ugandan women's childbirth experiences, postnatal PTS symptoms and potential associations with mother-infant relationships with the aim of contributing knowledge to enhance the quality of maternal -child health. Theoretically, I draw from elements of illness narratives and attachment theory. In the remaining part of this chapter

I present personal reflections which motivated the conduct of this study and an overview of the entire thesis.

## 1.2 Reflections on the researcher's background

Personal clinical work experiences in Uganda first as an occupational therapist in tertiary hospitals and later as a psychologist in a foster care setting shaped my interests in mother-child mental health. Working with children with physical, mental and learning problems early in my career got me thinking about prenatal and birth complications reported by mothers as causes of the disabilities/disorders I was treating. Many of the problems mothers encountered during pregnancy and childbirth though unknown to parents as contributing to the challenges their children were facing seemed largely preventable. Cases of malaria during pregnancy, prolonged labour and birth asphyxia narrated by the parents were associated with conditions such as cerebral palsy and learning disability for which the children were brought to the occupational therapy facility.

Later as a mental health service provider, I worked with children with childhood mental health problems which stemmed from disrupted relationships in infancy as children were separated from their biological parents and experienced further complicated attachment relationships with their foster mothers. I became intrigued by the potential relationship between childbirth experiences I came across in my occupational therapy practice and my interventions with foster mother-child relationships. My work with the latter group showed that not only did poor relationships between the mother and child start at the time when the foster families started, but early interventions were key in shaping meaningful social emotional development for the child. When opportunity for doctoral research arose, I wanted to explore a subject that had emerged and grown in my clinical career to examine further the ideas and questions I had earlier conceptualised.

In the early stages of designing this study, the discovery of a dearth of literature from especially sub-Saharan Africa on the key issues I was exploring meant a pragmatic epistemological approach was needed to conduct this study. Taking this epistemological position not only helped the broad nature the study took, but also enabled me to acknowledge my personal background as shaping the study and interpretations I made of the findings.

### 1.3 Overview of the thesis

The thesis comprises of eight chapters. In Chapter one, I have introduced the topic under investigation and included personal reflections. In the sections that follow here I briefly highlight the content of each of the remaining chapters as a preview of the complete thesis.

Chapter two provides the demographic, geographical and theoretical contexts of the study and processes employed in conducting this study. I therefore highlight global, regional and Ugandan national trends in maternal health with specific focus on maternal mortality and morbidity to set the context for the current study. I also examine the Uganda health care system and maternal health policies and obstetric care, to enable the reader to understand the circumstances influencing childbirth situations for the women in Uganda. This is followed by a discussion of the main cultural beliefs influencing maternal health and childbirth practices. Finally, I present a brief examination of literature on childbirth experiences, attachment theory, precursors to attachment relationships such as maternal sensitivity and emotional availability and the impact of disrupted early mother-infant attachment relationships.

Chapter three presents the literature review which informed the aim of the study, the research process and methods employed in conducting the current study. The key question sought to be answered in the literature review was: What is the relationship between mother's experiences during pregnancy, labour, and childbirth and the mother-infant interactions? A systematic narrative synthesis of diverse literature drawn mainly from high income western countries was

undertaken. This was due to the dearth of literature from low income countries on childbirth experiences and interactions between mothers and their infants. I synthesised a total of 37 papers following a quality appraisal process. I present major themes arising from the qualitative and quantitative papers reviewed. The chapter ends with the aim, research question, objectives and hypotheses of the current study.

In Chapter four, I describe the design, methods and approaches used in conducting this study. A mixed methods design based on a pragmatic paradigm, combining post-positivist and interpretivist strands, was employed. The choice of a convergent, equal status, mixed methods design to enhance the strength of the findings of this exploratory study is discussed, with a focus on the structure of data collection and analysis. Quantitative data was collected through videotaping mother-infant social interactions at the participants' homes and later coded with emotional availability (EA) scales. Self-report measures of demographic data, mother's experiences of childbirth, PTS symptoms, maternal attachment styles, and postnatal depression data were also collected. Individual narrative interviews with each of the participating mothers were planned to be conducted in the same data collection session. Data analysis methods for the two strands of data are discussed leading to integration of findings through the weaving method. Measures taken to ensure the quality of the study was of a high standard, including ethical considerations are delineated.

Chapter five shows findings of the quantitative strand of this study. Information about the demographic characteristics of the sample is presented first. This is followed by key findings ordered per the objectives and hypotheses of this study. Mention is made of statistical analyses conducted to arrive at the findings including descriptive statistics, Pearson correlations, ANOVA and hierarchical regressions. The chapter ends with a summary of key findings highlighting whether the study hypotheses were confirmed or not.

Chapter six is about the women's shared childbirth narrative. Structural narrative analysis was undertaken bringing together key factors from the mothers' narratives such as tone of the interviews, characters in the story, events, emotions, feelings and themes. An overarching childbirth narrative was then developed illustrating the mothers' experiences of having a baby in four acts namely 1) becoming pregnant 2) being pregnant 3) giving birth and 4) post-delivery. In all the four acts of the overarching childbirth narrative, I show similarities and differences between the women's experiences highlighting the meanings women attached to their experiences shaped by personal circumstances such as level of planning for pregnancy and marital status, cultural and religious beliefs. A summary of key maternal experiences is given at the end of the chapter before moving to integration of the findings in the discussion chapter.

Chapter seven is where I discuss the study findings by integrating quantitative and qualitative findings presented in Chapters 5 and 6 respectively. Discussion and integration of the findings employed the weave strategy (Creswell, 2014) by bringing together key issues from Chapter five and Chapter six to enable interpretation of the findings per the study aim and objectives sought to be met by this study. Emphasis was on highlighting both convergence and divergence in findings and offering possible explanations for the observations made in the context of the current sample.

In Chapter eight, the final chapter of the thesis, I highlight the key findings of the study and my contributions to knowledge. I also offer a critical examination of the strengths and limitations of this study which might help in interpretations of the study findings. This is followed by a description of the implications of my study findings including research, clinical practice and future research recommendations.

## 2 CHAPTER TWO: BACKGROUND TO THE STUDY

### 2.1 Introduction

In this chapter I explore the context in which this study was conducted. Maternal health is discussed by drawing from global, regional and Ugandan national data to facilitate understanding of pertinent issues which raised questions that I sought to answer in the current study. Specifically, challenges of maternal health in low income countries associated with high maternal mortality and morbidity rates are highlighted. Uganda's health care system and policies are discussed paying specific attention to maternal health. Cultural views about childbirth in Uganda are explored to ensure appropriate understanding of the broader societal issues which might shape women's childbirth experiences. I then examine maternal morbidity including postnatal mental health problems and the associated impact on maternal relationships with the baby. Mother-infant relationships in this study are viewed through a broader lens of attachment theory. As such, I briefly discuss attachment theory paying attention to the differing schools of thought regarding attachment. Finally, I highlight precursors of mother-infant attachment relationships with emphasis on implications of disrupted attachment relationships to the child.

### 2.2 Global maternal health situation

Maternal mortality has been an important indicator of maternal health globally as demonstrated by the United Nations Sustainable Development Goals (SDGs) and their predecessor, the millennium development goals (World Health Organisation, WHO, 2016). In contrast, maternal morbidity has not been widely addressed despite the impact on women of child bearing age especially in low income countries.

### 2.2.1 Maternal Mortality

There is evidence that maternal health has made significant gains in the last two decades (WHO, 2015). The African region has reported the largest percentage reductions in maternal mortality from an estimated 960 per 100 000 live births in 1990 to 500 deaths in the same number of live births in 2013 (WHO, 2015). Maternal mortality is the death of a woman while pregnant or within 42 days after termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO, 2007). Achievements demonstrated by reductions of maternal mortality have followed international interventions especially through the just concluded United Nations Millennium Development Goals (MDGs). Although these gains paint an optimistic picture of global maternal health, low income countries across the world still report high numbers of women dying of childbirth related conditions (WHO, 2016). Renewed efforts by the international community to further reduce maternal mortality are being implemented through the United Nation's Sustainable Development Goals (SDGs) with a target of 70 deaths per 100 000 live births globally by 2030 (WHO, 2016). Although there is potential for this ambitious aim to be achieved in the next thirteen years, a lot needs to be done including country specific interventions due to cultural and national health policies influencing maternal health care (Young, 2009). As trends in high income countries show, further reductions of maternal mortality tend to stagnate at some point. For example, estimates indicate that between 1990 and 2013 MMR in high income counties reduced from 24 to 17 compared to low income countries which reported reductions in MMR from 900 to 450 (WHO, 2015). It is therefore plausible that further reductions in MMR of low income countries might require different strategies than those previously employed under MDG5 if the 2030 target is to be realised (Cabero-Roura and Rushwan, 2014).

The causes of maternal deaths have been classified globally, as either direct or indirect (WHO, 2007). The direct causes are a result of a complication of pregnancy and/or delivery or their

management while indirect causes involve a pregnancy related death in a patient with a pre-existing or newly developed health problem not related to the pregnancy. The five-major direct obstetric causes of maternal mortality globally are haemorrhage, hypertensive diseases of pregnancy, infection/sepsis, abortion and obstructed labour (WHO, 2014). These maternal health conditions have been the focus in efforts aimed at reducing maternal mortality especially in low income countries. However, maternal morbidity continues to receive less attention despite adverse long term consequences to the mother and her family (Hardee, Gay, & Blanc, 2012).

### 2.2.2 Maternal morbidity

Maternal morbidity has been defined as health problems that women encounter during pregnancy, delivery, or in the postpartum period (Firoz et al., 2013). Maternal morbidity is closely associated with maternal mortality. There is evidence that for every victim of maternal mortality globally, 20 women survive with several morbidities (Reichenheim, Zylbersztajn, Moraes & Lobato, 2009). It is estimated that close to 300 million women are currently living with health problems resulting from complications of pregnancy and childbirth, the clear majority of whom are believed to be from low income countries (Cabero-Roura and Rushwan, 2014). Despite the high prevalence of maternal morbidity, women who survive negative experiences of childbirth have not received adequate attention (Hardee et al., 2012) especially in terms of the quality of life they go on to live.

Both physical and psychological problems characterise maternal morbidity according to Hardee et al. (2012). In developing countries, the most common maternal conditions known to have long term effects on the women include anaemia, maternal mental health problems, infertility, obstetric fistula, uterine rupture, and genital and uterine prolapse (Hardee et al., 2012). Postpartum mental health problems present special challenges to the affected women. For example, the narrow time frame in which maternal conditions are diagnosed such as death being

categorised as maternal mortality if it occurs within 42 days following pregnancy (WHO, 2007) might render it difficult for inclusion of mental health problems. Moreover, most maternal deaths (61%) in low income countries are known to occur postpartum (Cabero-Roura and Rushwan, 2014). Consequently, the chances of mothers who require help being identified and receiving appropriate interventions after the set time thresholds might be further reduced by viewing such conditions as unrelated to maternal experiences rather than delayed onset of symptoms.

In a review study by Hardee et al. (2012) for example, the finding that maternal depression was the most prevalent mental health condition affecting women following childbirth might be due to the focus and timing of studies included. For instance, findings by Filippi et al. (2007) that women in Burkina Faso who survived severe obstetric complications experienced depression, anxiety at three months and suicidal thoughts throughout the first year following childbirth compared to women who had normal deliveries suggest a range of maternal mental health problems. Moreover, Filippi et al. (2007) in the same longitudinal study also observed that women who had severe obstetric complications and whose pregnancies ended in live births had reported negative feelings associated with their pregnancies postpartum and the frequency of those experiences peaked throughout the first year. The likelihood of PTS symptoms being associated with maternal negative experiences of childbirth due to such observations cannot be underestimated. This however remains largely unexplored in many low-income countries including sub-Saharan Africa.

### 2.3 Maternal health in sub-Saharan Africa

Geographically, the African region still has the highest number of maternal mortality rates reported at 500 per 100, 000 live births as of 2013 (WHO, 2015). In terms of actual numbers, 292,982 maternal deaths occurred globally in 2013 (Kassebaum et al., 2014). Of these, 1,811 were from high income countries and 291,171 from low income countries. Among the low-

income regions of the world, sub-Saharan Africa had the highest number of deaths at 143,380 or 49% of the global maternal deaths in 2013(Kassebaum et al., 2014). The eastern and western parts of sub-Saharan Africa registered 52,269 and 70,858 maternal deaths respectively (Kassebaum et al., 2014). Moreover, sub-Saharan Africa had the highest adult lifetime risk of maternal mortality –the probability that a 15-year old woman will die of a maternal cause – estimated at 1 in 38, the highest globally, compared to 1 in 190 globally and 1 in 3700 in high income countries (WHO, 2014).

Regarding the cause of maternal morbidity in sub-Saharan Africa, the most reported conditions leading to maternal morbidity/near-miss cases in sub-Saharan Africa are obstetric haemorrhage, hypertensive disorders in pregnancy, obstructed labour, septicaemia, ruptured uterus and severe anaemia (e.g., Adeoye, Ijarotimi & Fatusi, 2015; Kaye, Kakaire, & Osinde, 2011). Unlike in high income countries where indirect causes due to pre-existing medical conditions and other-direct causes are responsible for maternal morbidity, some of the major causes of maternal morbidity in sub-Saharan Africa are preventable such as unsafe abortions and haemorrhage (Kassebaum et al, 2014). The extent of maternal morbidity from both direct and indirect causes in most parts of sub-Saharan Africa however remains unclear.

A systematic review by Kaye et al. (2011) showed disparities in reporting of maternal morbidity in sub-Saharan Africa in part due to terminologies used. The prevalence rate of maternal morbidity was reported to range from 1.1% to 10.1%. indicating high magnitude of maternal problems in some parts of sub-Saharan Africa where investigations have been undertaken. Moreover, a few studies continue to show that high rates of maternal mortality and morbidity occur in health facilities especially at major referral hospitals (e.g. Adeoye et al, 2014; Tamura, Hinderaker, Manzi, Berg & Zachariah, 2012). These maternal deaths have been attributed to delays in lower health facilities referring women for more advanced care (e.g., Adeoye et al, 2015; Tuncalp, Hindin, Adu-Bonsaffoh, & Adanu, 2014). Besides delays in accessing obstetric

care, several other factors have been pointed out as contributing to the high cases of maternal morbidity and mortality in sub-Saharan Africa as shown below.

Inadequate knowledge of the risk signs of pregnancy by mothers heightened by their low personal financial resources has been cited as one of the reasons hindering women from accessing care (Fillipi et al., 2007). In many parts of sub-Saharan Africa maternal health complications following unsafe terminations of pregnancy are rampant. Basu and Basu (2013) reported the three most common complications of abortions in a sample of South African women are retained products of conception (RPOC), failed abortion and septic PROC. Abortion is illegal in many sub-Saharan countries leading to likelihood of high cases of complications due to termination of pregnancy remaining undetected with several negative consequences to the affected women (Basu and Basu, 2013).

Challenges with the health care system including personnel have also contributed to high maternal morbidity rates in parts of sub-Saharan Africa. For instance, there have been reports of challenges in health care both pre-and postnatal which affect the experiences of women during pregnancy and childbirth (Chadwick, Cooper, & Harries, 2014; Bangser et al, 2010). Issues of inaccessible health facilities and poor attitude of health workers have undermined the women's efforts to accessing timely and adequate maternal health interventions across many parts of sub-Saharan Africa (Kaye, Kakaire, & Osinde, 2011) subsequently contributing to high cases of preventable obstetric complications. Fillipi et al. (2007) noted the poor resources at primary health facilities including inadequate ambulances to transfer mothers from lower health facilities to referral hospitals as further increasing the prevalence of maternal morbidity.

A combination of maternal, health system, and socioeconomic factors continue such as aforementioned continue to contribute to both acute and chronic significant maternal morbidity postpartum (Cabero-Roura and Rushwan, 2014). The consequences of these maternal morbidities including physical and economic burdens experienced by especially the women

have been widely identified (e.g, Fillipi et al, 2007; Roux and van Rensburg, 2011; Storenga, Baggaleya, Ganabab, Ouattara, Akoum, & Filippi, 2008; Tuncalp et al, 2014). However, the psychological impact of childbirth experiences has been under explored in sub-Saharan Africa (Sawyer et al., 2011). A few studies have examined postnatal problems including depression, anxiety and suicidal ideation related to severe obstetric complications (e.g., Fillipi et al., 2007). However, PTS symptoms following childbirth remain largely unexplored despite the widespread negative childbirth experiences some of which are potentially traumatic in nature. Uganda is one such Country in eastern sub-Saharan Africa where maternal mortality and morbidity present substantial burdens to the health care system and to the women of childbearing age as highlighted in the next section

## 2.4 Maternal health in Uganda

In this section, I highlight the situation of maternal health in Uganda with emphasis on maternal mortality and morbidity, health care system and provision, cultural beliefs about childbirth and the women's experiences.

### 2.4.1 Country demographics

Uganda is one of the countries located in eastern sub-Saharan Africa with a geographical area of 236,040 square kilometres. It borders Kenya to the east, South Sudan to the north, Congo in the west, Rwanda to the south west and Tanzania to the south. Uganda has one of the youngest and fastest growing populations in sub-Saharan Africa, with 78% of the population aged 30 years and below (Uganda Bureau of Statistics; UBOS, 2014). Estimates of the current population range between 35 and 38 million (UBOS, 2014; WHO, 2015) and an annual population growth rate of 3.4 percent (WHO, 2015). The most recent Uganda national population census indicated close to 82% of the population lives in rural areas (UBOS, 2014) The WHO health statistics show Uganda's total fertility rate per woman as one of the highest

in the eastern sub-Saharan region at 5.9 (WHO, 2016) posing several implications for maternal health as discussed in the following sections.

#### 2.4.2 Maternal mortality and morbidity

The situation of maternal health in Uganda is one of a mixture of gains and several challenges (WHO, 2015). Maternal mortality ratios have declined from 780 in 1990 to the current 343 per 100,000 live births (WHO, 2016). Despite registering more than 50% reduction in maternal mortality ratios, Uganda is ranked among the top ten countries comprising of 58% of the global maternal deaths in 2013, with 5900 deaths accounting to two percent of the global maternal deaths that year (WHO, 2014). A recent annual report from Uganda's largest tertiary hospital showed maternal mortality ratios of 421 per 100,000 live births (Mulago hospital directorate of obstetrics and gynaecology, 2015). According to the 2014/2015 annual report, the most common causes of maternal deaths in descending order were abortions, AIDS, severe haemorrhage, eclampsia, ruptured uterus and anaemia (Mulago hospital directorate of obstetrics and gynaecology, 2015). The other common causes of maternal deaths reported were cardiac arrest, puerperal sepsis, obstructed labour, and prolonged labour. The high number of maternal deaths might reflect the extent of maternal morbidity in Uganda which has not been extensively reported.

Like most parts of sub-Saharan Africa, the magnitude of maternal morbidity in Uganda is not exactly known due to limited research on the subject but might be inferred from the aforementioned maternal mortality ratios and challenges in obstetric care discussed here. For example, a recent annual report from Uganda's largest tertiary hospital shows that the top five maternal conditions resulting into women's hospitalisation were postpartum eclampsia (133), severe preeclampsia (131), postpartum haemorrhage (112), ruptured uterus (86) and hysterectomy (71). These conditions besides being associated with maternal mortality as shown above, expose the affected women to a wide range of health risks postpartum. Several of these

maternal conditions might however be a result of challenges in obstetric care as highlighted below.

### 2.4.3 Homebirths in Uganda

There are reports of significant gains in maternal health care including antenatal, intrapartum and postpartum across Uganda (UBOS and ICF International, 2012). For example, up to 95% of the mothers receive antenatal care indicating that most Ugandan women receive professional care during pregnancy. For instance, the proportion of women informed of potential complications in pregnancy was reported at 50%, while 60% of the births were attended by a skilled practitioner (UBOS and ICF international, 2012). However, a substantial number of women (40%) especially from the rural areas still give birth in their homes under the care of either traditional birth attendants (TBAs) or relatives who often lack the skills to manage birth related complications (Amooti-Kaguma & Nuwaha, 1999; Kiwanuka et al., 2008).

Cultural beliefs have been cited among the reasons for women choosing to deliver at home (Kyomuhendo, 2004). The other reasons are flexibility of the TBAs including accepting to supervise the delivery on credit or free of charge (Amooti-Kaguma & Nuwaha, 1999). The nature and timing of labour is also a key reason cited for home delivery especially when labour progresses very fast or begins at night making it hard for the mothers to get to health facilities (Amooti-Kaguma & Nuwaha, 1999). This is particularly a problem for the majority of the population who live in rural areas with limited access to appropriate means of transport (UBOS, 2014). Other factors previously reported to be associated with low utilisation of maternity services are health system related including abuse and neglect by medical staff, lack of competent staff at the primary health care units, and inadequate information given to the women about medical procedures (Kyomuhendo, 2004). Socioeconomic factors regarding men being responsible for not only determining the place of delivery but providing the finances as is the case elsewhere in sub-Saharan Africa (Sawyer et al., 2011), play a big role in choice of home

delivery (Amooti-Kaguma & Nuwaha, 1999; Kyomuhendo, 2004). However, home delivery under the supervision of unskilled TBAs often comes at a higher cost including the life of a mother and/or the baby when obstetric complications occur (Kyomuhendo, 2014).

Lack of professional birth attendance increases risks of obstetric problems which might result in severe morbidity when not managed in time as might be the case due to delays in accessing medical care (Mbonye et al., 2007). Three categories of delays in obstetric care have been highlighted as the main cause of maternal morbidity, the first being delayed decision to seek medical care as previously highlighted among women who prefer to deliver at home (Mbonye et al., 2007). The second delay, referred to as delay if reaching health facility, has been attributed to lack of appropriate transport facilities such as ambulances or poor financial resources to arrange for alternative means of transport (Amooti-Kaguma & Nuwaha; 1999; Mbonye et al., 2007). Further obstetric challenges might be experienced at the health facility due to delay in receiving adequate care (Bangser et al., 2010; Kaye et al., 2014; Mbonye et al., 2007) as highlighted in the next section regarding hospital care.

#### 2.4.4 Obstetric care in health facilities

Despite the progress made in the proportion of women receiving professional obstetric care in Uganda (UBOS & ICF international, 2012), recent research about maternal health in Uganda's tertiary hospitals has shown several challenges in obstetric care as described throughout this section. Part of the problems in obstetric complications has been attributed to delayed seeking of care by mothers as earlier mentioned implying that mothers arrive at the hospitals with severe obstetric complications. This increases the risks of poor outcomes including maternal morbidity (e.g., Bangser et al., 2010; Kaye et al., 2014; Mbonye et al., 2007).

Further delays in intrapartum care have however been reported at the health facilities. For example, Balikuddembe et al., (2011) in a study to determine the decision-operation interval – the time interval between when a decision to operate is taken and when the baby is delivered by

operation –reported that on average it took close to eight hours (465 minutes) for an emergency caesarean operation to be conducted following a decision to operate. This is part of the third delay, attributed to inadequate theatre space and issues related to medical staff (Balikuddembe et al., 2011). Such delays further increase the risks of negative maternal experiences and poor outcomes for both the mother and her baby. For instance, several problems associated with prolonged labour and delivery following prolonged waiting for the emergency operations were reported (Balikuddembe et al., 2011). These included mothers feeling exhausted, haemorrhages, obstructed labour, abnormal foetal heart, and the baby’s head getting trapped in the birth canal among others. Whereas earlier research by Mbonye et al. (2007) suggested that most cases of maternal mortality result from the first two delays, circumstances at the hospital also account for a substantial number of poor maternal outcomes (Balikudembe et al, 2011). Consequently, higher than the national average of cases of maternal mortality (WHO, 2016) and morbidity are reported in tertiary hospitals (Mulago hospital directorate of obstetrics and gynaecology, 2015). Such experiences might explain the mothers’ poor perceptions of care and reluctance to seek skilled birth attendance (Kyomuhendo, 2004).

Women’s negative views about quality of intrapartum medical care earlier mentioned as one of the reasons for home births were recently reported in a study conducted in Uganda’s major tertiary hospital (Kigenyi, Tefera, Nabiwemba, & Orach, 2013) suggesting widespread negative maternal experiences. The low quality of care according to Kigenyi et al. (2013) was due to a lack of involvement of the mothers in the care they received during the time of admission. Such perceptions of low quality of care in tertiary hospitals might not only be representative of hospitals across the country, but may not encourage utilisation of professional maternal health care (Kyomuhendo, 2003). Some of the negative maternal experiences have been attributed to medical staff attitudes and behaviours such as soliciting for bribes before attending to the women in labour, and shortage of staff and equipment to handle the large numbers of women (e.g., Kabayambi et al, 2014; Mbonye et al, 2007). The unintended consequences of women avoiding health facilities due to perceived poor obstetric care are increased risks of maternal

morbidity. However, cultural and traditional beliefs about childbirth also play a role in experiences of childbirth as discussed in the next section.

#### 2.4.5 Maternal health and cultural beliefs

Several studies have reported on the role of culture in influencing childbirth practices and beliefs both at system and individual level (e.g., Chalmers, 2012; Kyomuhendo, 2004; Slade, Cohen, Sadler, & Miller, 2012). In Uganda, cultural and traditional beliefs/practices about childbirth have been shown to hinder women's choices of places of childbirth (Amooti-Kaguma & Nuwaha, 1999; Kyomuhendo, 2003; Kyomuhendo, 2009). Cultural beliefs which value women who deliver without aid as strong and denigrate those who fall victims of negative childbirth experiences (Kyomuhendo, 2009) promote negative attitudes to attendance of skilled delivery. Indeed, there have been several reports of women who perceive their pregnancy as normal not seeking skilled antenatal and delivery attendance until later when obstetric complications emerge (Amooti-Kaguma & Nuwaha, 1999; Kyomuhendo, 2003; Mbonye et al., 2007). Such decisions to delay seeking of maternal health care services portray beliefs reported by Kyomuhendo (2009) about women's status in society being demonstrated by their endurance of childbirth experiences. For these women, childbirth has been described as a battle for women (Kyomuhendo, 2009) and as such women strive to win this battle at all costs including her own life. These sentiments have been demonstrated as a woman "who experiences no problems and needs no assistance is held in much esteem, having walked bravely through the hazardous path and emerged unscarthd" (Kyomuhendo, 2009, pp. 230). By attributing obstetric complications including caesarean deliveries to the affected women's laziness (Kyomuhendo, 2009), society inadvertently contributes to high maternal morbidity as women seek to uphold cultural beliefs and keep away or delay to seek skilled birth attendance.

Similar to Morse's (1995) observations, it is common for pregnancy and childbirth in central Uganda to be viewed culturally as sickness which women must bravely seek to recover from

(Kyomuhendo, 2009). However, unlike other forms of illnesses, women's strength is expected to manifest during pregnancy and childbirth and any complications including death in childbirth is blamed on personal weaknesses (Kyomuhendo, 2009). Such negative positions perpetuated by society (Evans, 2013) raise questions about how women deal with challenges of maternal health amidst contradictions arising from cultural beliefs and scientific medical knowledge about obstetric care.

An exploration of Frank's (1995) categories of narratives of illness might offer an understanding of the Ugandan women's experiences of childbirth. In the past, women's experiences of negative childbirth experiences such as prolonged labour have been compared to experiences of and recovery from illness (Elmir, Schmeid, Wilkes & Jackson, 2011; Morse, 1997; Nystedt, Hogberg, & Lundman, 2008). But these studies have not offered a clear explanation of how experiences of childbirth can be interpreted as an illness. Frank's (1995) typology of narratives of illness if applicable to childbirth might offer a better understanding of the factors which shape the perceptions of childbirth experiences and the meanings mothers attach to those experiences. According to Frank, three types of illness stories include restitution, chaos and quest.

Frank (1995) describes the restitution narrative as portraying a desire to get well and stay well and a reflection of cultural influences of how illness stories are to be told. Restitution stories according to Frank take on the shape of "yesterday I was healthy, today I'm sick but tomorrow I'll be healthy again" (pg. 77). A happy ending is made possible in a restitution story unlike in the chaos story. The Chaos narrative portrays life as never getting better. The cause-effect pattern is not coherent in the chaos narrative and the story is quite threatening to the listener. Suffering seems overwhelming to the narrator of a chaos story. Quest stories demonstrate the ill's efforts to gain from the experience of suffering. This is seen by the ill confronting suffering and seeking to gain something positive through the experience of suffering. Consequently, quest stories are characterised by significant personal and social changes such as advocacy following the illness (Frank, 1995). An examination of the Uganda's health policy especially issues

pertaining to maternal health might provide some insights on maternal health issues discussed so far including whether childbirth is considered as illness.

#### 2.4.6 Maternal health and policy

The Uganda's national health policy (NHP II) for the period 2011/2015 emphasised health promotion, disease prevention, early diagnosis and treatment of diseases with the aim of achieving universal access to a minimum health care package (Ministry of Health, 2010). Maternal health policy for the period up to 2015 was embedded in the road map for accelerating the reduction of maternal and neonatal mortality and morbidity (The Republic of Uganda, 2007). The burden of disease caused by perinatal and maternal conditions was estimated to be 20.4%, the highest among all disease burdens in Uganda, at the time of formulation of the policy. The vision of the road map was "to have women in Uganda go through pregnancy, childbirth and postpartum period safely, and their babies born alive and healthy" (pp. 22) under three key objectives: 1) to increase the accessibility, availability and utilisation of quality skilled care during pregnancy, childbirth, and postnatal period at all levels of health care delivery system. 2) to promote and support appropriate health care seeking behaviour among pregnant women and their families and the community. 3) to strengthen family planning information and service provision for women/men/couples who want to space or limit their childbearing thus preventing unwanted and/or untimely pregnancies that increase the risks of maternal death. This maternal health policy and the roadmap to ensure its realisation categorises childbirth as a key burden of disease thus suggesting the sufferers' (women) experiences are similar to an illness.

Several strategies were proposed to ensure realisation of the minimum national health care package under the aforementioned roadmap. For example, strategy 2 and 3 focus on improving availability of maternal/new-born health care at sub county level and strengthening human resources to provide quality maternal/new-born care respectively. Among the priority areas for implementation of strategy 2, were providing skilled attendance at births, scaling up of

emergency obstetric care (EmOC), antenatal care (ANC), neonatal and postnatal care, and increasing access to accurate and appropriate family planning information and services. The other priority was to establish an appropriate and effective referral system. It is however important to note that several gaps remain in translating the national health policy to practice as highlighted earlier indicating that more efforts are required beyond the policy's 2015 targets. One such area that requires attention is the maternal and infant mental health care beyond the 42 days' limit recommended for postnatal and neonatal care (The Republic of Uganda, 2007) as the impact of maternal morbidity to the mother and her baby might persist beyond the immediate postpartum period.

#### 2.4.7 Maternal childbirth experiences

Following an examination of maternal health in Uganda and the earlier perspectives of maternal health trends both at global and sub-Saharan Africa region level, it was clear that little is known about the psychological impact of maternal health challenges on the mother and her baby. Ugandan women's experiences of childbirth have not been explored despite the challenges reported regarding maternal health as seen from previous studies and the national policy on maternal health. The strategies sought to be implemented through the national policy with the aim of improving maternal child health can be enhanced when the women's experiences of childbirth and the potential impact of those experiences on the women and their babies is understood by key stakeholders such as policy makers and clinical practitioners. Previous attempts at exploring women's lived birth experiences have focused on uterine rupture complications –just one of the many conditions known to contribute to maternal morbidity – and have excluded experiences during pregnancy and labour (e.g., Bangser et al, 2011; Kabayambi et al, 2014; Kaye et al, 2014) which might greatly enhance the understanding of women's childbirth experiences. A broader understanding of the women's experiences of childbirth enhances the examination of the influence maternal experiences can have on subsequent mother-infant attachment relationships.

## 2.5 Attachment theory

Attachment as conceptualised by Bowlby (1982) and further demonstrated by Ainsworth (1967) through her ethnographic observations of infants and their mothers in Uganda and in the USA is defined as “an intense and enduring affectional bond that the infant develops with the mother figure” (Bowlby, 1982). Attachment theory gained its position in understanding human nature and development by focusing mainly on the effects of separation and loss in infancy on life-span development (Ainsworth, 1967; Bowlby, 1982). However, current theorists, researchers and practitioners have applied attachment theory in a broader range of fields including adult psychopathology, mental health, professional care and interpersonal relationships/problems (Danquah and Berry, 2013).

One of the assumptions of attachment theory is that beginning at birth, the primary caregiver, often the mother and infant start to construct an attachment relationship. Although there is currently a greater diversity in caregiving practices including foster parenting, early literature on attachment relationships focused on the mother as a primary caregiver. The term mother is therefore sometimes used interchangeably with ‘primary caregiver’. The mother plays a key role in shaping the attachment behaviour of the child and his subsequent attachment styles (Bowlby, 1982). Attachment behaviour is an action that enables a person to attain or maintain proximity to a specific person regarded as better able to cope with the world (Bowlby, 1969/1982). According to Bowlby’s early work, inadequate maternal care among institutionalised children was responsible for the children’s behavioural problems. However, it was through empirical studies conducted by Ainsworth in Uganda and the USA that features of maternal care responsible for the development of a child’s attachment security/insecurity were delineated (Waters, Petters, & Facompre, 2013).

Ainsworth, through the strange-situation procedure, identified two dimensions of attachment styles from her original A, B, C typology/groups of children (Ainsworth, 1982). Group B, the

largest group of children (66 percent of all the children) was categorised as securely attached while groups A and C were identified as anxiously attached. According to Ainsworth (1982), two categories of behaviours –sensitivity and insensitivity are associated with mothers of babies with secure and insecure attachment styles respectively. The mothers of the securely attached (group B) are found to be generally sensitive to their babies while those of insecurely attached babies are reported to be insensitive (Ainsworth, 1982). Maternal sensitivity is characterised by behaviours reflecting sensitive responsiveness to the needs of the baby while maternal insensitivity is characterised by aversion to bodily contact, anger, flat facial expressions, and compulsiveness of the mothers during interactions with their babies (Ainsworth, 1982). In regard to the behaviours of the infants, securely attached babies respond more to being held, are easily soothed through close bodily contacts, they initiate being picked up by the mothers more often, and seek less often to be put down (Ainsworth, 1982). On the other hand, insecurely attached children tend to show more distress in brief every day separations, generally cry more, and respond more negatively both to physical contact and when physical contact is terminated.

A further distinction is made between mothers of group A and group C infants according to Ainsworth (1982). Mothers of group A babies, in addition to being insensitive are rejecting of their babies while those of group C babies are not rejecting but are highly insensitive (Ainsworth, 1982). Recent research has also found that maternal intrusive, excessively stimulating and controlling interactional styles are linked with insecure-avoidant attachment styles while maternal unresponsive and under-involvement precede insecure-resistant attachment (Belsky and Fearon, 2008). According to Ainsworth (1982), the anxious attachment dimension reflects the conflict babies in group A and C have with their mothers. The conflict for the group C babies is characterised by babies who want bodily contact with their mothers but are angry and frustrated because the mothers are insensitive to their needs. On the other hand, babies in group A have a more complicated conflict having learned to avoid their mothers despite their need for closeness due to the constant rejections experienced from their mothers (Ainsworth, 1982).

A fourth category of attachment styles known as disorganised attachment style was conceptualised by Hesse and Main (1990). With the new conceptualisation came to the fore another category of maternal/caregiver behaviour characterised by frightened/frightening behaviour known to predict disorganised attachment security. Several subsequent studies have shown evidence of disorganised attachment (e.g., Abrams, Rifkin & Hesse, 2006; Beebe et al., 2012; Madigan, Moran & Pederson, 2006). According to Beebe et al. (2012), the mother–infant interaction characteristic of disorganised attachment style includes longer spells of the infant looking away from the mother’s face, more negative infant affect, increased maternal intrusive behaviour, and error in maternal affect described as mother smiling or showing surprise during moments of infant distress, among other forms of incongruent behaviours in both mothers and infants.

To better understand the interactions between mothers and maternal factors which influence the child’s attachment behaviours, it is important that the mother’s own attachment style is examined. There is evidence of relative life-time continuity of attachment types (Shaver and Mikulincer, 2002b) which might influence how the mother interacts with others including her own child (Shaven and Mikulincer, 2002b). Several measures of adult attachment styles have over the years been developed. However, as argued by Shaver and Mikulincer (2002b), the success of measurement is dependent on the level of access of the working models and the specific working models constructed during such measurement. Moreover, attachment security, another major construct of this theory, is closely associated with factors which might help understand maternal experiences of childbirth such as 1) strategies they employ in coping with threats and managing negative emotions; 2) conflict management in close relationships; and 3) women’s self-perceptions and impressions of others (Shaver and Mikulincer, 2002b). In the following section, I highlight the two broad pathways to understanding attachment in adults.

### 2.5.1 Approaches used in studying adult attachment relationships

Adult attachment though similar in many ways to attachment in childhood has some distinctions. For instance, Berman and Sperling (1994) defined adult attachment as ‘a stable tendency of an individual to make substantial efforts to seek and maintain proximity and contact with one or a few specific individuals who provide the subjective potential for physical and/or psychological safety and security’ (Berman and Sperling, pp.8). The current view of attachment to multiple attachment figures embedded in the definition of adult attachment and in current research on attachment in childhood contradicts Bowlby’s original monotropy ideas (Cassidy, 2008). There is growing evidence of attachment relationships with multiple attachment figures throughout the life span including infant-parent, peer relationships in middle childhood and romantic relationships among many others (e.g., Kerns, 2008).

Currently two approaches of understanding attachment across the life span are widely recognised (Berry, Danquey & Wallin, 2013; Shaver and Mikulincer, 2002a). The first approach, the developmental or psychoanalytic approach believes that measures which access people’s mental representations of their early relationships give a window on adult attachment styles (Berry et al., 2013). The social psychology school, the second approach, grew out of the belief that romantic relationships indicate people’s attachment processes (Berman and Sperling, 1994).

The social psychology school of thought came in place due to perceived weaknesses observed in earlier adult attachment measures, based on the developmental approach which tried to map adult attachment styles onto the attachment styles in children. Advocates of the social psychology approach took issue with the forced recall required of early attachment relationships on adults responding to early measures of adult attachment styles based on the developmental model (Feeney et al, 1994). The developmental model is also critiqued for relying on an underlying assumption of exclusive mutuality of attachment styles by focusing on the

categorical classification of attachment styles and not taking into consideration the current relationships of adults (Feeney et al., 1994). The social psychology approach often uses self-report measures (Berry et al., 2013) to tap into current relationships of an individual.

Some of the common measures of adult attachment styles based on the developmental approach are Adult Attachment Interview (AAI) and Adult Attachment Questionnaire (AAQ) among many others (e.g., Berry et al, 2013; Ravitz et al, 2010). With the advance of research in adult attachment, new ways of exploring attachment relationships in adults came to the fore (e.g., Feeney, Noller & Hanrahan, 1994) and relied more on self-report measures (Shaver and Minikulincer, 2002b). Among many measures of adult attachment based on the social psychology approach are Attachment Styles Questionnaire (ASQ), Adult Attachment Scale (AAS) and Relationship Scales Questionnaire (RSQ; Ravitz et al, 2010).

Despite the differences in approaches of adult attachment espoused by the two traditions highlighted above, strengths and weakness can be found in measures of adult attachment based on either approach (Shaver and Minikulincer, 2002b). None of the approaches can be argued to be superior than the other as reflected in research based on both traditions (Shaver and Minikulincer, 2002b). The choice of attachment measures arising from either school of thought, regardless of age group where it is employed, should therefore reflect the purpose for which it is sought to be employed and the apparent strength over alternative measures.

## 2.6 Early mother-infant interactions and attachment theory

In this section I examine mother-infant relationships and child outcomes in the context of attachment theory to highlight the theoretical context informing the mother-infant interactions explored in the current study.

### 2.6.1 Precursors of attachment relationships in infancy

It is important to note that although attachment styles discussed in the previous section become clear after the infant's first year (Ainsworth, 1982), maternal behaviours that contribute to the development of attachment styles are present from much earlier (e.g., Ainsworth, 1969; Ainsworth, Blehar, Waters & Wall, 1978; Bowlby, 1982). In the next paragraphs I explore Ainsworth's original insights on maternal sensitivity (Ainsworth, 1969) and recent concepts on precursors of attachment behaviour and security in early childhood.

Ainsworth (1969) identified four variables related to parental sensitivity that are responsible for the development of secure base behaviour during infancy. These include 1) Maternal sensitivity –ability to detect the infant's signals, interpret, and appropriately and promptly respond to them. 2) Cooperation versus interference – the mother's level of initiating activity with the baby or interrupting the baby's ongoing activity. 3) Physical and psychological availability vs ignoring and neglecting –the level of the mother's accessibility to and responsiveness to the baby and 4) Acceptance vs rejection of the baby –is the balance between positive and negative feelings of the mother about the baby.

The variables above help in measuring behaviours reflecting the construct of maternal sensitivity. An optimally sensitive mother is described as,

“...able to see things from her baby's point of view. She is alert to perceive her baby's signals, interprets them accurately, and responds appropriately and promptly, unless no response is the most appropriate under the circumstances. Furthermore, she makes her responses temporally contingent upon the baby's signals.” (Ainsworth et al., 1978, pg. 142).

Maternal sensitivity is in response to the child's signalling –a child's behavioural component which fosters the attachment system (Ainsworth et al., 1978). The signalling behaviours in early

infancy include crying, calling or smiling and non-crying vocalisations serving the purpose of attracting the caregiver to approach the child and/or remain in proximity if already in contact (Ainsworth, Blehar, Waters & Wall, 1978). Other behaviours used by the infant to actively seek or maintain closer contact include rooting, sucking, grasping, and postural adjustment when held (Ainsworth et al., 1978).

Bowlby's (1982) assertion that maternal care is a universal determinant of the child's attachment security despite the cultural variations in child care has been empirically supported by studies across the world using several measures of maternal behaviours (e.g., Atkinson et al, 2005; Biringen et al, 2014; Peterson, Drotar, Olness, Guay, & Kiziri-Mayengo, 2001). Studies continue to show that maternal sensitivity and the related positive variables correlate with secure attachment, while maternal insensitivity and the corresponding negative maternal behaviours such as rejection, and interference are related to insecure attachment during childhood (Fuentes, Lopes-Dos-Santos, Beeghly, & Tronick, 2009; Pederson, Baily, Tarabulsky, Bento & Moran, 2014). However, as observed in Fuentes et al.'s (2009) study, maternal sensitive behaviours are not the only predictors of attachment security as described further in the following paragraph.

Through relational constructs such as emotional availability, it has further been demonstrated that a child is an active participant in the mother-infant interactions (Biringen, 2000). Child characteristics such as responsiveness to the caregiver, cooperative, difficult behaviour, compulsiveness and passivity, and involvement of the caregiver have been argued to influence the mother –infant interactions (e.g., Biringen, 2000; Crittenden, 1981). As argued by Biringen et al. (2014), by including the child's contribution to the interaction, the assessment of attachment framework is broadened especially in early infancy before consolidation of attachment styles. Although the baby's contributions to the interaction ought to be recognised, the adult caregiver (mother) plays a significant role in shaping the relationship. Moreover, the negative behaviours displayed by the infant represent features of the relationship and tend to diminish when the mother responds with sensitivity (Pederson et al, 2014). This adds more

relevance to the continued emphasis on maternal behaviour and the relationship constructed with her baby. Contemporary emphasis is that the quality of care and maternal behaviours which enhance maternal sensitivity depend on maternal emotional availability and responsiveness to the needs of the infant (Kobak and Madsen, 2008). Several researchers have thus adapted and expanded on Ainsworth's four features of maternal care listed earlier to elaborate on the role of the primary caregiver and the child in the development of early attachment relationships (e.g., Biringen, 2008). A number of maternal factors might however influence maternal behaviours and thus impact on the quality of mother-infant interactions.

### 2.6.2 Maternal childbirth experiences and postnatal mental health

Maternal sensitivity, characterised by being attuned to the needs of the baby and responding appropriately, and in a timely manner, requires the psychological well-being of the mother (Belsky and Fearon, 2008). Maternal postnatal mental health is linked to the quality of mother-infant interactions (Edhborg, Nasreen, & Kabir, 2011). Recent studies from high income western countries have documented the impact of childbirth experiences on postnatal maternal mental health (e.g., Ford and Ayres, 2011). Depression, anxiety and posttraumatic stress disorder (PTSD) are the most documented psychological problems associated with childbirth (e.g., Jones, Slade, Pascalis & Herbert, 2013; Seng et al., 2013; Weisman et al., 2010).

There has been tremendous interest in the last two decades regarding the impact of childbirth on maternal PTS symptoms and PTSD in the months and years following delivery (Ayers et al, 2008; McKenzie-McHarg et al., 2015). The majority of research on this subject has however been conducted in high income western countries. Due to increasing evidence of PTSD following childbirth (PTSD FC), its impact on mothers and infants is one of the key areas of interest recently identified by European clinicians and researchers (McKenzie-McHarg et al, 2015). It is also important that studies on the impact of PTSD FC on mothers and infants focus on populations in low income countries such as Uganda, where high risks of maternal mortality

and morbidity continue to be of great concern and present serious challenges to the quality of life of thousands of women and their babies. Posttraumatic stress disorder has been shown to have negative effects on emotional availability of both mothers and their infants (van Ee, Kleber, & Mooren, 2012) and if no interventions are carried out early, serious negative outcomes might result for the child.

### 2.6.3 Mother-infant relationships and child outcomes

Following in the developmental steps of precursors to attachment relationships highlighted above, early mother-infant relationships are antecedents of attachment styles later in infancy and throughout an individual's life span. Maternal sensitivity plays a big role in shaping the child's internal working model (IWM) responsible for the attachment behavioural system (Berlin, Cassidy & Appleyard, 2008). Berlin et al. (2008) note that sensitive caregiving in infancy promotes an internal working model that the mother can be trusted to take care of the child's needs and leads to secure attachment. On the other hand, insensitivity in caregiving leads to working models of the mother as unavailable and untrustworthy thus resulting in insecure attachment (Berlin et al., 2008). Moreover, maternal sensitivity shapes the child's internal working model which guides the development of attachment behavioural system that is employed in interpersonal relationships throughout one's life (Bretherton and Munholland, 2008).

Early mother-infant relationships, the focus of the current study can also be predictive of many child outcomes. Studies have shown that maternal emotional availability during the interaction is predictive of attachment security, emotion regulation and school readiness (Saunders, Kraus, Barone, & Biringen, 2015). Children who have secure attachment relationships with their mothers have less clinical problems in middle childhood (Kerns, 2008). Children with a history of secure attachment in early infancy as observed by Thompson (2008) have been found to have positive outcomes including: 1) More functional close relationships with parents and peers 2)

Develop desirable personalities in childhood and adolescence 3) Good emotional regulation 4) More positive self-concept and 5) Good problem solving skills. In contrast, the presence of insecure attachment (and its precursor, maternal insensitivity) has links with mental health problems in childhood including externalising behaviours. For instance, Deklyen and Greenberg (2008) noted that childhood hostile and aggressive behaviours are associated with the mother's unresponsive and intrusive behaviours while anxiety and vigilance have links with maternal inconsistent and over protective behaviours. It is therefore important that factors which might comprise maternal behaviours are examined with the aim of enhancing optimal mother-infant interactions.

## 2.7 Conclusion

In this chapter, I have presented an overview of maternal health globally and in sub-Saharan Africa with particular attention to Uganda. It is clear that that despite concerted local and international efforts to improve maternal health, maternal mortality and associated risks of morbidity present serious challenges to Ugandan women especially in tertiary hospitals. There is a lack of evidence on interventions focusing on the quality of life of thousands of mothers who survive various forms of maternal morbidity each year. Without a clear understanding of the women's perceptions of their experiences of childbirth, gaps remain which might frustrate global and local efforts aimed at improving maternal health. The impact of maternal morbidity might have consequences for the mother and her baby. A review of the literature is thus necessary to examine childbirth experiences, related postnatal mental health and the evidence for their impact on early mother-infant attachment relationships.

### 3 CHAPTER THREE: LITERATURE REVIEW

#### 3.1 Introduction

In this chapter, the aim is to examine literature on the association between mother's experiences during pregnancy, labour, and delivery and mother-infant interactions. Exploring what is already known about the topic was intended to help position the current study so as to prevent duplication of existing knowledge, and address existing gaps and discrepancies, especially prior to undertaking research in a previously un-researched developing country. I conducted a systematic narrative synthesis of the literature. I therefore present the specific methods of the review process followed by a narrative synthesis and a discussion of how I used the literature to develop the research aims, objectives and methods of the current study.

Bethel and Bernard (2010) define research synthesis as a process by which two or more research studies are assessed with the aim of summarising the evidence related to a particular question. For a literature review and synthesis to be reliable, it should meet specific criteria including being systematic, comprehensive, transparent, and critical (Bethel & Bernard, 2010). Several models and methods have been advanced to guide the process of synthesising diverse evidence and/or answering specific questions (e.g., Bethel & Bernard, 2010; Harden & Thomas, 2005; Mays, Pope, & Popay, 2005).

Narrative synthesis is defined as a process by which a narrative approach is used to synthesise evidence extracted from multiple studies (Mays et al., 2005). This method was employed for the current literature review due to two major reasons. Firstly, the broad nature of the review question (see below) required integration of literature from studies from diverse methodological viewpoints. Secondly, narrative synthesis provides a comprehensive and yet simple way of synthesising diverse literature and using text as a means of presenting the results (Popay et al., 2006). Narrative synthesis has recently been used in a number of similar systematic reviews

(e.g., Mindlin, Jenkins, & Law, 2009; Switaj et al., 2012). As was the case with these narrative syntheses, I adopted Popay et al.'s (2006) guidelines.

The goal sought in this literature review was to ensure developmental knowledge support due to absence of sufficient literature on the subject from contexts similar to where the current study was conducted. To meet this goal, according to Mays et al. (2005), required use of a wide range of evidence. A broader synthesis involving quantitative and qualitative studies on childbirth experiences and mother-infant interactions rather than more focused approaches of systematic synthesis was therefore more appropriate for the current topic (Mays et al., 2005).

Popay et al.'s (2006) guide lists four key elements of the review process: 1) theory development; 2) developing a preliminary synthesis of findings of the included studies; 3) exploring the relationships in the data, and 4) assessing the robustness of the synthesis. Because the purpose of this literature review was not to determine the effect of an intervention or the factors on the implementation of an intervention but to bring together diverse literature, I did not focus on theory developed but adopted the rest of Popay et al.'s (2006) elements in this literature review. Leaving out the aspect of theory development could therefore not have compromised the systematic processes I undertook in the literature review. Additionally, I employed the preliminary stages of literature search and inclusion/exclusion procedures common to most systematic review methods as described later in this chapter.

### 3.2 Review questions

1. What is the association between the mother's experiences during pregnancy, labour, and delivery and the mother –infant interactions?
2. What processes and/or factors influence the association between the mother's experiences of pregnancy, labour, and delivery and her interaction with the baby?

### 3.3 Review method

Although Popay et al.'s (2006) guidelines provide specific steps in narrative synthesis as outlined above, preliminary review stages such as developing inclusion criteria, conducting the literature search, and carrying out paper quality appraisal are similar to steps taken in other known systematic review approaches. It is important to emphasise here that synthesis is a specific step in the literature review process when evidence gleaned from different individual sources is brought together (Mays et al., 2005). This literature review chapter therefore enlists approaches common to systematic literature review (e.g., Finlayson and Downe, 2013; Switaj et al., 2012) starting with the search strategy while the integration of evidence from all included papers adopted the narrative synthesis approach described earlier.

#### 3.3.1 Search strategy

I searched five electronic databases (PubMed, PsycINFO, CINAHL, Academic Articles Complete and British Nursing Index). The searched data bases were deemed appropriate due to the cross-cutting nature of the subject of investigation covering social sciences, health and medicine, psychology, obstetrics and infant health. The search was done in October 2016 using filters: Humans [Mesh], English [Language] and Publication date from 2000/01/01 to 2016/12/31. First, using PsycINFO Thesaurus, I searched relevant descriptive terms for each of the items of interest including birth, experience, mother, infant, and interaction. For example, for Birth, these were DE "Birth" OR DE "Caesarean Birth" OR DE "Natural Childbirth" OR DE "Premature Birth" OR DE "Birth Injuries" OR DE "Birth Trauma" OR DE "Labor (Childbirth)" OR DE "Caesarean Birth" OR DE "Intrapartum Period" OR DE "Obstetrical Complications" OR DE "Perinatal Period" OR DE "Pregnancy". Secondly, I customised search terms to each data base by searching through title and abstract entering the search terms singularly using OR and in combinations using AND. The general final search terms are presented in Table 1.

Table 1: Search terms and variations

Key words	Search terms
Birth	parturition OR childbirth OR birth OR labor OR labour OR delivery OR “Natural Childbirth” OR “Birth Trauma” OR “Intrapartum Period” OR “Obstetrical Complications” OR “Caesarean Birth” OR “Birth Injuries” OR pregnan* OR perinatal
Experience	"lived experience" OR qualitative OR perception* OR attitude* OR opinion* OR view* OR reflecti* OR story OR stories OR narrative*
Mother	mother* OR maternal
Infant	infant* OR baby OR babies OR newborn* OR neonat*)
Interaction	interaction* OR bonding OR bonds OR bond OR relationship* OR attachment OR sensitivity OR "emotional availability"

### 3.3.2 Inclusion and exclusion criteria

The reasons for inclusion/exclusion of papers in this review were carefully considered to answer the review questions above and for specific pragmatic reasons as shown in Table 2.

Table 2: Inclusion and exclusion criteria and reasons

Inclusion criteria	Exclusion criteria	Reason for inclusion/exclusion
Papers reporting quantitative, qualitative or mixed method study	Non-empirical papers, books, book chapters, reports etc.	To ensure high quality evidence from a variety of paradigms
Papers published in English	Papers published only in a language other than English	Lack of resources required for translation
Papers published between 1 <sup>st</sup> January 2000 and present date (April 2016)	Papers published before 1 <sup>st</sup> January 2000	Preliminary search had shown that exploratory studies on the subject began in early 2000s (e.g. Ayers et al., 2006).
Papers reporting on exclusively human participants	Papers reporting on non-human participants such as monkeys	Focus of the study is on human beings only
Papers reporting on maternal experiences during pregnancy, labour, and delivery and related prenatal and postnatal factors and their influences on mother-infant relationships	Mother-infant relationships as a predictor variable	Consider only perinatal and delivery factors and their association with mother – infant relationships
Participants included mothers and their infants aged no more than 23 months	Participants were exclusively not mothers e.g. health workers, teachers, caregivers etc. and children exclusively older than 23 months	Focus of the study is on infants below two years and early attachment relationships
Participants include non-clinical samples of mothers and infants	Papers reporting findings on exclusively pre-existing clinical samples of participants	Control the effects of pre-existing clinical conditions on mother –infant relationships

### 3.3.3 Identification of papers

The search of the data bases obtained a total of 2858 hits. A hand search from references and papers previously known to the researcher yielded 13 further papers and were also considered for inclusion in the literature review. Electronic copies of all retrieved papers from the above search were imported into EndNote X7 software and duplicates removed. The titles and abstracts of the remaining papers were read by the researcher who decided whether they met the inclusion criteria. However, the researcher sought the opinion of his supervisors on a few papers he doubted met the specified inclusion/exclusion criteria before reaching a final decision on inclusion of such papers. All papers in this review report some aspect of childbirth

experiences and mother –infant relationship assessed through various methods. The Preferred Reporting Items and Meta-Analyses (PRISMA; Moher, Liberati, Tetzlaff & Altman, 2009) flow chart (Figure 1) is adopted to represent the search and inclusion process described above.

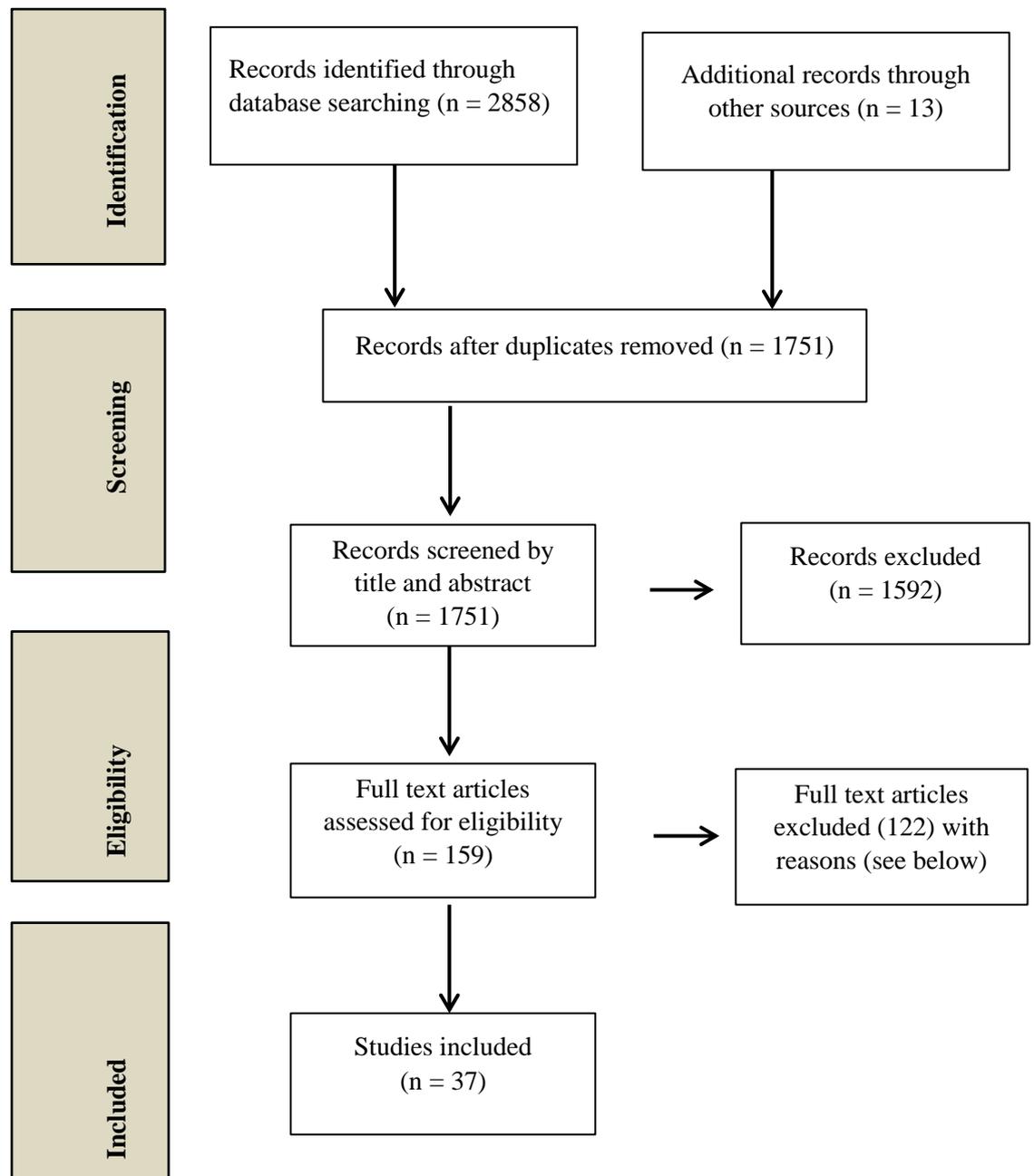


Figure 1: Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) flow chart

I excluded one hundred twenty-two full text papers from the review with reasons shown in Table 3.

Table 3: Reasons for exclusion of papers

Reason	Number of papers excluded
Reports childbirth experiences but not mother-infant relationships	39
Reports mother-infant relationships excluding childbirth experiences	18
Antenatal and/or postnatal problems including women's perceptions of those problems but excluding childbirth experiences and/or mother-infant relationships	22
Antenatal care and its effects	10
Sample includes only clinical populations including prematurity and/or intervention studies	17
Only foetal/prenatal attachment reported	9
Reports on feeding only	4
Validation studies	2
Meta-ethnography of birth trauma	1
<b>Total</b>	<b>122</b>

#### 3.3.4 Quality appraisal of papers for review

All the 37 papers which met the inclusion criteria were then subjected to quality appraisal following Hawker et al.'s (2002) checklist. The checklist rates the following nine aspects of the paper: (1) abstract and title (2) background and aims (3) method and data (4) sampling (5) data analysis (6) ethics and bias (7) results (8) transferability or generalisability, and (9) implications and usefulness on a four-point scale (1-Very poor; 2-Poor; 3-Fair; and 4-Good). The nine sub scores are then summed up to get a total score reflecting the quality of the paper. The higher the total score the better the quality of the paper. Hawker et al.'s (2002) checklist takes into consideration several key aspects of the paper thus making the process of appraising the quality of papers not only systematic but also transparent. However, Hawker et al.'s checklist might be criticised for rating all the nine aspects of the papers equally yet some factors could be more important to the final quality score assigned to the paper. For example, the method and data section should weigh higher than the abstract and title of the paper. The key to enable interpretation of elements and my rating of the papers is shown below Table 4.

Table 4: Quality appraisal of papers

Author (year)	A	b	c	d	e	f	g	h	i	Score	Comment
Ayers, Eagle, and Waring (2006)	4	4	3	2	4	3	4	3	4	31	Sampling not clear, retrospective diagnosis, small sample with a very wide time lapse after birth
Ayers, Wright, & Wells. (2007)	4	4	4	4	4	1	3	4	3	31	Brief mention of ethical issues. Implications on policy and practice missing
Barnes, Ram, and Leach (2007)	4	4	4	4	4	1	4	4	4	33	No mention of ethical issues
Bernier, Jarry-Boileau, Tarabulsy, and Miljokvitch (2010)	4	4	4	3	4	1	4	3	3	30	No mention of ethical issues, Policy and practice implications missing
Bryanton, Gagnon, Hatem, and Johnston (2009)	4	3	4	4	4	4	4	4	4	35	
Campbell-Jackson, Bezance, and Horsch (2014)	4	4	4	2	4	3	4	2	4	31	
Carlander, Edman, Christensson, Andolf, and Wiklund (2010)	4	4	3	3	4	3	4	4	2	31	Implications of the study missing
Chrzan-Dętkoś and Łockiewicz (2015)	3	4	3	2	2	2	3	3	4	26	Brief mention of ethical issues
Davies, Slade, Wright, and Stewart (2008)	4	4	4	4	4	3	4	3	4	34	
Dickstein, Seifer, and Albus (2009)	2	3	4	4	3	1	4	3	4	28	No mention of ethical issues
Durik, Hyde, and Clark (2000)	4	4	4	4	4	1	4	4	4	33	No mention of ethical issues
Edhborg, Nasreen, and Kabir (2011)	4	4	4	4	4	4	4	4	4	36	
Elmir, Schmied, Wilkes, and Jackson (2012)	4	4	3	3	4	2	3	2	4	29	Brief mention of ethical issues
Ferber and Feldman (2005)	4	4	4	4	4	3	4	3	4	34	
Figueiredo, Costa, Pacheco, and Pais (2009)	4	4	3	4	3	4	4	4	4	34	

Gharaibeh and Hamlan (2012)	4	4	4	3	3	4	3	3	4	32	
Herishanu-Gilutz, Shahar, Schattner, Kofman, and Holcberg (2009)	3	4	4	3	4	4	4	3	4	33	
Hunker, Patrick, Albrecht, and Wisner (2009)	4	4	4	4	3	4	3	3	4	33	
Ionio and Di Blasioa (2014)	4	4	3	2	2	2	3	2	4	26	Brief mention of ethical issues
Jones, Slade, Pascalis, and Herbert (2013)	4	4	3	2	2	2	4	2	3	26	Brief mention of ethical issues; implication for practice missing
Kinsey, Baptiste-Roberts, Zhu, and Kjerulff (2014)	4	4	3	3	4	4	4	4	4	34	
Kokubu, Okano, and Sugiyama (2012)	3	3	4	2	4	1	4	2	2	25	No mention of ethical issues
McDonald, Slade, Spiby, and Iles (2011)	4	4	4	2	3	3	4	2	4	30	
Nystedt, Hogberg, and Lundman (2008)	4	4	4	4	3	4	3	3	4	33	
Ohoka et al. (2014)	4	4	3	2	3	4	4	2	4	30	
Page, Combs-Orme, and Cain (2007)	3	3	3	3	2	2	3	3	4	26	
Parfitt and Ayers (2014)	4	4	4	4	2	4	4	4	4	34	
Parfitt, Pike, and Ayers (2013)	4	4	4	4	4	4	4	3	4	35	
Parfitt and Ayers (2009)	4	4	3	2	2	3	4	3	4	29	Internet based with no clear controls
Pearce and Ayers (2005)	4	4	4	2	2	2	4	2	3	27	Implications for practice missing
Reid (2011)	3	3	3	3	3	2	3	3	3	26	Suggestion for further research missing
Reisz, Jacobvitz, and George (2015)	3	4	3	3	4	2	3	3	4	29	

Seng et al. (2013)	4	4	4	3	4	4	4	4	4	35	
van Reenen and van Rensburg (2013)	3	3	2	2	2	4	3	2	4	25	
Weisman et al. (2010)	4	4	3	3	4	4	4	3	4	33	
Wilson, Rholes, Simpson, and Tran (2007)	3	3	3	2	2	1	3	3	2	22	No mention of ethical issues
Ya-Ling, Chich-Hsiu, Stocker, Te-Fu, and Yi (2015)	4	4	4	3	3	4	3	3	4	32	

**Key:** *a* = abstract and title; *b* = background and aims; *c* = method and data; *d* = sampling; *e* = data analysis; *f* = ethics and bias; *g* = results; *h* = transferability or generalisability; and *i* = implications and usefulness. Scores on a four-point scale (1-Very poor; 2-Poor; 3-Fair; and 4-Good).

As shown in Table 4, each of the 37 papers scored above half the possible total score of 36. I therefore deemed all papers to be of sufficient quality to be included in the review. The total scores ranged from 22 to 36. In the following section, I discuss the steps undertaken in data extraction and analysis. Popay et al.'s (2006) guidelines on systematic narrative synthesis earlier mentioned is followed in this process.

### 3.4 Data extraction and analysis

Before extraction of data, I read and reread each of the included papers to familiarise with study methodology and findings. I then extracted data from each study including study aim, the design, sample size and any relevant characteristics of the populations from which the sample was drawn, key variables and the measures in assessment, and the key findings reported as shown in Table 5. I focused on both statistically significant and non-significant quantitative and qualitative findings reported to have or not have associations with mother-infant interactions, the dependent variable. I then grouped the extracted quantitative and qualitative data into thematically-related categories and discussed the findings. A similar approach was employed in recent narrative reviews (Snilstveit, Oliver & Vojtkova, 2012; Switaj et al., 2012). This narrative synthesis approach using textual description and discussion of findings rather than statistical allowed me to combine diverse findings in a theoretically pragmatic way. By focusing on the context and characteristics of the studies in Table 5, I could achieve a more comprehensive understanding of the results (Aveyard, Payne, & Preston, 2016) as described later in this chapter.

Table 5: Summary of included papers

Author (year), Country	Aims of the study	Sample (N)	Methodology	Methods and Measures	Key Results
Ayers et al. (2006), UK	To explore the long-term effects of childbirth-related PTSD on women, their relationship with their partner and their relationship with their child	Women aged 22-37 years who reported clinically significant PTSD after birth ranging from 7 months to 18 years after birth (6)	Cross-sectional Qualitative	Semi-structured interviews and self-report questionnaire completed at woman's convenient place and time. PTSD Diagnostic Scale (PDS) measured childbirth related PTSD and interview on effect of PTSD	Effects of postnatal PTSD on women included physical effects such as long term exhaustion and pain; changes in mood and behaviour (long term depression and anger); fear of childbirth and sexual dysfunction; impaired social interaction and trust; perception of self; feeling detached. Effect on the mother-child bond were differences in attachment characterised by either avoidant or over protectiveness; initial rejection towards the baby among most of the women with feelings of rejection towards babies persisting among some women
Ayers, Wright, & Wells. (2007), UK	To examine the proportion of men with PTSD after birth, the impact of postnatal PTSD on parent-baby bond, and the birth factors associated with PTSD	Couples, age range 18 -52 (M=32.4) identified from maternity ward registers at a London hospital (64) and their babies born 6-12 weeks before contact	Retrospective Cross-sectional survey-study	Questionnaires sent to the couples by post. Measures included IES for traumatic stress symptoms; Experience of birth scale for experience of birth; Bethlehem Mother –Infant interaction scale for parent-infant attachment; Dyadic Adjustment Scale for couple's relationship	5% of sample scored above cut off for PTSD and men and women did not differ. Women reported a poorer parent-baby bond, fewer positive emotions during birth, more support in birth, and more self-blame if things did not go well during birth. PTSD symptoms not associated with parent-infant bond but associated with birth experience especially among women. PTSD symptoms were associated with something going wrong during birth, delivery problems, and emotions during birth (negative emotions and lack of positive emotions)
Barnes et al.(2007), UK	To investigate maternal, family and child	Part of Families, Children and	Retrospective Cross-	Interviews: mothers were asked to speak about their babies used to assess negative emotion	A significant effect was found of having a C/S related to critical remarks in total, more about maternal health, and about the impact of the infant on

	characteristics associated with maternal expression of hostility, criticism and other negative emotions in relation to their experience of birth and their infant their infants aged 3 months	Child Care study with mothers of mean age 32.1, drawn from antenatal clinics (179)	sectional design	expression; demographic characteristics; birth, feeding and child illness and child care; EPDS; The Dyadic Adjustment Scale assessed marital satisfaction; The Parental Modernity Scale assessed attitudes toward child rearing; short form of BACMEC measured benefits and costs of maternal employment for the children; Infant Characteristics Questionnaire measured infant temperament	the mother's life. child health; mothers of babies who spent time in ICU were found to make significantly more negative comments in total
Bernier et al. (2010), Canada	To investigate the relationship between pregnancy and childbirth factors and subsequent quality of maternal interactive behaviour	Mother-infant pairs recruited from birth lists (116). Mothers aged 19-44years and infant 6-8 months	Longitudinal study	Questionnaires completed when child was 6-8 months (T1) and at 12 months (T2). Pregnancy, delivery and neonatal factors obtained through a questionnaire at T1. At T2 Maternal Behavioural Q-Sort (MBQS) assessed quality of maternal behaviour during interaction, Psychiatric Symptom Index (PSI) measured current psychological distress	Long hospital stay was found to be associated with later maternal psychological distress. Maternal education, paternal education, and family income were all found to be related to maternal sensitivity. Maternal health problems during pregnancy and long stay in the hospital found to be negatively related to maternal sensitivity for multiparous women only. Natural delivery had a significant small positive correlation with maternal sensitivity among primiparous women. Infant birth weight and gestation period were positively related to maternal sensitivity.
Bryanton et al. (2009), Canada	To examine whether women's perceptions of childbirth experience, as well as selected demographic, obstetrical and	Women aged 16-43 who gave birth during 2004-2005 (175)	Prospective cohort study	The Nursing Child Assessment Satellite Training (NCAST) Feeding Scale measured attachment and responsive care; Postpartum Parenting Questionnaire designed for the study assessed breastfeeding and protection from harm; partner support, partner relationship,	Perception of childbirth was found not to predict parenting behaviours but women who reported a positive birth experiences were 3 times more likely to score higher than those with negative birth experiences on protection from harm. Higher maternal education predicted a higher feeding score (attachment and responsive care)

	psychological variables predicted parenting behaviours at 1 month postpartum			family support; mental health, physical health, and infant contentment and health. The Questionnaire Measuring Attitudes about Labour and Delivery measured perception of childbirth; General Self-efficacy sub-scale of the Self-Efficacy Scale measured general self-efficacy	
Campbell-Jackson et al. (2014), UK	To explore the mothers' and fathers' experiences of becoming a parent to a child born after a recent still birth, covering the period of the second pregnancy and up to 2 years after the birth of the second baby	Couples, mean age 31.9, who had previously had a still birth and subsequently had another child under the age of 2 years (7)	Cross-sectional qualitative study	Individual semi-structured interviews with each parent focusing on experience of pregnancy, becoming a parent and relationship with their child.	Themes included uncertainty during pregnancy including expecting the worst; coping strategies; relationship with the child such as difficulties in bonding following birth of the next child; continuing grief process characterised by attending to grief, joy and grief in parenting as the second child was not a replacement of the first child; Identity of a parent including self-blame for the loss of previous child and being different from other parents due to loss and subsequent birth
Carlander et al. (2010), Sweden	To investigate the contact between first-time mothers and their newborn child two days, three months and nine months after birth and study	Healthy first-time mothers aged 17-43, recruited during pregnancy as part of a large prospective	Prospective cohort study	The Alliance Scale reflecting parent's attitude and feelings toward their child completed by the mother at 2 days, 3 months and nine months postpartum.	Contact with the baby found to be positive at all times and no significant differences in mother -baby contact between the delivery groups of normal delivery, elective C/S and elective C/S due to obstetric indication.

	differences due to mode of delivery	cohort study (551)			
Chrzan-Dętkoś and Łockiewicz (2015), Poland	To evaluate the relationship between a woman's self-reported romantic attachment style, experience of pregnancy, antenatal and postnatal attachment style with the baby	Expectant mothers aged 20-38, who were part of a longitudinal study on the determinants of postnatal mother-baby bond (64)	Longitudinal study	During pregnancy, Maternal Foetal Attachment Scale (MFAS) measured prenatal attachment; Attachment Styles Questionnaire measured romantic attachment styles; After delivery mothers completed EPDS, PBQ and questions about social and psychological course of pregnancy, parturition and puerperium via internet	Significant correlations found between: secure attachment and role taking; anxious-ambivalent attachment and interaction with foetus; anxious-ambivalent and avoidant attachment styles AND attributing characteristics to the foetus.  Depression predicted impaired bonding and anxiety about care. Depressive mothers had higher scores in the anxious-ambivalent attachment than non-depressive mothers  Romantic attachment did not predict mother-infant bond
Davies et al. (2008), UK	To examine the relationship between self-reported posttraumatic stress symptoms and depressive symptomatology at 6 weeks' postpartum and mothers' perceptions of their infants, their behavioural characteristics, mother-to-infant attachment, and the quality of	Women over 16 years of age inpatients at Sheffield Maternity hospital (211)	Longitudinal study	Questionnaires completed 72 hours after delivery and at 6 weeks postpartum. measures used are SCID-PTSD for prior PTSD at 72 hours after delivery; PTSDQ and IES for childbirth related PTSD symptoms; EPDS for postnatal depression; Mother's Object Relations Scale-Short Form (MORS-SF) assessed mother's working model of attachment; Infant Characteristics Questionnaire (0-23months version) measured infant's behaviour; Maternal Postnatal Attachment Scale (MPAS) measured frequency and intensity of maternal responses to the baby	The symptomatic group had a higher proportion of instrumental deliveries and fewer vaginal deliveries. A significant relationship between postpartum PTSD and depression symptomatology was reported. Mothers with postnatal PTSD symptomatology were reported to have viewed their infants as less warm, more invasive and more difficult in temperament, and reported a less optimal attachment to their infants characterised by hostility to their infants, lack of pleasure and interacting with infants. Full PTSD criteria was associated with mothers' reduced desire for proximity to the infants.

	dyadic interaction				
Dickstein et al. (2009), USA	To examine the extent to which family-unit and marital factors may serve as a link between maternal adult attachment patterns (working models with respect to family of origin and current marriage) and infant -mother attachment	Families participating in the Family Relations Study (FRS) recruited through prenatal childbirth classes and followed up from third trimester of pregnancy through 14 months after delivery (110 mothers)	Longitudinal study	Interviews, questionnaires conducted during pregnancy, at 4 months and 14 months. A laboratory assessment at 14 months. Measures were AAI for adult attachment; MAI for security of marital attachment; Birth Narrative Interview for birth experience; Global Assessment of Relationship Functioning measured system functioning; Dyadic Adjustment Scale (DAS) for marital satisfaction; Mealtime Interaction Coding System (MICS) measured family functioning; Strange Situation procedure (89 infants)	A 58% non-significant association between maternal AAI security and infant-mother security was found. Likewise, a 55% non-significant agreement between MAI and infant -mother attachment was reported. AAI unresolved status reported to have a small significant negative association with both security of infant-mother attachment and child socio-emotional competence. Maternal working models predicted couple functioning, couple functioning predicted family functioning, and family functioning predicted infant-mother attachment. Combined adult/marital attachment was found to have non-significant association with infant-mother attachment at 14months.
Durik et al. (2000), USA	To compare mother-infant dyads grouped according to mode of delivery on psychosocial outcomes at 4 and 12 months postpartum	Women mean age 28.6 recruited during pregnancy from clinics as part of a larger project (168)	Longitudinal study	Interviews during pregnancy, 1, 4 and 12 months including video recordings at 4 and 12 months. PCERA used to code videos; hospital records after delivery; appraisal of the birth experience rated on a 10 item scale; the Eysenck Personality Inventory Form A measured neuroticism; The Center for Epidemiologic Studies Depression Scale measured depression; self-esteem	A significant main effect of delivery type showed women who delivered by unplanned C/S appraised delivery experience less favourably; At four months; women who delivered by unplanned C/S were found to have less desirable outcomes in both maternal positive affect and behaviour and negative affect and behaviour but none of the infant variables varied by birth type. The effect of birth type on maternal negative affect was found to be mediated by maternal appraisal of the delivery

				was measured by Rosenberg's self-esteem scale	
Edhborg et al. (2011), Bangladesh	To investigate the impact of depressive and anxiety symptoms on the maternal emotional bonding to the infant 2-3 months postpartum	Women mean age 24.6 years, in their third trimester from rural Bangladesh studied between July 2007 and August 2008 (672)	Longitudinal cohort study	Structured questionnaires administered at three time points: third trimester of pregnancy, at childbirth and 2-3months after birth. EPDS for depression; STAI-S for anxiety; Postpartum bonding questionnaire (PBQ) screened mother-infant bonding; the prenatal attachment inventory (PAI); Parental bonding instrument (PBI) measured mother's bonding to her own caregiver	Postpartum depressive and anxiety symptoms at 2-3months postpartum related to vulnerable SES, having more children, family factors and low birth weight. Women with depressive symptoms showed higher impaired bonding to their infants compared to mentally well women and those with anxiety; women with anxiety symptoms showed better bonding with infants than other groups. A small but positive significant correlation was found between mothers' bonding to infants at 2-3 months and mothers' bonding to foetus during pregnancy. Sex of the baby (girl) also had a negative impact on the mother's emotional bonding to the child at 2-3 months
Elmir et al. (2012), Australia	To describe the experiences of women who have had an emergency hysterectomy following a severe postpartum haemorrhage and the impact on their early mothering experiences	Australian women aged 26 -57 years with a history of hysterectomy (21)	Cross-sectional qualitative naturalistic inquiry	Face-to-face, telephone, e-mail or internet semi-structured interviews. Thematic analysis.	3 broad themes on mothering experience were reported: 1). Initial separation: lost bonding time resulting in distress 2). Feelings of failure due to inability to breastfeed and establish bond with the baby 3). Relinquishing of care of the infant due to restricted abilities to take care of the baby. General reduced opportunities for most of the women to form relationships with their babies reported
Ferber and Feldman (2005), Israel	To examine whether the experience of pain during labour has a long-term effect	Middle class married Israeli women 21 - 42 years who had unaided	Longitudinal study	Questionnaires completed two days after birth in the hospital; and at 6 weeks after birth a set of questionnaires completed and mother-infant free play session video recorded at home. Pain	Pain catastrophizing was associated with older age, low education, decreased use of analgesia, higher pain intensity and higher depression; pain catastrophizing predicted dyadic reciprocity of the mother and infant; maternal trait anxiety predicted maternal sensitivity; Increase in three components of

	on the development of mother-infant relationship	vaginal delivery (81).		Catastrophizing Scale (PCS); Visual Analog Scale (VAS) for the evaluation of labour pain; STAI; EPDS; Mother infant interaction coded with Coding Interactive Behaviour (CIB) manual	PCS i.e. rumination, magnification and helplessness predicted lower levels of mother-infant reciprocity
Figueiredo et al. (2009), Portugal	To investigate mother to infant involvement after birth	Women aged 15-44years admitted at a maternity hospital recruited within two days after birth (315)	Cross-sectional quantitative study	Interview and questionnaires administered at the hospital within two days after delivery. The Portuguese versions of Bonding scale and EPDS measured the intensity of emotion toward the new born and postnatal depression respectively	Mother's high level of education (grade 9 and above) correlated with positive emotions to the infant, marital and employment status showed significant differences in emotions toward the infant -unmarried and unemployed women showed more unclear emotions and less positive emotions respectively. Primiparous and multiparous mothers did not differ significantly in positive, negative, unclear, and total bonding. No differences reported in mode of delivery and bonding. Being depressed (EPDS above 13), unemployed and single predicted negative emotions toward the infant. Infant gender -male associated with maternal positive emotions, infants being in intensive care was associated with unclear and negative emotions, and having neonatal problems associated with worse maternal bonding. Pain during labour not significantly associated with category of bonding. Previous psychological problems associated with maternal unclear emotions toward infant.
Gharaibeh and Hamlan (2012), Jordan	To identify differences in maternal attachment according to maternal characteristics and to identify factors	Convenience sample of first time Jordanian mother aged 16 to 43 years recruited from four	Cross-sectional correlational study	Self-report questionnaires completed in a private room at MCH centre by walk in mothers. Perceived Maternal/Parental Self-efficacy (PMPS-E) scale; Maternal Attachment Inventory (MAI)	Mothers' perceptions of their marital relationships, and perceptions of their pregnancy and delivery experiences were associated with maternal attachment -perception of husband as very good and perception of pregnancy and childbirth experience as very good were associated with higher maternal attachment scores compared to mothers who perceived poor marital relationships and poor birth experiences. A significant positive correlation was

	influencing maternal attachment of first time Jordanian mothers	maternal and child health centres in one Jordanian city (220)			reported between maternal Self-efficacy and maternal attachment
Herishanu-Gilutz et al. (2009), Israel	To probe the effect of emergency C-section on the subjective experience of first time motherhood	Married women who delivered healthy full-term babies by emergency caesarean section (10)	Cross-sectional qualitative study	In-depth individual interviews with phenomenological analysis	Mothers' experience of detachment from the process of birth; mothers' first encounter with their babies characterised by detachment, estrangement and alienation; time of recovery on the ward as difficult and weary making it hard to respond to the needs of the babies; the above difficulties continue when mothers return home delaying attachment and bonding for most women; anxious feelings and worries about the baby;
Hunker et al. (2009), USA	To examine the relationship of adverse events in labour or delivery and depressive symptoms, functional status and infant care at 2 weeks postpartum	Women with a mean age of 30.5 years who took part in the Antidepressant Use During Pregnancy (ADUP) study included in this secondary data analysis study (123)	Cross-sectional quantitative secondary data analysis study	Data selected from previously administered questionnaires: Peripartum Events Scale (PES) measured stressful events related to delivery; Postpartum Support Questionnaire (PSQ) measured social support; EPDS; Inventory of Functional Status after Childbirth (IFSAC); Infant Care Survey (ICS) measured parents' beliefs about their knowledge of and skills with infant care activities	46 percent of women had adverse unplanned event in labour or delivery such as prolonged first stage of labour (more than 20 hours and more than 14 hours for nulliparous and multiparous respectively) and prolonged second stage of labour (more than 2 hours for nulliparous women and 1.5 hours for multiparous), precipitate delivery (less than 3hours); significant vaginal lacerations and blood loss after third stage of labour. Adverse events in labour or delivery did not predict depression symptoms but depression in pregnancy predicted depression postpartum. Social support was not a significant moderator in the relationship between unplanned adverse birth event, depression, functional status and infant care although it had the strongest explanatory variance in functional status and infant care.
Ionio and Di Blasio	To investigate whether the persistence of	A normative sample of women	Longitudinal study	Questionnaires completed at 7-months pregnancy, two days after delivery, two months postpartum	High numbers of PTSD symptoms after delivery predicted PTSD symptoms 2 months after delivery. Number of maternal PTSD symptoms positively

(2014), Italy	stress symptoms two months after delivery may affect the interactive synchrony in the mother-child dyad	(mean age=32.2 years) with a stable relationship and healthy pregnancy included in four stages of the study from 7 months of pregnancy. 19 of the 58 completed all the four stages of the study)		and a video recorded observation all at an obstetric clinic. MMPI-2 assessed absence of personality disorders; Perinatal Posttraumatic stress disorders questionnaire (PPQ); Still Face Paradigm assessed mother-infant interaction	correlated with child's behaviour (crying, arch position, and disorganised behaviour). Mothers with a higher number of PTSD symptoms found not to look directly at their child
Jones et al. (2013), England	To investigate the potential association between maternal psychological health, bonding and infant interest in the mother face and stranger face	A community sample of mothers, mean age =32.7, recruited from maternity ward and their 3.5 months old infants (54 infants) from moderate to high	Cross-sectional quantitative study	Self-report questionnaires and observation made at university lab. HADS measured anxiety and depression, IES measured stress reaction to childbirth, and mothers' object relations short form (MORS-SF) screened for mother's perception of infant warmth and invasiveness (mother-infant attachment relationship).	Interest in the mother-face was positively associated with mother's postpartum psychological health. Regression analyses showed only a model of anxiety and depression significant in explaining variance in interest of mother face but not stranger face with anxiety as a better contributor; mood symptoms were highest for PTS symptoms and lowest for depression symptoms.

		socioeconomic families			
Kinsey et al. (2014), USA	To examine the effect of miscarriage history on maternal infant bonding after the birth of a healthy infant by longitudinally examining the relationship at 1 month, 6 months, and 12 months postpartum in a sample of women who have given birth to their first baby	Women, mean age = 27.6, planning to deliver their first live-baby in the state of Pennsylvania (2798)	Longitudinal cohort study	Telephone interviews using structured questionnaires at four time points (Third trimester of pregnancy, 1 month, 6months, and 12months). Self-reported history of miscarriage; EPDS; Psychosocial Hassles Scale measured maternal stress; Medical Outcomes Study Social Support Survey measured social support; shortened version of Postpartum Bonding Questionnaire (S-PBQ)	Symptoms of postpartum depression were reported more by women with a history of miscarriage than those without. Miscarriage history was not significantly associated with maternal -infant bonding scores at any of the 3 postpartum points. No significant difference reported in maternal-infant bonding between the two groups of women. A significant relationship was between interview time and maternal -infant bonding scores -lowest scores at 1 month and highest at 6 months postpartum.
Kokubu et al. (2012), Japan	To investigate the relationship between postnatal depression and bonding failure and their risk factors	Women aged 20-38 (M= 29.9) attending antenatal clinic (99)	Longitudinal design	Maternity Blues Questionnaire (MBQ) for dysphoric mood and related symptoms at 5 days; EPDS for postnatal depression at 1 month; Mother-Infant Bonding Questionnaire (MIBQ) for bonding failure at day 5 and 1 month; HADS for dysphoric mood at 33-35 weeks of pregnancy	Negative attitude towards pregnancy predicted bonding failure at 5 days. Own response to pregnancy was significantly correlated with bonding failure at 5 days and 1 month; Anxiety during pregnancy significantly correlated with bonding failure at 1 month but not at 5 days while prenatal depression significantly correlated with bonding failure at both 5 days and 1 month; depression at 1 month correlated with bonding failure at 1 month.

McDonald et al. (2011), UK	To examine the prevalence of childbirth related posttraumatic stress (PTS) symptoms 2 years postpartum and the relationship between such symptoms and both self-reported parenting stress and perceptions of the mother-child relationship	Followed up a sample of women aged 17-40 (M=31.6) and their infants aged 21-27 months from an earlier study on PTS in childbirth (81).	Longitudinal predictive study	Self-report questionnaires completed at 6 weeks, 3 months and posted to the women two years after delivery. PTSDQ; IES; Hospital Anxiety and Depression Scale -Depression (HADS-D) measured symptoms of depression; MORS-SF measured maternal perception of how warm and invasive the child is; Parenting Stress Index-Short Form (PSI-SF) measured parental distress, perceived difficult child, and parent-child dysfunctional interaction	Over 17 percent of women had clinically significant PTS symptoms 2 years postpartum on both IES and PTSDQ. A strong positive correlation between PTSDQ total scores and parental distress and a moderate correlation between PTSDQ total scores and perceptions of difficulties in interactions were reported. IES total scores were found to be moderately correlated with both parental distress and perceptions of difficulties in interactions. There was no association between early PTS symptoms and parental perception of child's warmth and invasion but weak to moderately strong associations between PTS and parenting stress scales were reported. Multiple regressions showed no predictions except for parenting distress.
Nystedt et al. (2008), Sweden	To explore women's experiences of becoming a mother after prolonged labour	First time mothers who had assisted or caesarean delivery following prolonged labour in two hospitals in northern Sweden (10)	Cross-sectional qualitative study	Individual interviews analysed by thematic content analysis	Feelings of fatigue and illness due to inability to participate in giving birth and not taking care of babies soon after birth due to required recovery presented difficulties in forming relationships; ambivalence in becoming or being a mother which also complicated the mothers' relationships with their babies; achieving confidence in being a mother described as a life changing experience although it came as an emotional challenge.
Ohoka et al. (2014), Japan	To clarify the association between bonding disorder and	Women aged 20-44 (M=31.7) recruited randomly at	Longitudinal study	Self-rated questionnaires completed at four points during pregnancy and postpartum: 25 weeks, 36 weeks, 5 days after delivery and 1 month postpartum.	Weak to moderate Pearson correlations were observed between pre and postnatal EPDS scores and the MIB at early pregnancy, late pregnancy and at 1 month postpartum with the weakest correlation observed at 5 days after delivery. Higher EPDS

	maternal mood during pregnancy and after childbirth	2 obstetrical hospitals in Nagoya Japan between August 2004 and October 2009 (551)		Mother to Infant Bonding scale (MIB) used to screen for maternal emotions toward a new baby; EPDS	scores were associated with more severe bonding disorders.
Page et al. (2007), USA	To examine psychological dimensions of parent's perceptions of their infant children and their own abilities as parents	Mothers and their babies recruited from a University affiliated hospital in South-eastern USA (174 mothers)	Longitudinal predictive study	Questionnaires completed at three time points: Within 36 hours following delivery at the hospital, at 6 and 12 months at home. Parental Bonding Instrument (PBI) measured mothers' experiences with their families of origin; Young Adult Self Report (YASR) measured current relationships with their mothers, fathers and siblings; Life Events Inventory measured stressful life events; Family Resource Scale (FRS) measured family resources; Maternal Concerns Scale (MCS) measured mother's perception of self as a parent; YASR used to measure psychological problems; Adult Adolescent Parenting Inventory (AAPI-2) assessed perceptual dimensions of parenting; HOME Inventory (IT-HOME) measured mother-infant interaction	Parenting attitudes and empathy was found to have a significant direct effect on mother-infant interaction. A large indirect negative effect of representations of family of origin through lifestyle stress/vulnerability on psychological problems was found. Positive relationships with and reports of good care by family were found to have significant positive relationship with lifestyle stress and vulnerability. Representations of family of origin found to have an indirect negative effect on psychological problems.
Parfitt and Ayers (2014), UK	To examine the transition to parenthood and	Part of a longitudinal study. 48	Retrospective Cross-sectional	Each parent interviewed separately. The Birmingham Interview for Maternal Mental	40% of mother and 56% of fathers found to appraise birth experience as very distressing or painful. Labour complications resulted in 41% forceps or

	mental health in first-time parents in detail and explore any differences in this transition in the context of parental gender and postpartum mental health	families including 46 mothers aged 18-46 and 40 fathers (86)	quantitative study	Health, fifth edition (BIMMH) measured the social, psychological, and psychiatric course of pregnancy, birth and months after birth including pre- and postpartum anxiety and depression; postpartum PTSD; adjustment and relationship variables	ventouse deliveries, 11% elective C/S and 24% emergency C/S. Parents who experienced postpartum mental health problems found to be 5 times more likely to have experienced labour complications. Lack of partner support, feelings of parental unworthiness and anger toward infant were 3 independent predictors of parent's postpartum mental health problems. 30% of women and 10% men found to have had initial negative reaction to the baby at birth. Onset of positive feeling among parents with mental health problems was at 4weeks on average compared to 2weeks for those without. Feelings of parental unworthiness and anger toward baby found to be common among parents with mental health problems
Parfitt et al. (2013), UK	To examine the effect of fathers' and mothers' pre- and postnatal mental health status on mother-infant and father – infant interactions	Parents recruited in late pregnancy through antenatal classes (44 mothers aged 26-43, (mean age=33.12ye ars), and 40 fathers from 45 families out of the original 141 expectant parents who showed interest in	Longitudinal study	Questionnaires administered prenatally and 3 months postnatal and video recorded observation 3 months after birth. HADS measured anxiety and depression Posttraumatic stress diagnostic scale (PDS) measured PTSD; parent –infant interaction rated using CARE-Index using videos of infant and each parent separately filmed at home	Mothers showed higher rates of depression in pregnancy and postnatal PTSD than fathers; Comparable interaction patterns between fathers and mothers with their infants reported; For mothers, only prenatal maternal anxiety had a significant correlation with mother-infant interaction i.e. high maternal control, low maternal responsiveness, and infant passivity.

		the study participated)			
Parfitt and Ayers (2009), UK	To explore the association between symptoms of PTSD, depression, the couple's relationship and parent-baby bond	A convenience sample recruited via internet (126 women aged between 19 and 45 years and 26 men aged between 22 and 54 years) and their babies aged between 1 and 24 months	Cross-sectional correlational study	Internet based questionnaire study. Questionnaires uploaded on the internet for 10 months. Posttraumatic Stress Diagnostic Scale (PDS) measured PTSD; EPDS measured depression; Dyadic Adjustment Scale (DAS) measured couple relationship; Postpartum Bonding Questionnaire (PBQ) measured parent-baby bond	Postpartum PTSD and depression found to be significantly correlated with each other and they are both associated with couple relationship and parent-baby bond (poor couple relationship associated with lower quality parent-baby bond). Parent baby bond found to be most strongly associated with PTSD as compared to depression
Pearce and Ayers (2005), UK	To examine whether women's perceptions of their infant remain stable between late pregnancy and early postnatal period and to examine the effect of women's expectations and evaluations of their infant on	Women 17 years and older (mean=31 years) recruited from hospital and community clinics (51)	Prospective study	Two sets of questionnaires were completed before delivery at the centres and 10 days after delivery at home and posted. HADS measured state anxiety and depression; The Infant characteristic questionnaire (ICT) measured temperament; The mother-baby self-rating scale measured mother-baby interaction	Positive correlations between women's expectation of their infant before birth and mother-baby bond e.g. an unadaptable and dull baby correlated with mother's poor mother-baby bond. Mother's expectations of the infant were found to have a significant effect on the mother-baby bond with women who expected their baby to be more difficult found to report a poorer mother-baby bond. Likewise, evaluation of the baby postpartum was found to have a significant effect on the mother-baby bond. Women who evaluated their children as more difficult were also found to report poorer mother-baby bond. No significant relationship reported between symptoms of anxiety and depression on either mother's expectations of baby's characteristics

	the mother-baby bond				or mother-baby bond but postnatal depression was associated with less optimal mother -baby bond.
Reid (2011), England	The effect of traumatic delivery on the mother's state of mind and on her relationship with her baby	Mothers who experienced distress as a result of difficult labour and birth (2)	Case study	Clinical material. Clinical records	Experiences included feelings of failure following a traumatic birth; uncertainty about the wellbeing of the child; guilt, grief and anger associated with a traumatic birth, inadequate care and support from the hospital staff; unplanned caesarean section followed by haemorrhage; experiences of horrible thoughts about the delivery following discharge; lack of emotional involvement with the baby; struggles with conversations about her delivery; difficulty in feeding the baby; seeing pictures of the delivery room; loss of confidence as a mother and the baby reacting to mother's anxiety
Reisz et al. (2015), USA	To investigate the effects of mode of delivery and mothers' views about their childbirth experiences on their descriptions of their babies and maternal self-esteem	Mothers living in the USA aged 16 to 45(mean age=30.47) years who had given birth within 12 months of participating in the study (269). Infants mean age 6.8 months	Cross-sectional quantitative study.	Web survey: Demographics and mode of delivery; The Birth Experience Questionnaire (BEQ) measured subjective birth experience; Baby description measure with adjectives to describe the baby; Maternal Self-Report Inventory (MSI) measured maternal self-esteem	Mode of delivery was reported to have a direct effect on subjective birth experience. Vaginal delivery found to be related to more positive subjective birth experience compared to C/S. Mode of delivery also found to have a direct effect on mothers' descriptions of their babies with vaginal delivery being associated with a smaller proportion of negative adjectives in the mother's descriptions of their babies than C/S delivery. Subjective birth experience was reported to have a direct effect on negativity with mothers who reported more positive experiences being found to have used fewer negative adjectives to describe their babies. More positive birth experience found to report higher maternal self-esteem
Seng et al. (2013), USA	To characterise the intergenerational pattern of the effects of childhood	Nulliparous women, mean age =27years, in three cohorts:	Prospective-survey study	Telephone interviews using scales administered at less than 28weeks gestation period and follow up interview using screening scales at 6 weeks postpartum. Life stressor checklist measured	Postpartum PTSD new onset was reported at 1.6 percent and was characterised by birth as index trauma, long labours ending in C/S, uterine complication, and emergent C/S. Maternal pre-existing posttraumatic stress alone and /or comorbid with depression was associated with postpartum

	maltreatment and lifetime PTSD on women's mental health in pregnancy and on postpartum mental health and bonding outcomes	PTSD cases; trauma exposed controls and non-trauma exposed controls - from initiation of prenatal care to 6 weeks postpartum all from prenatal clinics in Michigan (566)		childhood maltreatment, structured interview to assess PTSD, Composite International Diagnostic Interview depression module measured past year MDD; Interview at 6 weeks postpartum included Interim trauma assessed by Life Stressor Checklist with birth as potential traumatic exposure; Peritraumatic Dissociation Experience Questionnaire assessed women's level of dissociation; Postpartum depression screening scale assessed postpartum depression, PBQ measured maternal bonding with the infant	mental health morbidity and more impaired bonding; Postpartum measures of mental health status -MDD alone or comorbid with PTSD were reported to be the strongest predictors of impaired bonding While labour dissociation/traumatic labour predicted impaired bonding.
van Reenen and van Rensburg (2013), South Africa	To explore and understand the subjective experiences and perceptions of white south African women who had delivered their babies by an unplanned caesarean section, as well as how these experiences may have influenced maternal	Women (mean age =28years) who delivered through unplanned caesarean section recruited through snow balling (10)	Cross-sectional qualitative-descriptive study	In-depth phenomenological interviews	Eight themes included: prenatal relationship between mother and foetus; A sense of detachment; Anticipation; delayed initial contact; recovery attachment; diminished caregiving capacity; emotional discomfort; progressive engagement. Emotional turmoil reported by postnatal women. Seeing/holding a healthy baby reported to protect the mothers from trauma associated with birth. Challenging experience drew some mothers closer to their babies

	attachment representations and mothers' relationships with their babies				
Weisman et al. (2010), Israel	To examine the associations between the experience of labour, the mother's perceptions of the infant during late pregnancy and the new born stage, and the mother's postpartum mood	Community sample of mothers in a metropolitan area (1844)	Cross-sectional quantitative study	Questionnaires completed on the second day post-delivery. Emotions during labour; The BDI (depression); The STAI (anxiety); Maternal Adjustment and Maternal Attitudes Questionnaire; and the Negative Mood Regulation Scale	Postpartum mood (depression, anxiety and state anxiety) found to be associated with mode of delivery; Vaginal Delivery (VGD) mothers experienced labour as more positive and less negative compared to Caesarean Section Delivery (CSD) mothers; VGD mothers reported significantly less somatic symptoms weeks before delivery compared to CSD; a positive correlation was reported between mother's positive attitude towards infant and perceived pain before use of medications; but the mother's attitude towards infant had a negative correlation with maximum perceived pain during labour.
Wilson et al. (2007), USA	To investigate first time parents' perceptions of and responses to events surrounding delivery and early parenthood	First time mothers (Mean age =26.7) and fathers (heterosexual couples) residing in Texas (188)	Longitudinal correlational study	Questionnaires completed at 6 weeks before due date and 2 weeks after delivery separately by each partner. Adult Attachment Questionnaire (AAQ) measured romantic attachment; The desire to have Children Scale used to assess desire to become a parent; Scale developed to assess prenatal jealous of the baby; measure developed to assess perceptions during labour and delivery, Perceptions of infant scale constructed for the study; The Big Five Inventory; Marital Satisfaction Inventory	Women perceived themselves to be significantly closer to their babies 2 weeks postpartum compared to men. More anxious women perceived less support from their partners; women's desire to have children correlated positively with women's and men's perceptions of closeness to their babies; more avoidant women reported feeling less close to their babies than less avoidant women two weeks after delivery and women who were more jealous of their babies prenatal reported feeling less close to their babies 2 weeks postpartum. More anxious mothers were found to be closer to their babies than less anxious mothers after controlling for prenatal jealous.

Ya-Ling et al. (2015), Taiwan	To compare women's postpartum fatigue, baby care activities and maternal - infant attachment	Women who had undergone vaginal birth (VB) Mean age = 30.7years or caesarean birth (CB) Mean age =33years and hospitalised for 48 -72 hours following childbirth (120)	Cross-sectional quantitative study	Visual Analogue Scale (VAS) measured postpartum fatigue; Maternal-Infant Attachment Inventory (MAI); Difficult in Baby Care Activities Scale	Postpartum fatigue significantly positively correlated with difficulty in baby care activities in both groups while difficulty with baby-care activities was significantly negatively correlated with maternal - infant attachment for both groups Postpartum fatigue was not significantly correlated with infant maternal - infant attachment for either group. Although postpartum fatigue differed significantly between groups, maternal -infant attachment didn't when age and educational level were used as conditional covariance variables
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### 3.4.1 Characteristics of the papers

Participants of the studies included in this review represent diverse cultures and settings (Table 5). The majority of the studies were conducted in high income countries in the west including United Kingdom (n =12) and United States of America (n =8). Canada and Sweden had two studies each while Australia, Poland and Portugal each had one study. Eight studies were reported from Asia including the Middle East. The only study from Africa was conducted in South Africa.

The studies reviewed comprised of an almost equal representation of designs, that is, 18 (49%) cross-sectional and 19 (51%) either longitudinal or prospective designs. Of these, 30 (81%) were quantitative, 6 (16%) were qualitative (Ayers et al., 2006; Campbell-Jackson et al., 2014; Elmir et al., 2012; Herishanu-Gilutz et al., 2009; Nystedt et al., 2008; van Reenen and van Rensburg, 2013) and 1 (3%) case study (Reid, 2011). Sample sizes ranged from two participants (Reid, 2011) to 2798 (Kinsey et al., 2014). Participants were mainly mothers and their babies. Maternal age ranged from 15 years to 52 years, and the majority of the studies reported mean maternal age below 30 years. The age of the infants at the time of data collection varied widely from less than three hours to 27 months, with the majority reporting on infants aged below 12 months. Six (16%) studies focused on both parents and their infants. Data collection took place in settings such as hospitals, laboratories, community clinics, antenatal clinics/classes, homes, telephone and the internet using different methods and measures as described in the following section.

### 3.4.2 Variables investigated and outcome measures

Table 6: Key variables and measures

<b>Variable and measure</b>	<b>n (%)</b>
<b>Childbirth experiences</b>	
Interviews	8 (22)
Medical/clinical records	3 (8)
Questionnaires/scales	26 (70)
<b>Mother-infant relationship/bond</b>	
Interviews	6 (16)
Self-report measures	24 (65)
Observation measures	7 (19)
<b>Mental health</b>	
<i>Depression</i>	21 (57)
<i>Anxiety</i>	10 (27)
<i>PTSD</i>	10 (27)
<b>Mother's own attachment/relationships</b>	
Attachment style	4 (10)
Relationships	6 (15)

Table 6 also shows other factors including maternal mental health conditions such as depression and anxiety were reported during pregnancy and postpartum. The measures commonly used to assess depression, anxiety and posttraumatic stress were Edinburgh Postnatal Depression Scale (EPDS) (Barnes, Ram, Leach, et al., 2007; Chrzan-Dętkoś & Łockiewicz, 2015), Hospital Anxiety and Depression Scale (HADS) (Jones et al., 2013; Parfitt et al., 2013; Pearce & Ayers, 2005) and Impact of Events Scale (IES) (Ayers et al., 2007; Davies et al., 2008; Jones et al., 2013; McDonald et al., 2011) respectively. Diagnostic measures such as the Structured Clinical Interview for DSM-IV for axis 1 disorders were used in very few studies (Davies et al., 2008; Seng et al., 2013).

The other key factors reported were mothers' relationships and attachment style (Chrzan-Dętkoś & Łockiewicz, 2015; Dickstein et al., 2009; Gharaibeh & Hamlan, 2012). The methodological issues of the aforementioned measures are discussed later in this chapter. The

section below focuses on the key thematically-related categories that emerged from the included papers followed by a critical discussion of the findings.

### 3.5 Overarching categories of maternal experiences and factors

In this section, I discuss maternal experiences of pregnancy, labour and delivery and factors or processes which were examined in association with interactions between mothers and their babies. Five key overarching categories of maternal experiences and factors which were identified from the papers in Table 6 above ordered in descending order and according to frequency of papers reporting them include childbirth experiences, postnatal mental health, prenatal mental health, maternal attachment and family situations. Though reported in several papers, I discuss family situations last due to their broad and less specific nature.

#### 3.5.1 Maternal childbirth experiences

Childbirth experiences in this review refer to maternal perinatal experiences relating to pregnancy, labour, delivery and the immediate days following birth as illustrated in the following section. Figure 2 shows the number of papers reporting these different stages of maternal childbirth experiences.

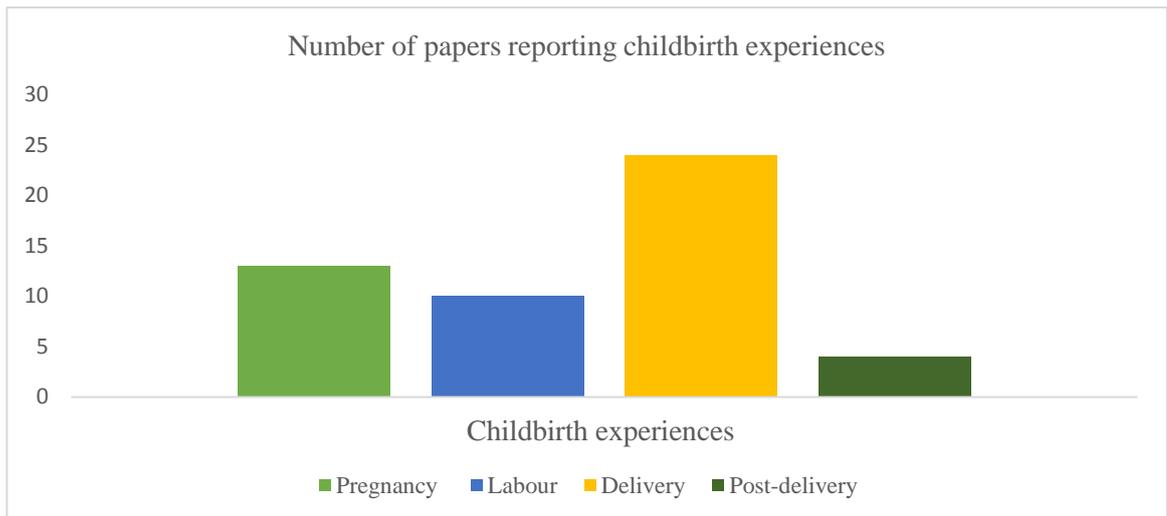


Figure 2: Frequency of maternal childbirth experiences

The majority of papers reporting childbirth experiences focused on delivery experiences (n=24, 65%) such as mode of delivery (Barnes, Ram, & Leach, 2007; Carlander et al., 2010; Durik et al., 2000; Figueiredo et al., 2009; Reisz et al., 2015; van Reenen & van Rensburg, 2013), delivery experience (Gharaibeh & Hamlan, 2012; Wilson et al., 2007) and stress reactions to delivery (Jones et al., 2013; McDonald et al., 2011). Maternal pregnancy experiences reported in 35% (13) of the papers ranged from general pregnancy experiences (Campbell-Jackson et al., 2014; Gharaibeh & Hamlan, 2012) to specific experiences such as foetal bonding (Dickstein et al., 2009), attitude to pregnancy (Kokubu et al., 2012) and maternal expectations of the infant (Pearce & Ayers, 2005) among others. Labour experiences included adverse effects such as prolonged labour (Hunker et al., 2009; Nystedt et al., 2008; Seng et al., 2013), stress reactions to labour (Jones et al., 2013; McDonald et al., 2011) and perceptions of labour (Ferber & Feldman, 2005; Weisman et al., 2010; Wilson et al., 2007). Postpartum partum haemorrhage (Elmir et al., 2012) and postpartum fatigue (Ya-Ling et al., 2015) were some of the issues explored postpartum.

The experiences of childbirth among the participants included in the studies reviewed varied widely from positive birth experiences (Carlander et al., 2010; Weisman et al., 2010) to high

risk maternal experiences such as emergency caesarean section and emergency hysterectomy following delivery (Elmir et al., 2012; Herishanu-Gilutz et al., 2009; Nystedt et al., 2008; Reid, 2011). The association between childbirth experiences (pregnancy, labour, delivery and post-delivery) and mother-infant interactions I sought to examine under the question guiding the current literature review, specifically sub question one, is discussed in the next section.

### 3.5.2 Childbirth experiences and mother-infant relationships

Mode of delivery, labour pain, maternal physical health during pregnancy and mother's perception of pregnancy and delivery experience were some of the specific childbirth experiences reported to have varying influence on subsequent mother-infant relationships. Carlander et al. (2010) found positive contact between all groups of mothers and their babies and no group differences between the delivery groups of normal delivery, elective caesarean section and elective caesarean section due to obstetric indication. Similarly, Figueiredo et al. (2009) found no differences in mode of delivery and maternal bonding with their infants.

Bernier et al (2010) on the other hand reported a small positive correlation between natural delivery and maternal sensitivity among nulliparous mothers. An earlier study by Barnes, Ram, and Leach (2007) reported that mothers who delivered by caesarean section showed significantly higher critical remarks in total, regarding maternal health, and about the impact of the infant on the mother's life. Similarly, Reisz et al. (2015) reported that when mothers were asked to describe their babies, mothers who delivered vaginally showed a smaller proportion of negative adjectives in their descriptions than those who delivered by caesarean section. The impact of mode of delivery on mother-infant relationship according to these findings, though inconclusive, point more to a negative association between caesarean delivery and mother-infant relationships.

However, it may not be the mode of delivery per se that influences the mother –infant relationship, rather, the specific birth experience of the mother across delivery methods. Whereas mothers who had vaginal deliveries experienced labour as more positive and less negative compared to those who had caesarean deliveries (Weisman et al., 2012), for mothers who had unaided vaginal deliveries, high scores on pain catastrophizing scale two days after birth predicted lower levels of mother-infant reciprocity (Ferber and Feldman, 2005). Furthermore, the mother’s experience of labour alone regardless of the eventual mode of delivery can have negative consequences on the mother’s relationship with her baby. Seng et al (2013), for instance, noted that extreme maternal labour experiences such as labour dissociation/traumatic labour predicted impaired bonding. Regarding mother-infant interactions, Weisman et al. (2010) also reported a positive correlation between the mother’s perception of pain before use of medications and attitude towards infant.

Some studies have reported non-significant effects of adverse events in labour and delivery including emergency caesarean section, prolonged labour, and preeclampsia in labour and vacuum extraction among others on maternal functioning and infant care postpartum (Hunker et al., 2009). The non-significant effects of such adverse birth experiences on mother-infant relationship may in part be due to the social support received by the mother during delivery (Ayers et al., 2007). It is also important to note that maternal functional status and infant care in the Hunker et al.’s (2009) study may not be accurate measures of mother-infant relationship. A number of common themes regarding the effect challenging birth experiences have on the relationship between the mother and infant were reported in qualitative studies. These included initial feelings of detachment from the baby following delivery (e.g., Ayers et al., 2006; Elmir et al., 2012; Nystedt et al., 2008; van Reenen and van Rensburg, 2013). Detachment from the baby was in part attributed to physical problems associated with delivery which reduced the mothers’ care giving capacity (e.g., Elmir et al., 2012; Nystedt et al., 2008; van Reenen and van Rensburg, 2013). Emotional problems associated with difficult delivery were also reported to

be associated with short term and long term bonding problems (e.g., Ayers et al., 2006; Campbell-Jackson et al., 2014; Elmir et al., 2012). These findings indicate that the women's perceptions of the events surrounding birth has an impact on both the mother and the maternal bond to the infant. For instance, Nystedt et al. (2008) explored women's experiences of becoming first time mothers after prolonged labour and found that feelings of fatigue and illness due to inability to participate in giving birth were followed by women's inability to take care of babies soon after birth because post-delivery recovery presented difficulties in forming relationships. The difficulties characterised by ambivalence in becoming and /or being a mother were said to have complicated the mothers' relationships with their babies. Similarly, Ya-Ling et al. (2015) reported that postpartum fatigue in a sample of Taiwanese women significantly positively correlated with difficulty in baby care activities regardless of mode of delivery. Whereas difficulty with baby-care activities was reported as significantly negatively correlated with maternal -infant attachment for both groups in Ya-Ling et al.'s study, postpartum fatigue was not significantly correlated with maternal-infant attachment for either group. These findings show the positive emotions of affection new mothers are likely to have towards their babies despite the negative experiences of birth which influenced the women's baby care activities.

As noted earlier, childbirth experiences in this review should not be taken to mean only events surrounding labour and delivery as events both during pregnancy and shortly after birth are equally critical. Maternal health during pregnancy has for instance been found to not only influence the mode of delivery but also the resultant mother-infant relationship. Weisman et al. (2010) noted that mothers who had vaginal delivery experienced significantly less somatic symptoms weeks prior to delivery than those who had caesarean delivery. Similarly, Bernier et al (2010) found that maternal physical health problems during pregnancy negatively influenced maternal sensitivity especially among multiparous women. These findings indicate that

negative experiences during pregnancy might have negative impact on the quality of mother-infant interactions.

Moreover, mothers' perception of pregnancy and birth experience as very good has been found to be associated with higher maternal attachment to the infant (Gharaibeh and Hamlan, 2011). On the other hand, qualitative studies exploring maternal experiences during pregnancy have reported that negative experiences during pregnancy influence the mother-infant relationships. Campbell-Jackson et al. (2014) noted themes of uncertainty during pregnancy among mothers with a previous miscarriage and difficulties in bonding following birth of the next child.

The time spent in the hospital after delivery can also have effects on the mother-infant relationship (Bernier et al, 2010). It was found that longer stay in the hospital was significantly negatively related to maternal sensitivity among multiparous women. This might however be attributed to two key reasons; birth related complications which necessitated prolonged medical care thus requiring mothers to stay longer in the hospital and the natural desire for multiparous mothers to compare current birth experience with the previous one.

However, it is important to note that not all challenging birth experiences have serious negative effects on the mother and her baby including impairment in relationships postpartum. For example, Hunker et al. (2009) reported that close to half of the participants experienced adverse birth events but those events neither predicted depression nor the functional status of the mothers postpartum. There is indeed evidence elsewhere for positive change among women in the aftermath of challenging birth experiences (Sawyer, Ayers, Young, Bradley & Smith, 2012). And such resilience in women may not only influence postpartum functioning such as mental health discussed later in this chapter but might be associated with closer mother-infant interactions. Some women in van Reenen and van Rensburg (2013) South African study for example reported feeling closer to their babies following challenging delivery experiences. Cultural and care system differences discussed in the background chapter might account for

some South African women's closeness to their babies following difficult delivery experiences compared to other samples from high income western countries reported in qualitative studies in this review. Furthermore, it is plausible that other factors mediate the association between childbirth experiences and mother –infant interactions. I discuss some potential mediating factors in following sections.

### 3.5.3 Maternal mental health

A substantial number of papers reported associations between childbirth experiences and mental health status, both pre and postnatal and their subsequent impact on mother-infant relationships

Figure 3 shows the number of papers reporting specific mental health conditions.

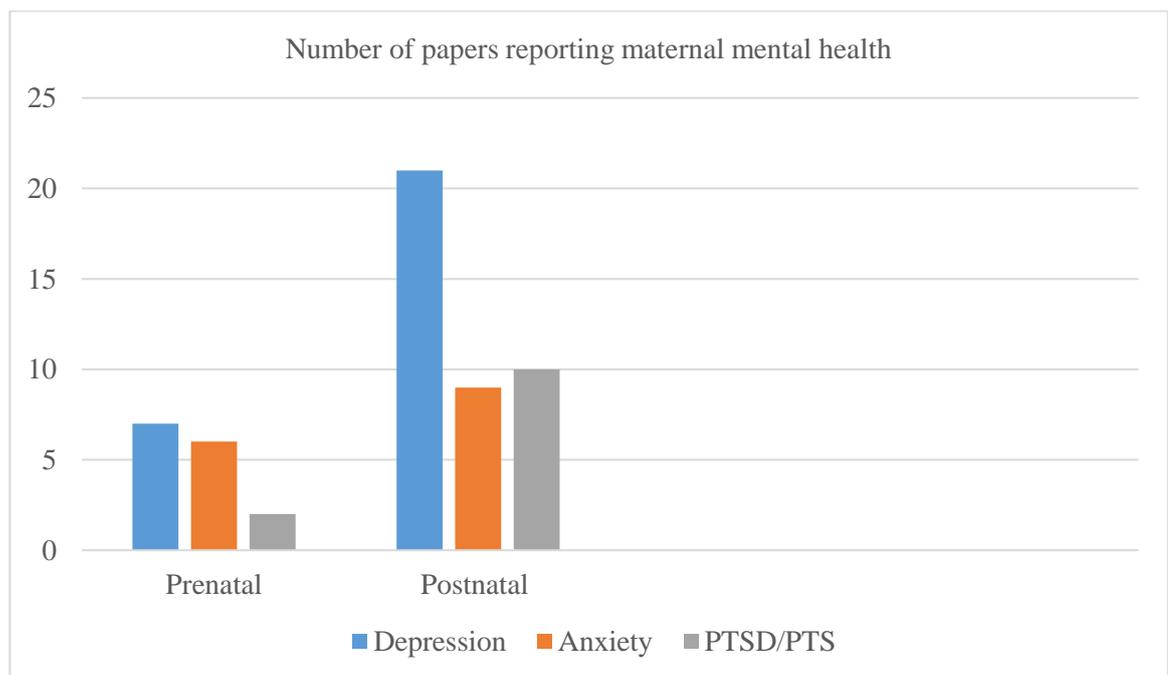


Figure 3: Frequency of maternal mental health factors

Postnatal mental health was the most reported factor associated with both childbirth experiences and mother-infant relationships. Depression and depression symptomatology in particular was the most widely reported postnatal mental health condition (21 papers, 57%) followed by

posttraumatic stress disorder/posttraumatic stress symptoms (PTSD/PTS) appearing in 10 (27%) of the papers.

Although poor mental health among women is not a pregnancy specific experience, maternal mental health status has been reported to influence mother's birth experiences as well as result from specific birth experiences (e.g., Iles, Slade & Spiby, 2011; Leeds & Hargreaves, 2008; White, Matthey, Boyd, & Barnett, 2006). Davies et al. (2008) for example reported that mothers with symptoms of PTSD during pregnancy were more likely to have instrumental deliveries than the non-symptomatic group. The mechanisms through which mental health problems either prenatal or postnatal alongside other factors such as maternal attachment style described in the following sections might help answer the second sub review question.

#### 3.5.4 Postnatal mental health and mother-infant interactions

Maternal experiences during pregnancy, labour and delivery may influence the mother's psychological functional status –either positively or negatively –long after the birth of the child. Regardless of the mode of delivery, the birth process has been described by mothers as an 'emotional rollercoaster' (van Reenen & van Rensburg, 2013 pp.271). Maternal objective and subjective childbirth experiences such as mode of delivery have been reported to influence the mother's mental health status and subsequent mother-infant relationships in several ways (Reisz et al., 2015; Weisman et al., 2010). Although a large percentage of mothers might be expected to cope normally with the birth of their infants (Sawyer et al., 2012), some mothers report several reactions following childbirth. For example, Reisz et al. (2015) observed that mode of delivery had a direct effect on subjective birth experience with vaginal delivery in particular being related to more positive subjective birth experiences compared to caesarean delivery. Such subjective childbirth experiences might explain mental health status of postnatal mothers.

Several papers included in this review report a number of postnatal health conditions such as depression (e.g., Figueiredo et al., 2009; Ohoka et al., 2014), PTSD (e.g., Ayers et al., 2006; Ayers et al, 2007; Ionio and Di Blasio, 2014; Parfitt and Ayers, 2009; MacDonald et al., 2011) and anxiety (e.g., Edhborg et al., 2011; Jones et al., 2013) which are associated with specific childbirth experiences and with varying effects to the mother, her baby, and subsequent mother–infant relationships. Jones et al. (2013) investigating mood problems including depression, anxiety and PTS symptoms following childbirth in a community sample, noted that mood symptoms were highest for PTS symptoms and lowest for depression symptoms.

Ayers et al (2006) in a qualitative study noted that mothers who had traumatic birth experiences reported impaired behaviours towards their babies and expressed feelings of anger, depression, failure, and initial rejection and blame towards their babies. Some women were reported to have expressed difficult relationships with their children years after the traumatic birth experience due to childbirth related PTSD illustrating the pervasive influence of poor postpartum mental health on mothers and their relationships (Ayers et al., 2006).

Recently, van Reenen and van Rensburg (2013) and Reid (2011) in qualitative and case study respectively, observed that women who had traumatic birth experiences had emotional problems both during delivery and postpartum. These included frustration, disappointment, anxiety, anticipation, and acute trauma symptoms, depression, guilt, anger and grief respectively. The drawing closer to the babies noted earlier as reported by van Reenen and van Rensburg immediately following challenging childbirth, might have been the mothers' way of coping with negative experiences and trying to protect their babies. However, the negative emotions such as frustrations and disappointment among the affected women might have long term impact on the mother and baby as earlier noted by Ayers et al. (2006). For instance, Parfitt et al. (2014) reported similar emotions including a lack of partner support, feelings of parental unworthiness and anger toward the infant to predict postpartum mental health problems. Partner

support might however be perceived as being less by women who already have mental health concerns during pregnancy as Wilson et al. (2007) observed in a longitudinal study. It was reported that among first time parents' perceptions of and responses to events surrounding delivery and early parenthood, more anxious women experienced feeling less supported by their partners. The effect of such negative reactions can affect the mother as well as her baby.

Depressive and posttraumatic stress symptoms associated with childbirth experiences have been reported to impair the bond between the mother and her infant in both qualitative and quantitative studies (e.g., Ayers et al., 2005; Ohoka et al., 2014; Parfitt and Ayers, 2009; Seng et al., 2013). Ohoka et al (2014) reported weak to moderate Pearson correlations between depressive scores and scores of mother to infant bonding and that higher depression scores during pregnancy and postpartum were associated with more impaired bonding. Similarly, Parfitt and Ayers (2009) reported moderate correlations between depression and PTSD and parent-baby bond respectively. Although self-report measures were used to assess mental health in both Ohoka et al (2014) and Parfiit and Ayers (2009) studies, similar results regarding depression were found by Seng et al (2013) using diagnostic interviews. Seng et al (2009) reported that postpartum major depressive disorder (MDD) and MDD comorbid with PTSD but not PTSD alone were significantly associated with more impaired bonding.

However, the lack of association between postpartum PTSD alone and mother-infant bonding mentioned above may in part be due to a very small sample of mothers ( $n = 9$ ) who met the diagnostic criteria of new-onset PTSD in the Seng et al (2013). Similarly, Ayers et al. (2007) with five percent of the sample ( $n = 6$ ) having severe PTS symptoms, no significant association was observed. Pearce and Ayers (2007) also found no significant association between anxiety and depressive symptoms and mother-infant bond. It is however important to note that methodological issues such as exposure and timing in the aforementioned studies might have contributed to the reported lack of association.

Pearce and Ayers (2007) for example not only administered the same self-rated measure at two time points –during pregnancy and after birth, but also showed inconsistencies in timing and place of administration of measures to the mothers which might have affected the mothers’ responses to the measure of anxiety and depression. Moreover, the mother-baby self-rating scale completed by mothers at home might have increased social desirability biases in the mothers’ responses. Likewise, although Ayers et al (2007) observed that five percent of the sample met the cut-off of PTSD, the lack of association between PTSD symptoms and parent-baby bond could be attributed to the study methodology. A very low response rate (31%) of parents in Ayers et al.’s (2007) study who were required to self-rate on survey questionnaires including an adapted measure of parent-baby bond might explain the nature of the reported findings. A self-report version of Bethlehem Mother –Infant interaction scale used comprised of only six items. Such a measure might not be sufficient to comprehensively assess emotional and behavioural aspects of the interaction.

Like depression and PTSD, anxiety was reported to be associated with mother –infant interaction (e.g., Ferber and Feldman, 2005; Jones et al., 2013). Ferber and Feldman (2005) found that maternal trait anxiety predicted maternal sensitivity to the infant but not maternal intrusiveness. Jones et al. (2013) using the still-face paradigm also noted that increases in maternal anxiety symptoms were associated with decreased infant looking time to the mother’s face but not stranger’s face. However, Edhborg et al. (2011) found that maternal anxiety symptoms were positively associated with maternal bonding to the infant. It has also been argued elsewhere that anxious mothers compensate for anxious mood by becoming more sensitive to the needs of their babies (Parfitt et al., 2013) and therefore measures that assess both maternal and infant behaviours during the interaction might be more helpful.

### 3.5.5 Prenatal mental health and mother-infant relationships

Prenatal is defined here as the period before or during pregnancy. Many studies in this review examined the impact of prenatal mental health on mother-infant interactions (e.g., Bernier et al., 2010; Kokubu et al., 2012; Parfitt & Ayers, 2014; Parfitt et al., 2013; Pearce & Ayers, 2005; Seng et al., 2013). The findings of these studies show a mixed picture for the impact of depression, anxiety and PTSD. For example, Pearce and Ayers (2005) found no significant correlation between prenatal anxiety and depression and mother-infant bond.

Prenatal anxiety has recently been found to have effects on both the mother and infant. In a video recorded mother-infant interaction, Parfitt et al. (2013) reported that maternal prenatal anxiety but not prenatal depression had a significant medium size correlation with high maternal control, low maternal unresponsiveness and infant passiveness. Similarly Seng et al. (2013) found that maternal pre-existing posttraumatic stress alone and /or comorbid depression was associated with postpartum mental health morbidity and more impaired bonding. Anxiety and depression in pregnancy had similar effects on mother-infant bond in Kokubu et al. (2012) study at one month but not at five days postpartum. Anxiety during pregnancy was found to significantly correlate with bonding failure at one month but not at five days while depression significantly correlated with bonding failure at both five days and one month. These findings suggest delayed manifestation of the effects of prenatal anxiety but not depression on mother-infant interactions. In another study, Parfitt and Ayers (2014) found that feelings of parental unworthiness and anger toward the baby were common among parents with mental health problems, but the role of prenatal mental health was not clear. Although the impact of prenatal mental health on the interactions between mother and her baby is not conclusive from the literature here, there is no evidence of positive associations between prenatal mental health problems and mother-infant interactions.

### 3.5.6 Maternal attachment style and mother-infant interactions

In this section, I consider the impact maternal attachment styles have on mother-infant interactions. Maternal attachment styles either to family of origin or spouse have the potential to influence not only the mother's birth experiences but also the subsequent interactions with her infant. A number of papers included in this review explored the role of maternal attachment style to family of origin and current relationships and report varying effects in relation to the mother-infant interactions (Chrzan-Dętkoś & Łockiewicz, 2015; Dickstein et al., 2009; Edhborg et al., 2011; Figueiredo et al., 2009; Gharaibeh & Hamlan, 2012; Page et al., 2007). The effect of maternal attachment style to the infant starts as early as during pregnancy (Edhborg et al., 2011) and is seen to operate through marital and family relationships (Dickstein et al., 2009). Consequently, the influence of maternal attachment style extends to both how the mother perceives her pregnancy/delivery experiences and relates with her baby (Gharaibeh & Hamlan, 2012). A positive correlation, although small, was reported between maternal bonding to the foetus and the mother's bonding to the infant at two to three months postpartum (Edhborg et al., 2011) indicating that the relationship between mother and baby starts as early as during pregnancy. But Chrzan-Dętkoś and Łockiewicz (2015) found that romantic attachment was not predictive of the mother-infant bond indicating that the association between maternal attachment styles and mother-infant interactions might not be linear but rather complex.

Dickstein et al. (2009) findings attempted to provide a possible mechanism of how maternal attachment style and marital relationships discussed in the next section combine to influence infant-mother attachment. Despite a non-significant association between maternal security and infant-mother security reported, unresolved maternal status was found to have a small significant negative association with security of infant-mother attachment. It was demonstrated that maternal working models predicted couple functioning while couple functioning predicted family functioning, and family functioning predicted infant-mother attachment. These findings

demonstrate a complex mechanism through which maternal attachment is transmitted across generations. For instance, maternal secure attachment style could enhance couple and romantic attachment as illustrated in detail in the next section, with subsequent positive effects to the way the parents interact with their babies. Moreover, factors within the family other than the maternal attachment also play a role.

### 3.5.7 General family situations/factors and mother-infant relationships

A number of papers reported on the impact of specific family situations, which I categorised as general family situations or factor, on the mother-infant interactions. These factors occurring during and after pregnancy such as socioeconomic status, parity or number of children, social support, maternal education, employment status, quality of life, and marital status can affect the relationship between the mother and her infant. In this section, I discuss the role of some of these factors.

Prenatal family factors such as maternal expectations (Pearce & Ayers, 2005), miscarriage history (Campbell-Jackson et al., 2014; Kinsey et al., 2014), and quality of life during pregnancy (Seng et al., 2013) have varying effects on the interaction between the mother and her infant postpartum. For example, Figueiredo et al. (2009) reported that maternal education, marital status, and employment status and infant's factors such as health at birth and gender all had effects on mother-infant interactions. For example, the mother's high level of education (grade nine and above) was associated with maternal positive emotions to the infant while being unemployed and single predicted maternal negative emotions toward the infant. Similarly, positive life events during pregnancy predicted infant interactional behaviour (Seng et al., 2013). Infant gender, specifically being male, and poor infant health at birth were reported to be associated with maternal positive emotions and worse maternal bonding respectively (Figueiredo et al., 2009).

Regarding marital relationships, Figueiredo et al. (2009) noted a difference in mothers' emotions to their infants with unmarried women showing more unclear emotions than their married counterparts. Similarly, Parfitt and Ayers (2009) found that poor couple relationships were related to lower quality parent-infant bond. Moreover, the mother's ability to take care of the child referred to as maternal self-efficacy was also reported by Gharaibeh and Hamlan (2012) to have a significant positive correlation with maternal attachment. And also during pregnancy, perception of husband as very good and perception of pregnancy and childbirth experience as very good were associated with higher maternal attachment scores compared to mothers who perceived poor marital relationships and poor birth experiences (Gharaibeh & Hamlan, 2012). The positive association between marital status (being married) and the interactions between mothers and their babies could be a result of support married women receive from their spouses unlike single mothers. Women's perception of social support during pregnancy and labour moreover, has been shown to have positive influences on childbirth experiences and postpartum functioning bond with their babies (e.g., Hunker et al., 2009; Parfitt and Ayers, 2014). This indicates that the quality of couple relationships characterised by support might explain positive mother-infant interactions similar to findings reported by Parfitt and Ayers (2009).

Previous birth experiences may also impact on current pregnancy and subsequent mother-infant interactions. Whereas (Kinsey et al., 2014) observed that miscarriage history did not have a significant effect on mother-infant bonding at all three measurement times postpartum, a qualitative study by Campbell-Jackson et al. (2014) revealed the impact of a previous miscarriage on not just bonding but also parenting the next child. The similarity in scores in mother-infant bonding between women with a history of miscarriage and those without in Kinsey et al. (2014) could likely be to the quality of the measure used and method of measurement. A 10-item version of PBQ (shortened version) measuring mother's emotional bonding to the infant –excluding maternal behavioural responses to the infant as might be the

case when observational measures are used –is more susceptible to social desirability biases (Davies et al., 2008) thus showing similarities in scores between the two groups of women. Moreover, the repeat use of the S-PBQ over three time points postpartum during telephone interviews with mothers might also have undermined the accuracy and credibility of the mothers' scores as observed in a relatively low Cronbach's alpha (0.672) at one month postpartum (Kinsey et al., 2014).

Pearce and Ayers (2005) reported positive correlations between maternal prenatal expectations of the infant and ratings of mother-infant bond postpartum. The positive association of infant gender and maternal bond might be in part due to maternal expectations of a baby boy during pregnancy being met upon birth. But a desire to have children in general, similar to expectations for the baby was reported by Wilson et al (2007) to be positively correlated with both parents' perception of closeness to the baby. On the contrary, Kokubu et al. (2012) noted that negative attitudes towards pregnancy predicted impaired bonding. These findings indicate that the mother's perception of the baby starting in pregnancy influences the subsequent bond between the two. One of the implications of these findings for mothers with unexpected pregnancies is that they might struggle to form clear expectations for the baby throughout pregnancy. The ambiguity in maternal expectations for the baby as she struggles to accept the pregnancy could increase risks of impaired bonding.

In conclusion, the broad family situations might have implications for the mother during pregnancy and postpartum. Examining individual women's family circumstances therefore might help understand the factors which shape the mothers' experiences of pregnancy and the interactions women might have with their babies including parenting attitude (Page et al., 2007). Based on the findings reported in this review, family situations might also help explain the inconclusive nature of the association between childbirth experiences, maternal mental health and the interactions between mothers and their babies.

### 3.6 Robustness of the review

This literature review was impacted by a number of decisions I made both prior to and during the review process. The papers were drawn from diverse settings and focused on a wide range of childbirth experiences and factors influencing mother-infant relationships. Although the majority of studies in this review are quantitative in nature, the inclusion of qualitative studies enhanced the understanding of the topic under review. Qualitative studies contributed to the understanding of subjective perceptions and meanings mothers attach to their experiences such as relationships and support, the events during labour and delivery and postnatal reactions including immediate and long term emotions associated with childbirth. Quantitative studies allowed for exploration of the multifaceted nature of mother-infant relationships by highlighting multiple childbirth factors with various effects on the interaction between a mother and her infant.

I did not exclude any paper on the basis of quality as the scores of all 37 papers included ranged from 22 to 35 (above average) on the Hawker et al (2002) checklist and were therefore deemed to be of sufficient quality. Furthermore, I found the overall number of papers included in this review to be comparable to previous reviews (e.g., Mindlin et al., 2009). The focus on studies of normative/community samples of mothers ensured that effects of maternal mental health, not related to childbirth experiences, on mother-infant relationships were minimised. However, no restrictions were made concerning infant health status-although a very small number of papers reported on the effect of infant health at birth and during the time of assessment. The inclusion of papers reporting on infants with health problems at birth such as admission in intensive care (Figueiredo et al., 2009), albeit small, might have negatively contributed to the reported poor mother-infant interactions. The decisions I made throughout the review process were however intended to enhance the comprehensiveness of the findings and therefore help answer the review questions as illustrated below.

### 3.6.1 Review questions answered

The five overarching thematically-related findings previously discussed and their respective effects on mother-infant relationships are summarised in this section to help answer the review question. Specific focus is on the two sub questions;

1. What is the association between the mother's experiences during pregnancy, labour, and delivery and the mother-infant interactions?
2. What processes and/or factors underlie the association between the mother's experiences of pregnancy, labour, and delivery and her interaction with the baby?

In answering sub question one, several experiences of women during pregnancy, labour and delivery have been reported as showing varying associations with mother –infant relationships. Maternal childbirth experiences included mother's physical health during pregnancy, perception of pregnancy, pain during labour, mode of delivery, perception of delivery experience and complications following delivery among others. The association of these maternal childbirth experiences and mother –infant relationships ranged from no association (Hunker et al., 2009) to large quantitatively predictive and qualitatively reported associations – both negative (e.g., Ayers et al, 2007; Bernier et al, 2010; Elmir et al, 2011; Ferber and Feldman, 2005; Seng et al., 2013) and positive (e.g., Bernier et al, 2010; Gharaibeh and Hamlan, 2011), with more negative or adverse maternal experiences generally found to be associated with poorer mother-infant relationships. A conclusion drawn from these findings is that there is no consensus on the association between childbirth experiences and mother-infant interactions.

To answer sub question two, I found that childbirth is not an event but a process characterised by several experiences for the mother beginning in pregnancy and lasting through days following delivery, all with the potential to influence the subsequent mother-infant relationship.

In this review, I noted several factors and processes which not only had effects on the mothers' experiences of pregnancy, labour, and delivery but might also be directly associated with mother-infant relationships. Maternal factors such as mental health status during pregnancy, attachment style and family situations such as quality of relationships, parity, socioeconomic status, marital status and many other demographic factors influenced the women's childbirth experiences and the relationship between those childbirth experiences and mother-infant relationships. Moreover, maternal factors (e.g., Dickstein et al., 2009) and mothers' perceptions and meanings attached to specific childbirth experiences (e.g., Ayers et al., 2006; Ayers et al., 2007; Gharaibeh and Hamlan, 2011; Reid, 2011; Wilson et al., 2007) affected the quality of maternal postnatal mental health including posttraumatic stress and postnatal depression. Poor postnatal mental health resulting from negative childbirth experiences –especially PTSD (e.g., Ayers et al, 2006; Ayers et al, 2007; Seng et al, 2013) and depression (e.g., Figueiredo et al., 2009; Weisman et al., 2010) –further explain the quality of mother-infant relationships. These findings led to the focus of the current study as highlighted below.

### 3.7 Conclusion and focus of the current study

The inconclusive findings especially regarding the association between childbirth experiences, postnatal mental health and mother-infant interactions, meant that the focus of the current study in an under researched area needed to be broad, but on a more specific sample if it is to be informative. Moreover, the characteristics of the sample, study designs employed, the outcome measures used and the timing of assessment contributed to the results reported in the literature review. For example, papers reporting on samples of mothers with more negative experiences during pregnancy and intrapartum generally reported poorer postnatal mental health conditions especially PTS and depression symptoms and impaired mother-infant interactions. Based on these findings, I decided that my exploratory study might be more informative if I focus on

mothers most likely to report challenging birth experiences and assess commonly reported postnatal mental health conditions.

Maternal attachment styles and the family situations seemed to offer insights on childbirth experiences, the resulting mental health status and subsequent mother-infant interactions. However, due to the broad nature of individual family situations explored no single measure can be used to adequately assess these vital factors. Similarly, maternal experiences of childbirth were too broad to be assessed by a single measure. Consequently, I decided that a mixed methods design would be best suitable for the investigations undertaken in this study. The choice of specific measures to assess key areas are described in the next chapter but were based on the measures reported in the studies reviewed.

The current study therefore sought to explore the association between childbirth experiences and mother-infant relationships in a developing part of Africa where maternal morbidity due to childbirth continues to be a big problem and yet very little is known about the impact of maternal morbidity on mother-infant relationships. This study aimed to contribute to knowledge on cultural dimensions of childbirth experiences in resource limited settings and the association between maternal experiences and mother-infant relationships.

### 3.8 Research question, aim, objectives and hypotheses

#### 3.8.1 Research question

What are Ugandan women's experiences of pregnancy, labour, and birth and how do those experiences associate with the mothers' interactions with their infants aged four to eight months?

### 3.8.2 Aim of the study

The aim of this study was to examine the association between childbirth experiences and mother-infant relationships among women who delivered at a tertiary urban hospital in Uganda.

### 3.8.3 Objectives

The study had six specific objectives;

- 1) To examine the childbirth experiences of a sample of women from urban and semi-urban locations who delivered at a tertiary hospital, including experiences of pregnancy, labour, birth.
- 2) To assess the mother-infant relationships through evaluation of a social play interaction of mothers with their infants at home
- 3) To examine the association between childbirth experiences and mother-infant interactions
- 4) To assess PTS symptoms arising from labour and delivery
- 5) To evaluate the association between mother-infant relationships and PTS symptoms after controlling for demographic factors, childbirth experiences, maternal postnatal depression, and maternal attachment style.
- 6) To explore the meanings mothers attach to their childbirth experiences and how those meanings influence the mother-infant interactions.

### 3.8.4 Hypotheses

Based on findings from the literature reviews and the current sample comprising of high risk mothers, I hypothesised that;

- 1) The majority of the mothers will report negative childbirth experiences

- 2) The majority of mother-infant interactions will be less optimal as shown by a total global score of 19 or less on EA scales. Higher scores on all EA scales generally indicate more optimal or desirable behaviours exhibited during the interactions (see details of sample scoring guide in section 4.3.4, Table 12)
- 3) There will be a significant negative correlation between childbirth experiences and mother-infant interactions
- 4) The majority of this high-risk sample of women will show scores of 9 or above on at least two IES-R subscales indicating the presence of PTS symptoms among mothers at four months postpartum. A score of 9-19 indicate moderate and 20+ severe PTS symptoms respectively (Ayers et al., 2007).
- 5) Posttraumatic stress symptoms will be a significant predictor of mother-infant interactions such that higher PTS symptoms will be associated with less optimal mother-infant interactions after controlling for demographic factors, childbirth experiences, depression and maternal attachment styles.

## 4 CHAPTER FOUR: METHODOLOGY

### 4.1 Introduction

In this exploratory study, I sought to examine childbirth experiences of Ugandan women and the possible association of those experiences with the interactions between the mothers and their babies. Due to limited research on childbirth experiences and mother-infant relationships in low income countries as illustrated in the previous chapter, and the nature of the research question being examined in this study, a mixed methods designs was most appropriate to help understand the issues under investigation. I therefore highlight key considerations I took to arrive at the appropriate study design. First, I give a brief perspective on parameters of knowledge focusing on philosophical underpinnings of the nature of knowledge. I then examine the pragmatic epistemology as my basis for combining diverse philosophical stands including a brief overview of how this was undertaken in the conduct of this study. I further give a brief historical overview of mixed methods designs including examples of typologies of mixed methods designs to highlight the specific design I selected for the current study.

The decisions I took for sampling and recruitment of potential participants from an urban tertiary hospital in Uganda are explained. The recruitment process and the parallel quantitative and qualitative methods used in collecting data, including video recorded observations of mother-infant interactions, self-report measures and narrative interviews are described. I then discuss quantitative and qualitative data analysis approaches and integration of findings through weaving strategy. This is followed by measures I employed to ensure sound quality of this mixed methods study such as reliability and validity of quantitative measures, rigour, triangulation of sources of information and reflexivity of researcher bias for the qualitative data. I conclude the chapter with a detailed consideration of ethical issues that guided the implementation of the study.

#### 4.1.1 Research design

Due to a mix of quantitative and qualitative objectives, I sought a study design that would allow the different elements to be addressed in a rigorous manner. To meet the aim and objectives of the study, both quantitative and qualitative approaches could be used. Quantitative methods would ensure the extent of associations between measurable characteristics of the issues under investigation and the qualitative approach provided a way to understand the childbirth experiences and the meanings women attach to those experiences.

Fetters, Curry, and Creswell (2013) in a paper examining key integration principles and practices of mixed methods noted that mixed method designs are effective in understanding health and healthcare issues –such as those being considered in this study – by drawing from the strengths inherent in quantitative and qualitative methods. It is important that the paradigms underlying quantitative and qualitative approaches are explained to understand the combination of these two approaches into a mixed methods design.

#### 4.1.2 Parameters of philosophy of knowledge

A decision to use both quantitative and qualitative methods raises concerns about the appropriateness of working with different views about the nature of knowledge sought by a study (Crotty, 2014; Morgan, 2007). In this section, I briefly describe how divergent views about the nature of knowledge might be complementary in addressing the issues of interest in this study. Parameters such as ontology, epistemology and methodology have been used to highlight philosophical issues relating to the nature of knowledge in research (Creswell, 1994). Similarly, these parameters are illustrated here to demonstrate how they informed methodological approaches undertaken in this study.

Research theorists and methodologists agree that research methodology and methods used in the process of designing and conducting research should be informed by a philosophical understanding about the nature of knowledge (Crotty, 2014; Morgan, 2007). There is however little consensus about the labels used to describe different philosophical understandings. This is evidenced by the various terminologies used in different texts. Some of the common terminologies used include epistemology and ontology (Crotty, 2014), paradigm (Morgan, 2007) and world views (Creswell, 2014).

Ontology is used to mean the nature of reality (Creswell, 1994). Crotty (2014) notes that ontology is the study of being or what is to be known. Different research approaches hold different views about the nature of knowledge. Whereas the quantitative approach views reality as objective existing outside and independent of the researcher, the qualitative approach recognises reality as subjective and constructed by the people involved in the research (Creswell, 1994). These different views about the nature of reality not only influence how researchers understand knowledge but the approaches they use to gain that knowledge. It is the combination of such divergent views of the nature of knowledge in a single study that has been a subject of debate since the emergence of interest by researchers in mixed methods (Fetters et al., 2013; Hanson, Creswell, Clark, Petska, & Creswell, 2005; Morgan, 2007). A few might still question the appropriateness and feasibility of mixed methods research based on how a researcher engages polarised epistemological views illustrated in the following paragraphs.

Creswell (1994) described epistemology as the relationship between the researcher and what is being researched. It is how the knowledge is achieved (Crotty, 2014). There is a distinction in how researchers using the hitherto known traditional approaches seek to gain their knowledge. Whereas in quantitative approaches a researcher is expected to remain distant and independent of what is being researched, the qualitative approach acknowledges the interaction between the researcher and the researched (Creswell, 1994). There are specific paradigms/world views or

epistemological stands that have over the years been recognised to apply to either quantitative or qualitative approaches about the nature of knowledge and the processes involved in achieving the knowledge. In the following paragraphs, I discuss how different epistemological approaches have come to be combined with increasing success in mixed research methods.

Morgan (2007) noted that paradigms as epistemological stances have had a major impact on combining research methods. Several paradigms based on views about the nature of reality or knowledge have been advanced over the years. Paradigms such as objectivism/positivism, constructivism, critical theory, post-positivism, transformative, participatory research and pragmatism have been advanced at different points in the past (Creswell, 2014; Morgan, 2007). Creswell (2014) noted that different paradigms can best be conceptualised as sitting on a continuum with positivist/objectivism and constructivism on both extremes and pragmatism in the middle.

It is however important to note that all the different approaches to understanding knowledge mentioned above are used to inform the research methodologies undertaken to meet specific research aims and objectives (Creswell, 2014; Crotty, 2014; Morgan, 2007). The choice of any single paradigm in conducting research should, according to Crotty (2014), be informed by the research question(s) being considered, not by the researcher's epistemological stance or world view. Therefore, I focus on pragmatism as a paradigm known to allow for mixing of methods in addressing research problems such as the one under investigation in the current study.

It is evident that philosophical views about the nature of knowledge and how knowledge is gained have evolved over the years. The pragmatic world view or pragmatism emerged with the advance of mixed methods approaches (Morgan, 2007). This brings me to the pragmatic approach of mixing of methods discussed below, as a paradigm sought for this study to appropriately investigate the research question highlighted earlier in this chapter which requires attention to both quantitative and qualitative methods (Morgan, 2007).

#### 4.1.3 The current study and epistemological views

Following the considerations of the philosophical world views mentioned above and the nature of the research question investigated in the current study, I decided to draw from the pragmatic world view described by Morgan (2007) and Creswell (2014). Despite the increasing popularity of mixed method studies in fields such as education, health sciences, psychology and nursing, there have been concerns about the epistemological basis of mixed method approaches. In the past, there was a perceived lack of a clear philosophical basis for mixed methods which made arguments for the incompatibility of quantitative and qualitative methods plausible (Morgan, 2007; Tashakkori & Teddlie, 2003). The advance of pragmatism as a philosophical world view has increased acceptability of mixed methods studies (Creswell, 2014) as not only a realistic alternative to establishing reality but also an approach to conducting research.

Theoretically, Morgan (2007) proposed that the pragmatic approach is based on abductive reasoning which allows a researcher to move back and forth between deductive and inductive reasoning embedded in quantitative and qualitative approaches respectively. I chose to employ the post-positivist philosophical ideas of the nature of reality to gain understanding of the measurable variables related to childbirth experiences and mother-infant interactions while focusing on the interpretative facets of the constructivist world view including an interpretivist stance to explore the culturally based meanings women attach to events and experiences of childbirth. The multidimensional approach to establishing reality known as triangulation adopted in this study was aimed at enhancing validity of the study findings (Creswell, 2014) in this largely exploratory study.

The triangulation of different forms of reality enabled by the pragmatic world view was sought to facilitate a broader understanding of the issues concerning childbirth experiences among participants and how those experiences are associated with and explain the observed mother –

infant interactions. Morgan (2007) contends that the inter-subjectivity of the pragmatic research process allows for transferability of the findings. Neither of the post-positivist and constructivist realities on their own would have fully allowed the intricacies underlying the phenomena under investigation to be identified. The pragmatic philosophical basis of mixed method designs allows the combining of hitherto incompatible designs thus enabling investigation of complex phenomena (Creswell, 2009; Morgan, 2007) such as one undertaken in this study.

#### 4.1.4 Mixed methods designs

A number of labels and definitions have been advanced for mixed method designs over the years by different methodologists (Johnson, Onwuegbuzie, & Turner, 2007). This study adopts Leech and Onwuegbuzie (2007) conceptualisation of mixed methods: research that involves collecting, analysing, and interpreting quantitative and qualitative data in a single study. The purpose of mixing quantitative and qualitative elements in a single study is to broaden and deepen the understanding of the phenomena under study and to corroborate findings (Johnson et al., 2007). The philosophical basis for mixed methods designs as highlighted above is pragmatism which seeks to find appropriate techniques of answering research problems from both quantitative and qualitative viewpoints (Crotty, 2014; Johnson et al., 2007; Morgan, 2007). The advocates of mixed methods have argued for the advantages of combining qualitative and quantitative research designs as a way of minimising the weakness inherent in either of the two traditional designs (Creswell, 2007; Johnson & Onweugbuzie, 2004; Morgan, 2007; Teddlie & Tashakkori, 2006). It is such advantages and the flexibility of the approaches to mixed methods designs that I sought to exploit in undertaking this study to adequately examine the issues under consideration. Several mixed methods designs have been proposed since the 1980s by mixed design methodologists (Hanson et al., 2005; Leech & Onwuegbuzie, 2007; Teddlie & Tashakkori, 2006) as illustrated in the following section.

#### 4.1.5 Typologies of mixed methods designs

Differences in typologies of mixed methods designs advanced over the years in part reflect the pragmatic nature of this approach to research. Researchers adopt specific designs that can help them address the nature of the research problem under consideration. The use of a notation system attributed to Morse (1991) and adopted by other methodologists such as Creswell (2014) to graphically represent specific mixed designs cuts across most of the mixed method designs and allows for presentation of several typologies. I illustrate a few notations in Table 7.

Table 7: Notations used in mixed methods designs

<b>Notation</b>	<b>Description</b>
+	Concurrent methods
	Sequence of methods
QUANT/QUAL	Dominance/priority of the design
quant/qual	Lower priority of the designs
()	Embedded within a design
[ ]	A study within a series
	Activities can go either direction

The graphical representations of specific designs have not only enhanced understanding of the dynamic mixed method approaches (Creswell, 2009; Hansen et al, 2005) but widened the possibility of distinct strategies of mixed designs. For example, Leech and Onwuegbuzie (2007) noted that 24 different combinations of qualitative and quantitative approaches could be realised from their eight mixed designs by using some of the notations described above. However, due to the developmental nature that characterises many of these approaches I focus on two recent approaches that build on earlier conceptualisations as shown in Table 8.

Table 8: Mixed method designs

Methodologist	Factors influencing procedure	Designs and strategies
Leech and Onwuegbuzie (2007)	Three dimensions considered in mixing; <ol style="list-style-type: none"> <li>1. Level of mixing</li> <li>2. Time orientation</li> <li>3. Emphasis of approach</li> </ol>	Eight general mixed designs including <ol style="list-style-type: none"> <li>1. Partially Mixed Concurrent Equal Status</li> <li>2. Partially Mixed Concurrent Dominant Status</li> <li>3. Partially Mixed Sequential Equal Status</li> <li>4. Partially Mixed Sequential Dominant Status</li> <li>5. Fully Mixed Concurrent Equal Status</li> <li>6. Fully Mixed Concurrent Dominant Status</li> <li>7. Fully Mixed Sequential Equal Status</li> <li>8. Fully Mixed Sequential Equal Status</li> </ol>
Creswell (2014)	Four key factors <ol style="list-style-type: none"> <li>1. Timing of qualitative and quantitative data collection and analysis</li> <li>2. Weight or priority given to quantitative or qualitative research</li> <li>3. When and how mixing of data occurs</li> <li>4. Role of theory</li> </ol>	Three basic mixed methods designs <ol style="list-style-type: none"> <li>1. Convergent parallel mixed methods</li> <li>2. Explanatory sequential mixed methods</li> <li>3. Exploratory sequential mixed methods</li> </ol> And three advanced mixed methods designs <ol style="list-style-type: none"> <li>4. Embedded mixed methods</li> <li>5. Transformative mixed methods</li> <li>6. Multiphase mixed methods</li> </ol>

The different mixed methods designs illustrated in Table 4.2 serve different purposes and pose different demands on the researcher seeking to maximise the strengths of the most appropriate design for the specific problems under investigation. Creswell's three basic designs include the convergent, explanatory sequential and exploratory sequential (Creswell, 2014). For purposes of this study I focussed on the suitability of the basic mixed methods designs advanced by Creswell (2014) and the eight designs proposed by Leech and Onwuegbuzie (2007). Researchers employing convergent parallel mixed designs collect quantitative and qualitative and analyse both data separately before examining agreement in the findings (Creswell, 2014). Creswell's convergent parallel mixed methods design is similar in many ways to the concurrent

designs proposed by Leech and Onwuegbuzie (2007). The different sets of data are collected at the same time with a purpose of comparing the findings (Creswell, 2014). The differences in concurrent typologies concern the level of mixing, time orientation and emphasis given to either quantitative or qualitative approaches as illustrated in (Table 8). The key advantage of concurrent/convergent designs is that different forms of data about the same concept/construct are collected in the same session (Creswell, 2014).

Similarly, the sequential designs proposed by Creswell (2014) including explanatory and exploratory sequential designs mirror the earlier sequential designs by Leech and Onwuegbuzie (2007). Creswell's sequential designs suggest that explanatory and explorative designs represent the quantitative and qualitative approaches respectively which inform the subsequent methods undertaken in the same study. The reliance on quantitative and qualitative approaches in explanatory and exploratory sequential mixed methods designs respectively (Creswell, 2014) can be compared to concurrent sequential dominant designs (Leech & Onwuegbuzie, 2007). Whilst acknowledging that the design selected depend on the purpose it serves in the study, Leech and Onwuegbuzie (2007) argue that the typologies of mixed methods designs have enhanced understanding of the possible permutations of mixing research methods. The researchers' decision to employ an extant design or formulate their own typologies ought to reflect the effectiveness of the design in addressing the research objectives, aims and questions under investigation (Leech & Onwuegbuzie, 2007). In the following section I discuss the relevance of the design employed in the current study.

#### 4.1.6 Mixed methods design and this study

The design employed in the current study blends both Creswell's (2014) convergent parallel mixed methods design and the concurrent equal status design proposed by Leech and Onwuegbuzie (2007). I therefore refer to the design illustrated in Figure 4 as convergent equal

status mixed methods design. The convergent parallel mixed methods design (Creswell, 2014) is thought to have evolved from the earlier version called concurrent triangulation design (Creswell, 2009). According to Creswell (2009) a concurrent triangulation strategy enhances the validity of research findings. In the current study, the purpose was to triangulate and compare the findings from the observation, quantitative tools and qualitative interviews to understand the phenomena of childbirth experiences and mother-infant relationships. However, convergent mixed method designs like all other research designs are not devoid of weaknesses. One such weakness concerns resolving inconsistencies that might arise when data from qualitative and quantitative strands are incongruent (Creswell, 2009; Fetters et al., 2013). For this study, the emphasis was not on ensuring congruence of findings but rather comparing results from different data sets and integrating key findings from both data sets (Creswell, 2014) as demonstrated in Figure 4.

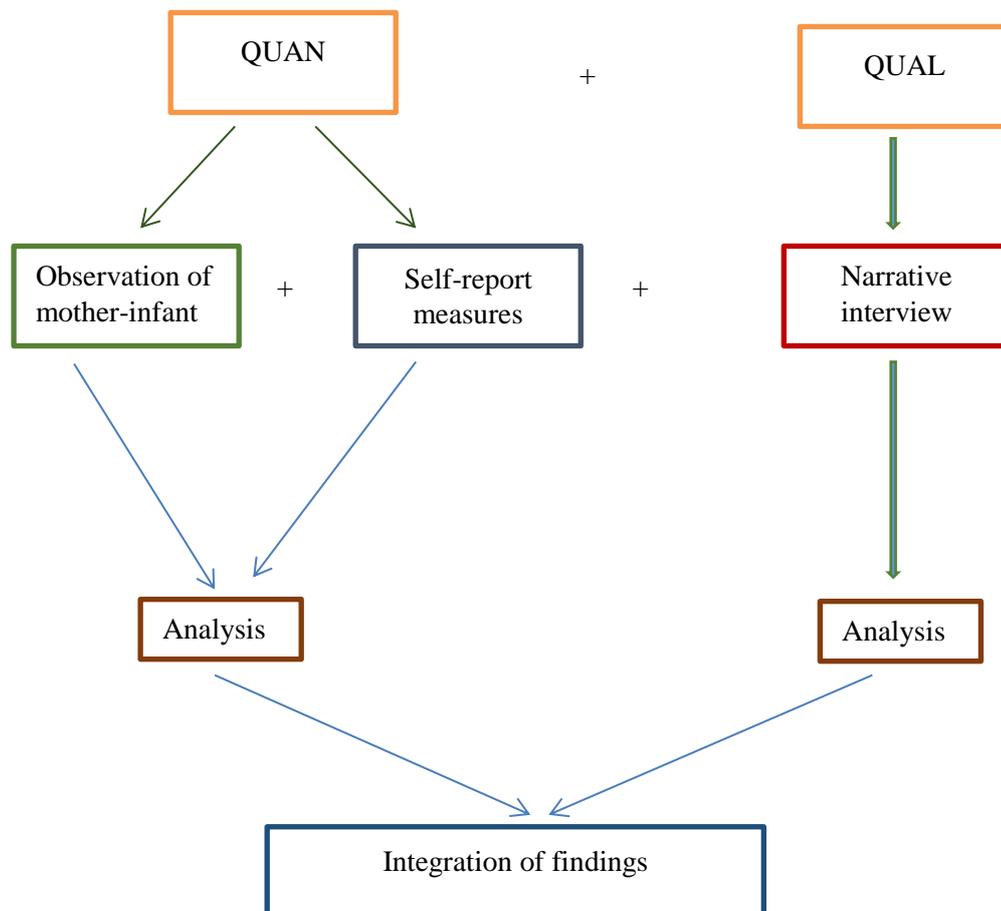


Figure 4: Convergent equal status mixed methods design

A convergent equal status mixed methods design comprising of a quantitative strand involving observations and quantitative self-report measures and a qualitative design comprising of narrative interviews was implemented. The purpose of the quantitative strand was to assess measurable characteristics about interactions between mothers and their babies, demographic factors, childbirth experiences, postpartum mental health and maternal attachment style. Since childbirth experiences have not been a focus of research in low income countries, the qualitative data provided a way to examine the mothers' own narratives about childbirth experiences. The two data sets were then used to compare different forms of information about childbirth experiences and to examine the interrelationship between childbirth experiences and mother-infant interactions at the integration phase. The intended outcome of the mixed methods design was a broader understanding of the nature of the mothers' experiences of childbirth and the mother-infant interactions.

The integration of the quantitative and qualitative approaches throughout the study is discussed in detail under data collection and data analysis sections. The main advantage of convergent (concurrent) mixed method designs over the other designs is that less time is required to collect data as all forms of required data are collected in a single phase (Creswell, 2009; 2014). For this study, I employed a single session of data collection, as shown in Figure 4, deemed feasible due to limited resources I had available for this PhD study.

## 4.2 Methods

### 4.2.1 Population and sampling strategy

I focused on a purposive sample of mothers operationalised as mothers who delivered live singleton babies at a high-risk maternity ward of a tertiary urban hospital in Uganda. My decision to involve high risk mothers was informed by literature and recent studies and reports

from Uganda about the situation of maternal health and obstetric care in Uganda's tertiary health care system as described earlier (Section 2.4.4). A high-risk maternity ward provided the population of interest for the current study with the aim of examining experiences of mothers who most likely had experienced a challenging child birth situation.

#### 4.2.2 Sample size

The number of participants was informed by two major factors. Firstly, the exploratory nature of the study meant pragmatic choices had to be made regarding the number of participants appropriate for outcome measures employed. Secondly, due to absence of previous studies with similar populations and study context, power calculations were likely to be unrealistic. I therefore considered a sample of 50 mother-infant pairs feasible for this convergent equal status mixed methods design. Although a sample of 50 participants might seem not large enough for the quantitative strand, it was sufficient to allow for a rigorous consideration of the qualitative interviews without undermining the richness of the women's childbirth experiences in the convergent equal status design employed in this study (Creswell, 2014). Moreover, the number of participants is comparable with purely quantitative studies focused on mother-infant relationships (Biringen, Derscheid, Vliegen, Closson, & Easterbrooks, 2014), in part due to resources required to tape and code a higher number of videos.

#### 4.2.3 Recruitment of participants

Recruitment of participants commenced after the study had achieved ethical approval (section 4.10) by relevant bodies in UK and Uganda and following pilot testing of data collection measures discussed in section 4.9. With the aim of facilitating recruitment, I gave an oral presentation about the study to the staff of obstetrics and gynaecology department of the tertiary hospital prior to commencement of the participant recruitment. Mothers admitted on the high

risk postnatal maternity ward who were assessed by the ward staff to be in a clinically good recovery condition and met the inclusion criteria (Table 9) were contacted by the research team (field assistant and I). I discuss the role of field assistant in this study later in sections 4.10.3. The key inclusion criteria concerned having a live baby, distance of residence from hospital, language and health of baby and mother among others (Table 9). Mothers were excluded if they did not have a baby at the time of contact either because of death at birth or admission to Intensive Care Unit (ICU). Admission to ICU and major health conditions for baby and/or mother could have negative effects on the study findings.

Mothers who had delivered singleton babies in a period of two months May to June 2015 and met the rest of the inclusion criteria were recruited. We contacted mothers who had spent at least a day on the ward after delivery. I introduced the research team to each mother and I explained the reasons for contacting her. After explaining the purpose of the study and providing the study information sheets (Appendix 1) in the mother's preferred language –either English or Luganda, a local language –I answered any questions from the mothers.

The study aimed to recruit 80 mothers who met the inclusion criteria (Table 9) among whom up to 50 mothers were to participate in the study beginning at four months postpartum upon meeting the final inclusion criterion number seven (Table 9). A higher than required number of participants was to cater for any drop outs for various reasons including not meeting the final inclusion criterion. A similar recruitment procedure was recently used in Uganda in a study by Kaye et al. (2014) involving women who developed uterine rupture due to obstructed labour. The 80 participants recruited followed the anticipated response rate of about 65% to allow for the 50 participants needed for this study. I assessed each mother for the inclusion criteria following points 1 to 6 shown in in Table 9.

Each of the mothers we contacted was given an opportunity to ask questions about the study. I emphasised to the mothers that participation in the study was voluntary. Mothers who met the inclusion criteria and expressed interest in taking part in the study were asked to consent verbally and give permission to being contacted by the researcher four months later. Those who verbally consented to being contacted by the researcher were asked to provide personal contact details including mobile telephone numbers and a detailed description of the physical location and direction where they live (Appendix 2). Mothers who did not meet the inclusion criteria were told the reasons for exclusion. Figure 5 shows numbers and specific reasons for exclusion of participation at different stages.

Table 9: Inclusion and exclusion criteria

<b>No</b>	<b>Inclusion</b>	<b>Exclusion</b>
1.	Mother is 18 years old and above at the time of delivery	Mother is below 18 years at the time of delivery
2.	Live birth at a tertiary hospital high risk maternity ward	Baby not born at a tertiary hospital high risk maternity ward
3.	Single birth	Multiple birth
4.	Mother and baby live in a radius of 30 kilometres from the hospital	Live outside 30-kilometre radius from the hospital
5.	Mother fluent in English and/or Luganda	Mother not fluent in English and/or Luganda
6.	Baby does not have a known developmental problem at birth	Baby has a known developmental problem at birth
7.	Baby and /or mother not been hospitalised for more than five days postpartum until the time of researcher visit at home and thus presumed not to have experienced major health distress not related to childbirth experiences.	Baby and /or mother been hospitalised for more than five days postpartum until the time of researcher visit at home and therefore presumed to have suffered major health distress not related to childbirth experiences

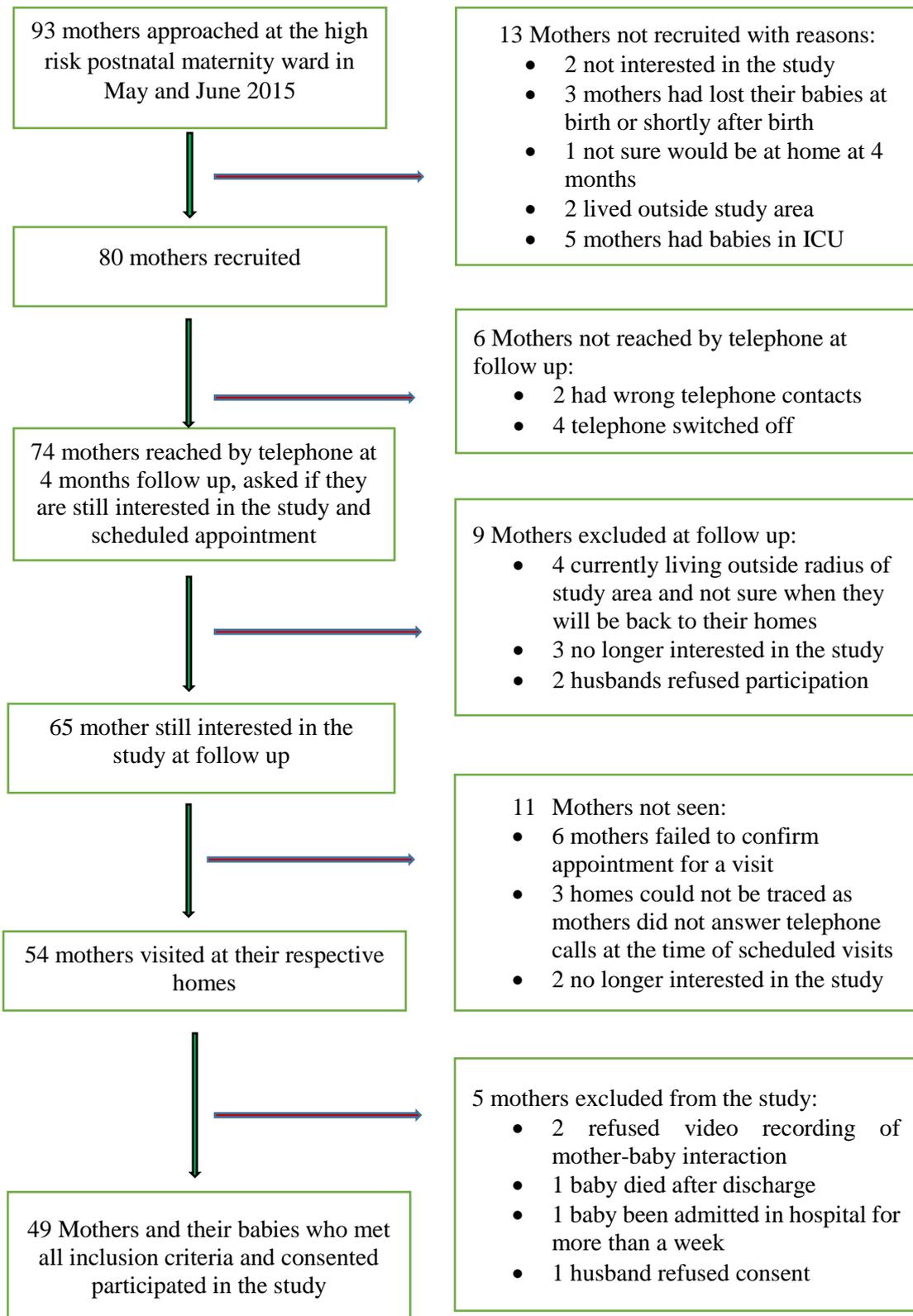


Figure 5: Recruitment and selection of participants

Although the data collection exercise was to take place at the participant's home, circumstances demanded that for practical reasons mothers be contacted at the ward. The absence of a proper postal address system in Uganda and poor internet coverage through which participants could easily be contacted after discharge from the hospital using personal information on medical records warranted an alternative mechanism for accessing mothers. It was therefore necessary that women be initially contacted at the hospital following delivery to maximise opportunities for accessing a large number of potential participants.

It was also important that mothers knew that the study was being conducted by an independent researcher and not the staff of the hospital. This was hoped to give mothers sufficient time to not only exercise their rights in choosing whether to participate in the study, but also to understand that their participation or lack of it would not compromise their right to medical care from the hospital staff. Although it might be argued that a researcher contacting participants directly might seem coercive, it was deemed of less negative consequences compared to medical staff recruiting participants due to conflict of interests that could result from issues envisaged by the medical staff to be covered by the study. I took precautions to ensure that the information given to the women was framed in such a way that it did not coerce participation as shown in the study information sheet (Appendix 1). The purpose was to provide an opportunity for the women to get sufficient information about the study before deciding on their involvement.

#### 4.2.4 Telephone follow up of mothers and arranging the visit

Four months after the initial contact at the hospital, I telephoned each of the 80 mothers who met the inclusion criteria at recruitment at the hospital to remind them about the study, find out if they were still interested in taking part in the study and arrange appointments for a visit by the research team at their respective homes. However, I reminded mothers that verbally consenting for the research team to go to their home did not mean inclusion into the study as

each of the participating mother and her baby were to meet inclusion criterion number seven (Table 9) as assessed by the researcher at home and sign a written consent. I asked mothers who still showed interest in taking part in the study at the time of telephone follow up for the convenient time when the research team would visit her at home. To ensure that our visit was not misconstrued in a culturally male dominant society, I requested each mother to inform the head of the family whenever possible of the purpose of our impending visit. The rationale for ensuring that the head of the family was aware of our visit was to prevent conflicts that might arise in the family as a result of our visit. The primary role of a female field assistant was to further enhance the social credibility of our visits to the participants' homes.

#### 4.3 Data collection methods and materials

The actual data collection in the participant's home was preceded by a review of the information about the study given to the mothers at the initial contact at the hospital (Appendix 1), followed by assessing the mother and baby for the inclusion criterion number seven (Table 10) to confirm that the baby and /or mother had not been hospitalised for more than five days and thus presumed not to have suffered major health distress in the period between delivery and our visit at home. This final inclusion criterion was intended to minimise the effects of ill health experiences after birth that could influence the mothers' reports beyond childbirth experiences and subsequent effects on mental health and mother-infant interactions, the key issues I sought to explore in the current study. Thus, mothers and/or babies who had experienced these sources of distress outside those attributed to experiences of childbirth were excluded from the study. Mothers were given an opportunity to choose their preferred language (either English or Luganda) to be used in data collection at the time of signing the written consent form. The methods of data collection and specific materials used and order are summarised in Table 10.

Table 10: Data collection methods

Method	Materials	Participant(s)
Observation	Videotaping social interaction, coded later with Emotional Availability (EA) scales	Mother and baby
Quantitative	<ul style="list-style-type: none"> <li>• Demographic questionnaire</li> <li>• A questionnaire on childbirth experiences</li> <li>• Impact of Event Scale –Revised (IES-R)</li> <li>• Attachment Styles Questionnaire (ASQ)</li> <li>• Edinburgh Postnatal Depression Scale (EPDS)</li> </ul>	Mother
Qualitative	Narrative Interview	Mother

The methods of data collection were administered in the descending order shown in Table 10 to minimise undue influence of sequence of multiple approaches of data elicitation. By starting with observations and ending with narrative interviews I attempted to prevent the effects of the mothers' emotions associated with the recall of experiences of childbirth that could potentially affect the mother-infant interactions. A detailed narrative of the birth experience before completion of questionnaires could have influenced the mother's responses on the quantitative measures due to apparent awareness of experiences. The effect of quantitative measures on narrative interviews on the other hand was thought to have a less significant negative impact as meanings are created during the process of telling the story (Jovectelovitch and Bauer, 2000). In the next section I describe each of the data collection methods, procedures and materials used.

#### 4.3.1 Observations of mother-infant interactions

Assessment of mother-infant interactions can be achieved using several measures and in many different settings (Biringen et al., 2014; Joosen, Mesman, Bakermans-Kranenburg, & van Ijzendoorn, 2012). These measures can largely be categorised into two major groups, self-report

measures and observation measures each with varying research and clinical strengths. For this study, I chose an observation measure to minimise the social desirability effects associated self-report measures (Davies et al., 2008). The Ainsworth's (1974) scales used in naturalistic settings through elaborate observations are widely considered as the gold standard for assessing maternal sensitivity (Bigelow et al., 2010; Joosen et al., 2012). However, they do not lend themselves to use in research projects with large numbers of participants because of longer periods required to observe each mother-child dyad in several daily routines such as bathing, feeding, and playing.

A number of relatively short observation measures based on single everyday routines that adopt Ainsworth's construct of maternal sensitivity have been developed over the years. Recent measures are also flexible in regard to settings of use as they can be applied in naturalistic, laboratory and clinical settings (Joosen et al., 2012). I used Biringen (2008) 4<sup>th</sup> edition of Emotional Availability (EA) to score brief video recorded interactions taped at home as described later in this section. The EA scales were selected over several other short measures of maternal sensitivity due to the scales predictive validity of child attachment styles (Biringen et al., 2014), the theoretical basis for the current study and nonintrusive procedures employed (Biringen, 2008). The EA scales also provide various ways of scoring relevant aspects of the interactions (Biringen et al., 2014). Moreover, the child scales allow for scoring the role played by the child in the interaction (Biringen, 2008) unlike several self-rate measures which only focus on maternal emotions and behaviours. In the next section I highlight the training I went through to attain certification for use of EA scales and ensure credibility of the results reported in the current study.

#### 4.3.2 Certification of reliability in scoring Emotional Availability scales

In August and September 2014, I undertook training to achieve certification in EA scoring that would allow me to reliably score cases in my study. The training involved developing an initial understanding of concepts of emotional availability through literature provided by Zeynep Biringen, the developer of the scales and provider of the training. This included a book titled *Raising a Secure Child: Creating an Emotional Connection Between You and Your Child*; material on EA website ([www.emotionalavailability.com](http://www.emotionalavailability.com)) and an Infancy/Early Childhood (0-5years) version of the EA scales manual, 4<sup>th</sup> edition (Biringen, 2008) used in scoring interactions between the mother and baby. Upon familiarising myself with the key concepts of emotional availability and the key elements of the dyadic interactions between an adult and a child, I commenced online training conducted by Biringen through a secure and specialised training website equipped with recordings of her pre-recorded EA training workshops and diverse categories of video recorded interactions between different categories of adult caregivers and infants.

The online training involved watching video recordings of interactive workshops between the emotional availability trainer and participants in different locations. This facilitated learning about the scoring approaches and justifications for scoring specific patterns of interactions between an adult caregiver and a child in both dyadic and group interactions. I then scored a wide range of practice videos of interactions between individual mothers/adults and children under five years. The videos included structured and unstructured interactions either at a laboratory/clinic setting or at home including activities such as feeding, playing, completing specific tasks and naturalistic social interactions. During the scoring, I practiced all the three EA scoring approaches including direct scores, global scoring and use of a clinical screener. The direct scoring involves assessing the dyadic interaction and assigning a score of between 1 and 7 to each of the six EA scales as illustrated in Table 11. Lower scores on EA scales (1-4)

are considered less optimal while scores of 5 and above are optimal (Biringen, 2008). Global scoring on the other hand involves summing up scores of specific aspects of interactions on each of the EA constructs as illustrated in scoring adult sensitivity to the child shown in Table 12. The third EA scoring approach, less commonly used in research projects (Biringen et al., 2014), is the clinical screener which involves assigning a percentage score to each of the six EA subscales. Like in the direct scoring method, higher scores in both global scoring and clinical screener denote optimal emotional availability (Biringen, 2008). All of these three methods of scoring can therefore be used to demonstrate the level of emotional connection present in individual adult-child interactions (Biringen, 2008).

Throughout the training, I scored over thirty different videos by practicing each of the scoring approaches. Each of the scored practice videos was then reviewed by the trainer. Feedback sessions via skype conferencing with the trainer, allowed me to address challenges I had encountered in scoring videos. Whenever necessary, I was given opportunity to score again videos which were problematic and these were subsequently reviewed by the trainer followed by another feedback session. Following demonstration of competence in scoring diverse interactions between adults and their respective children, I scored a different set of fifteen videos (reliability test videos) selected by the trainer. Assessment of reliability was reported by the trainer as based on her evaluation of my scoring of the test videos against her criterion scores collected over time on the same videos. I achieved reliability at the first attempt and was awarded a certificate of reliability which permitted me to score cases in my own study projects for a period of two years (Appendix 5).

#### 4.3.3 Undertaking videotaping of mother-infant interaction

I recorded a social interaction of the mother and her baby at home. The instruction to the mother was ‘Please interact with your baby as you normally would do’ (Appendix 3). As part of the

structure, I told the mother that she could do whatever she liked to soothe her baby if the baby became distressed during the interaction (Cassidy et al., 2005). The videotaping of mother-infant interaction lasted 10 minutes. At the end of the videotaping, I gave each mother an opportunity to see the video of her interactions with the baby.

#### 4.3.4 Coding of videos and quality of scales used

To determine the patterns of interactions between mothers and their babies I coded the videos using the EA scales. The EA scales were developed by Biringen based on attachment theory construct of sensitivity (Biringen, 2008). The EA scales comprise of six dimensions of emotional availability, four for the adult (caregiver) toward a child and two for the child toward the adult. The four adult dimensions include caregiver *sensitivity*, *structuring*, *non-intrusiveness* and *non-hostility*. The child component includes child *responsiveness* to the adult and child *involvement* of the adult. There are two different forms of EA scales –the infant/Early childhood (0-5years) version and the middle childhood/youth version. For this study, I used the 4<sup>th</sup> edition of 0-5years version (Biringen, 2008) to code the social interaction between a mother and her baby. Individual components vary on each of the adult or child EA scales. For example, the components of adult *sensitivity* scored individually are shown in Table 12.

Table 11: Emotional availability (EA) scales (4<sup>th</sup> Edition)

Adult scale	Description of construct	Score
1. Adult <i>sensitivity</i>	Sensitive adult creates a positive, genuine, and authentic affective climate characterised by congruence in verbal and non-verbal emotional expressions. The focus is on the dyadic expression of emotions. It is therefore a measure of emotional sensitivity as the adult caregiver perceives and appropriately responds to the child's emotional expressions.	1-7
2. Adult <i>structuring</i>	Measures the extent to which the adult adequately guides, scaffolds, and serves as a mentor to the child's activities. The adult is observed following the child's lead and setting limits while encouraging autonomy.	1-7
3. Adult <i>non-intrusiveness</i>	Measures the adult's lack of over-stimulation, over-direction, interference, or over-protection.	1-7
4. Adult <i>non-hostility</i>	A range of adult responses including absence of hostility, concealed/ covert hostility and openly hostile responses are measured.	1-7
<b>Child scales</b>		
1. Child <i>responsiveness</i> to the adult	Focus is on the child's emotional and social responsiveness to the caregiver.	1-7
2. Child <i>involvement</i> of the adult	Measures the child's ability to involve the adult in his or her play. Focus is on the child's initiatives to include the adult in the interaction	1-7

For the current study, I used a total global scoring approach by summing scores of the components of each of the six EA constructs. This approach enhanced clarity and transparency in reporting as shown in a sample of a completed scoring form for one of the mother-infant interactions (Appendix 4).

Table 12: Sample components and global scoring of adult sensitivity

Components of maternal sensitivity	Highest score, description	Lowest score, description
Affect	7, Healthy/secure connection	1, Non-optimal/depressed/withdrawn etc.
Clarity of perceptions and appropriate responsiveness	7, Adult aware of signals and communicates easily; and responds appropriately and promptly	1, Adult unaware of or oblivious to subtle cues and communications)
Awareness of timing	3, Aware of timing	1, Lacks awareness of the importance of timing
Flexibility, variety, and creativity in modes of play or interaction	3, Flexibility seen	1, Very little play or variety, enjoyment, creativity seen
Acceptance	3, Adult speaks or acts in respectful ways	1, Way adult acts or speaks is clearly disrespectful or does not speak/interact
Amount of interaction	3, Enough interaction, given the context or directions	1, Very little or no interaction
Conflict situation	3, Adult is skilful in moving conflicts to resolution or few conflicts to resolve	1, Adult shows no efforts to resolve conflict or a lot of conflict seen
Total global score	Highest = 29	Lowest = 7

A total global score is realised for each EA construct by summing the scores of the components as demonstrated in Table 12. Higher scores on both adult and child scales for all three scoring methods denote optimal emotional availability in interactions between the caregiver and child. The descriptions of behaviours constituting highest and lowest possible optimal emotional availability and respective scores for adult sensitivity are shown in Table 12 to illustrate how total global scores are achieved for each of the EA scales.

The EA scales have been extensively used to measure relational interactions between child and adult caregiver in several countries and different cultures and have been found to have sound psychometric properties (Biringen et al., 2014). For example, Biringen et al. (2014) in a review

of papers which have previously used EA scales reported inter-rater reliabilities ranging from .76 to .96. Convergent and construct validity of EA scales have been demonstrated in many studies as reported by Biringen et al. (2014). The scores on complete EA scales and/or its component scales have yielded convergent validity in different cultures with attachment security, emotion regulation, school readiness, and language development among many other relevant constructs (Biringen et al., 2014). Of interest to the other variables being considered in the current study, EA scores have in the past studies showed convergent validity with postnatal depression (Vliegen, Luyten, & Biringen, 2009) and maternal birth trauma (Biringen et al., 2014). However, some studies in the same review paper showed no difference between depressed and non-depressed mothers on EA scores.

#### 4.4 Quantitative measures

In this section I discuss self-rated measures used including demographic survey, Impact of Events Scale-Revised (IES-R), Edinburgh Postnatal Depression Scales (EPDS) and Attachment Styles Questionnaire (ASQ).

##### 4.4.1 Rationale for using questionnaires

In the current study, I sought to explore the association between childbirth experiences and mother-infant relationships in a sample of Ugandan women. Survey methods are the most common quantitative methods used in data collection for the purpose of statistically evaluating associations between measurable variables including descriptive features of the participants (Balnaves and Caputi 2001). The key advantages of using self-administered/researcher administered questionnaires for this study were that items were presented in the participant's preferred language and I was able to ensure that the intended participants answered the questionnaires and not someone else. The other advantages of the survey method are that it is

fast and cost effective (Creswell, 2014) especially for a study setting such as where this study was conducted, with poor postal coverage and communication technologies which could not allow for other survey methods. The major weakness of surveys is the lack of flexibility as participants are required to answer the questions as presented and there is no room for probing. The specific questionnaires used in this study were selected for their psychometric properties as described later in this chapter.

#### 4.4.2 Administering the measures

The individually administered questionnaires used in this study are a demographics survey including a measure of childbirth experience, Impact of Events Scale-Revised (IES-R; Weiss and Marmer, 1997), Attachment Styles Questionnaire (ASQ; Feeney et al., 1994) and Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987) (Table 10).

I designed the demographic questionnaire specifically for this study (Appendix 3) to obtain demographic data that were thought to be of significance to the research question under investigation. Data was collected about the mother, the baby, the wider family context and issues about the mother's childbirth experiences. Key items about the mother assessed were maternal age, education, employment, and parity; items about the baby included baby gender, weight at birth, age at time of data collection, and health concerns. General family characteristics including number of people at home, father's characteristics and distance to the hospital among others were also collected

Included was also a section designed specifically for this study to assess the women's perceptions of childbirth experiences. Items focused on labour including duration of labour, problems during labour and delivery, mode of delivery, overall experience of child and hospital experience. Overall childbirth experiences were defined as mother's experience from the time

when she found out she was pregnant up to time she was discharged from the hospital after delivery while hospital experiences were defined as experiences of the time spent at the hospital during labour, delivery and after delivery. I then used three standardised measures to assess variables of interest. The Impact of Events Scale-Revised (IES-R) was used to assess posttraumatic stress symptoms with labour and delivery as the traumatic event, Attachment Styles Questionnaire (ASQ) assessed the mother's attachment style and Edinburgh Postnatal Depression Scale (EPDS) assessed maternal postnatal depression.

The aforementioned standardised measures have been widely used and translated into several languages for use in different parts of the world. For the current study, all the measures were translated into Luganda, a local language in the study area by a trained translator following the standard forward–backward procedure (Koller et al., 2007). The reason for translation of survey tools into a local language was the anticipated low literacy levels of the participants and Luganda being the most widely spoken language in the study area. Mothers who were able to read and write self-administered the questionnaires. To prevent researcher bias, a field assistant who was fluent in Luganda, administered the Luganda versions of the measures to mothers who spoke Luganda but were unable to read and/or write. Prior to data collection exercise, the field assistant practiced administering the Luganda version of the measures to ensure familiarity and consistency in administering the tools. In the following section I describe the psychometric properties of each of the measures of the key variables undertaken in this study.

#### 4.5 The quality of questionnaires used in data collection

Psychometric properties including reliability, validity, specificity and sensitivity are used to show the quality of instruments (Kimberlin & Winterstein, 2008). Apart from the measures of demographic data and childbirth experiences which were designed specifically for this study, I ensured that the instruments used to measure PTS symptoms, attachment style and depression

had evidence of being psychometrically sound from similar studies in the past. This was important as the quality of research largely depends on the reliability and validity of instruments used to measure constructs of interest (Kimberlin & Winterstein, 2008). In the following sections, I present the psychometric properties of each of the measures used including for the current sample.

#### 4.5.1 The Impact of Events Scale-Revised (IES-R)

The IES-R was developed based on the Diagnostic Statistical Manual fourth edition (DSM-IV) for PTSD by Weiss and Marmar (1997). The 22-item measure comprises of three sub scales namely avoidance, intrusion and hyper-arousal (Appendix 3). The IES-R and its earlier version, the IES have been used in measuring PTSD symptoms associated with diverse traumatic events in different cultures (e.g., Amone-P'olak, Garnefski, & Kraaij, 2007; Asukai et al, 2002; Creamer, Bell & Failla, 2003; Lim et al, 2009; Sveen et al, 2010). Olde, Kleber, van der Hart, and Pop (2006) translated and validated a Dutch version of IES-R for use in childbirth trauma and reported total scale reliability (Cronbach's  $\alpha=.89$ ), the intrusion scale (Cronbach's  $\alpha=.84$ ), the avoidance scale (Cronbach's  $\alpha=.79$ ) and the hyper-arousal scale (Cronbach's  $\alpha=.68$ ). The IES/IES-R is one of the common measures of PTS symptoms in child birth and therefore offers a possibility of comparing scores of samples from difference cultures. Severity of PTSD symptoms following childbirth has previously been reported using the original IES subscale cut-off criteria as 0-8 Low; 9-19 Moderate and 20+ Severe (Ayers, Wright & Wells, 2007). However, the IES-R has not been previously used in childbirth trauma in a similar sample in Uganda and therefore its reliability for a comparable population was not known. For the current sample of 49 mothers, total score Cronbach's  $\alpha=.74$  was achieved. The internal consistency for the subscales were: Intrusion ( $\alpha=.68$ ), Avoidance ( $\alpha=.43$ ) and Hyperarousal ( $\alpha=.60$ ).

Validity of the IES-R has been demonstrated in relation to related constructs and other instruments which measure posttraumatic symptoms and PTSD (Olde et al., 2006). Olde et al. in a validation study for IES-R in childbirth trauma reported convergent validity with measures of depression, anxiety, and another measure of PTSD. The correlation of IES-R total scale and subscale scores and EPDS were reported as total scale ( $r=0.44$ ), Intrusion ( $r=0.29$ ), Avoidance ( $r=0.37$ ) and Hyperarousal ( $r=0.51$ ), all significant at 0.01 level. Convergent validity for IES-R for the current sample was measured by computing Pearson correlations with EPDS. The correlations were IES-R total score ( $r=.45$ ,  $p<0.001$ ) and EPDS with IES-R subscales were Intrusion ( $r=0.31$ ,  $p < .05$ ), Avoidance ( $r=0.31$ ,  $p < 0.05$ ) and Hyperarousal ( $r=.42$ ,  $p < 0.01$ ).

#### 4.5.2 Edinburgh Postnatal Depression Scale (EPDS)

The EPDS is a 10 item measure of postnatal depression developed by Cox, Holden, and Sagovsky (1987) based on 84 mothers who had delivered normally (75%) and by caesarean section, and their three months old babies (Appendix 3). Cox et al. (1987) reported EPDS sensitivity of 85%, specificity of 77%, split half reliability of .88 and standardised alpha coefficient of .87. EPDS has been validated in several countries including in sub-Saharan Africa and has showed high sensitivity, specificity and reliability (Garcia-Esteve, Ascaso, Ojuel, & Navarro, 2003; Montazeri, Torkan, & Omidvari, 2007; Stewart, Umar, Tomenson, & Creed, 2013; Werrett & Clifford, 2006). The EPDS was chosen for this study because it remains the single most frequently used instrument for measuring postnatal depression in Africa with sound internal consistency ranging from  $\alpha=0.71$  to  $\alpha=0.87$  (Tsai et al., 2013). For the current sample, internal consistency was  $\alpha=0.78$

Convergent and construct validity of the EPDS have been reported in several studies across the world (Garcia-Esteve et al., 2003; Olde et al., 2006; Tsai et al., 2013; Werrett & Clifford, 2006).

EPDS showed convergent validity for the current sample through significant correlations with IES-R total scale and subscales as demonstrated above.

#### 4.5.3 Attachment Styles Questionnaire (ASQ)

The Attachment Styles Questionnaire (ASQ) is a 40 item (Appendix 4 and 5) dimensional instrument based on social psychology school of thought discussed in the background chapter. It measures general adult attachment styles. The ASQ was developed by Feeney, Noller & Hanrahan (1994) using university students from a high income western country. The ASQ was selected over other measures of adult attachment because of its ability to measure current relationships and predict other constructs considered in the current study (Meredith, Strong, & Feeney, 2007; Strahan, 1995). Whereas the ASQ can be used as a five scale tool (Feeney et al., 1994), two predominant dimensions –comfort with relationships and relationship anxiety (Strahan, 1995) have also been established resulting into a shorter version.

Feeney et al. (1994) reported two forms of reliabilities for the original instrument –internal consistency and test-retest. The coefficient alphas for the five scales were confidence (.80), discomfort with closeness (.84), need for approval (.79), preoccupation with relationships (.76) and relationships as secondary (.76). Test –retest reliability over a period of 10 weeks for the five subscales ranged from .67 to .74. I employed the original 40 item measure for the current study to assess five dimensions of maternal attachment style. Internal coefficients for the five scales were confidence (.50), discomfort with closeness (.50), need for approval (.62), preoccupation with relationships (.43) and relationships as secondary (.60).

The ASQ's validity was reported by Meredith et al. (2007) for the two dimensional scales through significant correlations between ASQ scores and depression both pre and post treatment –Comfort scale with pre-treatment depression ( $r = -.24, p < .05$ ), and post-treatment depression

( $r = -.31, p < .01$ ) while anxiety scale with pre-treatment depression ( $r = .47, p < .001$ ) and post-treatment depression ( $r = .25, p < .05$ ). For the current study, ASQ demonstrated convergent validity through significant positive correlations between EPDS and four ASQ subscale: Discomfort with closeness ( $r = .33, p < .05$ ), Need for approval ( $r = .36, p < .05$ ), preoccupation with relationship ( $r = .44, p < .01$ ) and Relationship as secondary ( $r = .45, p = .001$ ). Confidence subscale was negatively correlated with EPDS scores but not significant. With IES-R scores, significant positive correlations were achieved with ASQ scale Need for approval ( $r = .31, p < .05$ ) and Preoccupation with relationship ( $r = .33, p < .05$ ). In the next section I discuss qualitative interviews conducted as part of this study.

#### 4.6 Interviews

Several methods of qualitative data collection exist. Creswell (1994) lists four methods depending on the type of data required. These are qualitative observations, qualitative interviews, qualitative documents and qualitative audio and visual materials. Qualitative interviewing is one of the most common forms of eliciting data in qualitative research (Roulston, 2010). Edwards and Holland (2013) highlight two major forms of qualitative interviews—semi-structured interviews and unstructured interviews, under which several specific forms of interviewing can be categorised. Semi-structured interviews are characterised by a set of questions or topics that are to be covered but with a flexible approach to how they are covered (Edwards & Holland, 2013). In semi-structured interviews, the form the interviews take is the same across study participants. Unstructured interviews on the other hand, although the interviewer has specific issues to be covered in the interview, emphasis is on the interviewee taking the lead and talking from their own perspective. The phenomenological philosophical basis for unstructured interviews include constructivism, symbolic interactionism and ethnomethodology (Edwards & Holland, 2013).

The focus of the current study for which the interview is applicable is understanding women's perceptions and meanings attached to their childbirth experiences. It is common for a researcher undertaking unstructured interviewing to have either an aide memoire to shape the interview or a single question which starts off the story told by the interviewee. Single questions to the interviewee such as one adopted for the current study are popular with psychological and psychosocially oriented interviews (Edwards & Holland, 2013).

Interviews are specifically applicable in this study due to the advantages they have over other qualitative methods including being appropriate in situations such as extensive maternal lived experiences where participants cannot be directly observed. Interviews also allow participants to provide a historical context of their story while allowing the researcher to maintain control over the questions asked that are in line with the area of interest (Creswell, 2014). Edwards and Holland (2013) argue that the strengths of interviews include the ability to represent everyday life, being a means through which the understandings, meanings and imaginations of study participants can be gained, and help explore the significance of the meanings generated by the participants. However, interviews do have their weaknesses. For example, the information gained is bound to be filtered through the participant's own views, the researcher may bias the interviewee and some people are not very articulate (Creswell, 2014).

Forms of interviews which focus on the story of the participant concerning specific issues of research interest include life course interviews; life history; bibliography and narrative interviews (Edwards & Holland, 2013). For the current study, narrative interviewing was specifically undertaken due to its relevance to the nature of the phenomena studied as described below.

#### 4.6.1 Rationale for use narrative interviews in this study

Narrative interviews as used in this study have special strengths. I anticipated that some women had not had an opportunity to articulate their experiences of childbirth due in part to cultural beliefs of childbirth being a woman's personal struggle (Kyomuhendo, 2009). In the process of telling a story, it is believed that the narrator is able to remember what happened and arrange the experiences as s/he attaches meanings to those experiences (Jovechelovitch and Bauer, 2000). Moreover, Jovechelovitch and Bauer note that story telling as a skill is less dependent on an individual's education level, an assumption that was considered for the current sample. As such, narrative interviews were deemed more applicable to the current study as women were to be given an opportunity to narrate their experiences with no specific demands on education standard and individual levels of articulation. In agreement with Jovechelovitch and Bauer (2000), the focus of the narrative interview in this study was the mother's personal experience in relation to specific childbirth events and actions and how the mother linked the events both in time and meaning.

Philosophically, narrative interviews underscore an interpretivist world view which enable people to produce narratives about the self and identity (Edwards & Holland, 2013). Because the meanings and understandings of women are shaped by cultural and societal nuances (Edwards & Holland, 2013) which had to be mutually constructed and/or interpreted by the mothers and the researcher, a narrative form of interview was deemed most appropriate. In the next section I describe how I conducted the individual narrative interviews.

#### 4.6.2 How narrative interviews were conducted

I conducted face-to-face individual interviews at the participant's home or in a specific venue judged to be appropriate by the mother herself. The language used (either Luganda or English)

was decided by the mother depending on her fluency. I conducted all the interviews to ensure consistence and minimise my influence by reflecting on what I brought to the interview and how I could have shaped the outcome by keeping notes. However, emphasis was the mother's own story concerning her experience of having a baby. The aim was to facilitate a deeper understanding of the childbirth story and the meanings women attach to the events surrounding their childbirth experiences with minimal external bias by the interviewer. The key instruction was: *Please tell me your story about having this baby from the time you found out you were pregnant, through pregnancy, labour, admission at the hospital, delivery and the entire time you spent in the hospital before discharge* (Appendix 3). The interviews were audio recorded, with the mother's permission.

#### 4.7 Data analysis methods

Following the procedures set out in the convergent equal status mixed methods design in section 4.1.6 (Figure 4), data analysis followed the same pattern beginning with EA scores of mother-infant interactions and self-report measures followed by qualitative analysis as described in the following sections. I undertook this data analysis process to reduce bias in scoring video recordings of mother-infant interactions. By starting with scoring and analysis of mother-baby video recordings before analysing questionnaires and women's narrative interviews, I minimised the influence of my apparent knowledge of the women's experiences reported in self-report questionnaires and narratives on the EA scores of the interactions between mothers and their babies. This facilitated more objectivity in scoring videos despite my earlier exposure to the participants during data collection in the field. The scores I assigned to the different aspects of the interactions on each of the EA scales were therefore guided by the EA manual used but not my understanding of women's scores on questionnaires or narrated experiences of childbirth.

#### 4.7.1 Quantitative data preparation and statistical analysis

I coded each of the mother-infant video recorded interactions using the global scores of the six EA scales described in section 4.4.3 to generate quantitative data for the interactions. I checked all self-rated questionnaires to ensure satisfactory completion. Following this, I computer coded all questionnaires entering all data into the IBM Statistical Package for Social Sciences (SPSS) software version 22 to allow for appropriate statistical analysis to answer the study objectives and test the hypotheses presented in sections 3.8.3.

To interpret the scores of the sample on quantitative measures, I ran several descriptive statistical analyses and examined the sample scores including frequencies, means, medians, interquartile range and standard deviations on selected variables. From this preliminary statistical analysis, I ran exploratory analyses to select the appropriate statistical tests; I obtained the results for study objectives one, two and four, and evaluated my hypotheses for those objectives.

To examine the findings regarding the third objective which sought to examine the association between childbirth experiences and mother-infant interactions, I conducted Pearson correlations and analysis of variance. I ran Pearson correlations between overall childbirth experiences and hospital experiences against mother-infant interactions scored on all the six EA scales. The results of this analysis also enabled examination of the hypothesised relationship between childbirth experiences and mother-infant interactions.

To further understand the impact of the women's childbirth experiences on the interactions mothers had with their babies, I also examined group differences on EA scores based on the mothers combined overall childbirth experiences and hospital experiences. First, I dichotomised the women's childbirth experiences into either negative or positive experiences. I categorised

women's scores on the two items measuring childbirth experiences (overall childbirth experiences and hospital experience) as positive experience if the self-rated score was *Very good, Good or Fair* and negative experience if the score was *Very bad or Bad*. Based on these two categories, I clustered mothers into four possible permutations of overall childbirth experiences and hospital experiences. These included; 1) Overall childbirth experience positive and hospital experience positive; 2) Overall childbirth experience positive, hospital experience negative; 3) Overall childbirth experience negative, hospital experience positive and 4) Overall childbirth experience negative, hospital experience negative. I then conducted an analysis of variance (ANOVA) to examine the group differences in mother-infant mean scores of EA scores based on the four groups of women clustered according to the experiences of childbirth. This was to enable an understanding of the general impact of childbirth experiences on EA scores of mother-infant interactions.

For objective five in which I sought to predict the mother-infant interactions PTS symptoms controlling for other variables theoretically determined from previous literature and examine the associated hypothesis, I conducted multiple regression analyses. Three major types of multiple regression exist through which the relationship between one dependent variable (mother-infant interactions for the current study) and several independent variables (Tabachnick and Fidell, 2001). These include standard multiple regression, sequential/hierarchical multiple regression and statistical/stepwise multiple regression. Basing on literature reviewed as part of this study, I chose hierarchical multiple regression analysis due to two main reasons. First, hierarchical multiple regression would allow me to determine the predictive effects of each of the independent variables at the point of entry into the model (Tabachnick and Fidell, 2001). Secondly, hierarchical multiple regression enabled me to enter the independent variables in the model according to a predetermined theoretical conception (Tabachnick and Fidell, 2001) gained from previous findings. I therefore entered the independent variables beginning with demographic factors and followed by childbirth experiences, depression, maternal attachment

styles and PTS symptoms. Whereas standard multiple regression analysis is similar to hierarchical multiple regression and is arguably more appropriate for a small sample (Tabachnick and Fidell, 2001), it does not allow for analysis of covariance. Through this study, I sought to explore the predictive effects of several variables on mother –infant interactions in addition to PTS symptoms arising from childbirth experiences and thus the choice of hierarchical multiple regression over other forms of regression. I did not consider statistical multiple regression because my sample was small and not representative of the population. Despite the small size of the sample for the study, hierarchical regression would at the very least allow understanding of the general trends of the predictor variables which could then be explored further in future studies with larger samples.

#### 4.7.2 Analysing qualitative interviews

Each audio recorded interview was transcribed verbatim. I transcribed interviews conducted in English while interviews conducted in Luganda were transcribed and translated by a trained translator. I listened to all interview recordings in Luganda and checked corresponding transcripts to ensure completeness of the transcription. Furthermore, to ensure accuracy and consistency in the Luganda interviews, we discussed and reached a consensus on aspects of translations that I or the translator found challenging. Interview transcripts, all in English were imported into ATLAS.ti, a computer software for analysis of qualitative data and prepared for analysis following the approach described below. Each participating mother was assigned a pseudonym to ensure anonymity.

For the analysis of qualitative material in general and narrative interviews in particular, several methods and approaches exist. However, since narrative interviewing was undertaken for this study, I focused on available methods for analysing narrative materials including interviews (Riessman, 2008). Table 13 summarises some of the common methods.

Table 13: Methods of narrative analysis

Narrative analysis approach	Description	Relevance
Thematic analysis	Focus is on the content –the “what” of the narrative	Helps to thematically categorise issues explored
Structural analysis	Focus is on both content and form of the narrative	Helps identify an overarching story or mini stories in the narrative
Dialogic/Performance analysis	Focus is on interactive production of narrative among speakers	Helps identify the role of context in story told
Visual analysis	Focus is on words and images from several visual outputs	Helps interpret images alongside spoken and written words

With the aim of generating an overarching childbirth story I conducted structural analysis of interview as it was the most appropriate method to gain the meanings mothers attached to their experiences as the study objectives. In particular, I employed Crossley’s (2000) approach focusing on content and structure of the interview in analysing the interviews about women’s childbirth experiences. The process of analysing narrative material according to Crossley is an interpretative one that requires the investigator to engage with the text so as to derive meaning through interpretation. Crossley suggested six key steps in conducting a narrative analysis which were followed in this analysis: 1) Reading and familiarising yourself with data; 2) Identifying important concepts to look for; 3) Identifying the underlying narrative tone; 4) identifying imagery and themes in the narrative; 5) Weaving all the above into a coherent story and finally 6) writing up. The steps suggested by Crossley though might appear linear, the actual process involves a researcher moving back and forth as illustrated below.

I reread each interview three to four times to familiarise with the content and structure of the mother’s narrative. To help better interpretation the narrative, I summarised the mother’s story in chronological order focusing on key experiences (Bold, 2012) of childbirth. Simpson, Heath, and Wall (2014) used this approach in analysing interview data on patients’ experiences of

living with a pituitary tumour. It is recommended that participants are given opportunity to give feedback on the summarised interview material (Bold, 2012; Squire, 2008). For this study, however, participant's feedback was not feasible due to difficulties in accessing participants as the analysis was conducted away from the study area. Due diligence was done to ensure that the integrity of participant's narratives in the summary stories was maintained through use of excerpts from the original interview transcripts.

Whereas, I moved back and forth between the full interview transcript and summary story, individual summary stories were the focus of analysis. The analysis process proceeded by inductively identifying and coding principal elements in the women's stories. These included characters in the story, key events, emotions, tone, imagery and themes. To enhance chronology of the women's individual stories and subsequent comparison of these stories, I coded the women's journey of childbirth into three key stages: 1) Issues leading to mother's confirmation of pregnancy; 2) Pregnancy and related experiences; 3) Labour, delivery and post-delivery.

Crossley (2000) noted that the narrative tone is one of the most pervasive aspect of the story and can be optimistic or pessimistic regardless of the experiences narrated. I therefore paid attention to the tone underlying the women's narratives. The coding process continued for all the interviews while keeping record of the process through the memo and comment functions of ATLAS.ti. Using the memo function, I kept a research diary and questions guiding the analysis process. The iterative coding and refining of codes of the principal elements continued until I was confident that all key elements listed earlier were appropriately coded.

Using the codes of principal elements and their corresponding quotations in each stage of the women's childbirth stories, I constructed interpretative narratives of each of the mothers by weaving together all the principal elements and typology of narrative. This was done using the memo function of ATLAS.ti and linked to the parent interview transcripts and summary stories.

Sample summary stories and my interpretative stories of women's narratives are in Appendix 6.

My reflections on both content and structure of the interpretive stories revealed that although there were some differences in the women's lived experiences of childbirth there were several similarities. The similarities and differences were expected as the interviews with mothers sought their lived experiences on a common phenomenon (Bold, 2012) of childbirth. Interpretative stories were used to generate a final narrative (Bold, 2012; Simpson et al.; 2014) of childbirth presented as 'acts' (Simpson et al., 2014) on key features forming the women's childbirth experiences. Quotations were used throughout the shared childbirth narrative to highlight similarities and differences in the participants' experiences. Wherever quotations from participants are used, (.) represents a pause, [...] indicates omitted words and {} indicates an action by the interviewee (Simpson et al., 2014). Emergent themes (Appendix 7) underlying specific experiences in the shared narrative were also identified to facilitate further understanding of the women's lived childbirth experiences. The overarching childbirth story is presented in the results chapter.

#### 4.8 Integrating findings

Quantitative and qualitative findings are presented separately in Chapter 5 and 6 respectively to allow comprehensive presentation of findings as per study objectives. I integrated quantitative and qualitative findings during discussion to enhance the overall understanding of the subject under investigation. Despite being one of the most important steps in mixed methods studies, integration of findings from diverse methods in a single study has been a subject of prolonged debate with no clear conclusions expected in the foreseeable future (Tunarosa and Glynn, 2017). There is apparent lack of consensus on the effectiveness of proposed methods of integrating findings, which reflects the expected developmental issues which surround mixed methods as

a third independent research paradigm. Some of the strategies which have been suggested and employed in recent mixed methods studies include triangulation, following a thread and use of a mixed methods matrix (O’Cathain, Murphy & Nicholl, 2010), joint displays (Guetterman, Fetters & Creswell, 2015) and weave (Creswell, 2014).

Weaving is one of the three approaches to integration of findings through a narrative (Fetters, Curry & Creswell, 2013). Implemented at the level of interpretation and reporting, weaving is achieved through description of both quantitative and qualitative findings under specific themes or concepts (Fetters et al., 2013). The connection in results obtained through diverse methods is achieved as quantitative and qualitative findings are woven back and forth around thematically related factors or concepts being investigated (Fetters et al., 2013). Such an integration strategy allows for the synchronisation of diverse aspects of a mixed methods study leading to a better understanding of key findings regardless of the study strand from which they are derived. Using this strategy, I integrated findings by weaving (Creswell, 2014) quantitative and qualitative findings which were separately analysed. This enabled reporting of a higher-level synthesis and interpretation of findings about childbirth experiences and mothers’ interactions with their babies under specific themes in the discussion chapter. Moreover, by focusing on themes while integrating findings, emphasis was on bringing together related findings regardless of time frames under which I elicited different data from the participants.

The use of ATLAS.ti software to keep both qualitative data and self-report demographic data in one place enhanced the weaving of findings as I matched information from both data sets to better interpret the findings. This closer examination of diverse findings was also made possible by a small sample of participants in the current study. For example, I could explore instances of apparent convergence and contradictions in findings by further analysis of individual cases such as women’s narratives of events and other forms of data about individual participants. The back and forth exploration of quantitative and qualitative findings under specific themes of

interest thus resulted in a better understanding of the overall findings as presented in the narrative of the discussion chapter.

#### 4.9 Reliability, validity and rigour

A mixed methods study like all other study designs needs to emphasise quality in all the decisions undertaken. For this mixed method study, I ensured that measures were taken to enhance reliability, validity and rigour at all steps of the study. The steps I took to facilitate high quality of the quantitative approaches in this study as suggested by Creswell, 2014) include selecting measures with a history of sound reliability and validity as earlier highlighted, a description of clear methods of translating the measures, and pilot testing the measures as explained later in this section. Additionally, I provided full instruments including the translated versions in the appendix to aid the reader have full access to material used in conducting this study.

The instruments I selected for the quantitative methods had previous reports of sound reliability and validity –the two major psychometric properties which influence the quality of data obtained (Kimberlin & Winterstein, 2008) from a wide range of previous studies. I therefore highlighted the internal consistency, test-rest and interrater reliabilities wherever applicable from previous studies where those measures have been used. Whilst acknowledging that the participants for the current study might be unique in many ways and therefore should be treated as such, previous reliability of the measures suggests confidence for use of those measures in a new setting. Moreover, I reported reliability and validity of the measures for the current study to ensure that my findings are interpreted in the right context considering the sample characteristics. The procedures I employed to adopt the measures including translation and pilot testing are discussed later in this section.

The use of valid instruments for data collection was paramount especially for the key variables under investigation in this study. Instruments which have demonstrated construct and convergent validity in different settings were selected. I particularly sought instruments with a history of multicultural use as demonstrated in different parts of the world to ensure cultural validity. Wherever possible I sought to look at the validity of instruments in review papers such as Tsai et al. (2013) who reported efficacy of EPDS in an African setting and (Biringen et al., 2014) demonstrated the appropriateness of EA scales. However, because the measures were translated and used in a culturally different sample I sought to re-establish the validity and reliability of these measures and they are reported (section 4.5).

All measures and study information sheets were translated into Luganda and the Luganda versions pilot tested to ensure appropriateness to the study population. Translation was done using the forward-backward method (Koller et al., 2007) to ensure consistency in the test items is maintained. Two independent translators and I were involved in the translation process. The first translator translated the English version of the measures and study information materials into Luganda. The second translator then translated the Luganda version back into English. The two translators and I then worked together to compare and harmonise the forward-backward translated version with the original English versions of the measures and study materials.

I pilot tested the Luganda version of the measures among five mothers attending immunisation clinic at the same tertiary hospital where the participants were recruited. I gave mothers the Luganda version of the measures and asked to go through each item and give feedback about the appropriateness of the items. Using a semi-structured interview (Appendix 8) I got feedback from the mothers which were used to fine tune the Luganda version of the measures. The final version of the Luganda version (Appendix 3) together with the original English version (Appendix 3) of the measures were used in data collection.

Administration of the quantitative measures was by either the mothers themselves for those who could read and write while a trained field assistant administered the Luganda version of the quantitative measures to mothers who could not read and/or write. Whereas I could administer these measures, I decided to have them administered by a field assistant to reduce researcher bias but ensure consistency. I, however, followed the process of administering the measures to observe mothers' reactions while answering the questionnaires and ensure completeness of the measures. Later during debriefing of mothers, I followed up on key issues that came out in the process of completing questionnaires. For example, I focused on the mothers' reactions to specific items and reluctance in answering certain questions about childbirth experiences by seeking the mothers' clarification of my interpretations.

The quality of the qualitative approaches including reliability, validity and rigour were undertaken through reporting my own biases as a researcher, triangulation of sources of information and a rigorous process of analysing the interviews. Whereas I set out to be objective throughout the process of this study, I acknowledged the possibility of my biases to affect the quality of the study (Creswell, 2014). For example in qualitative interviewing the interviewer ensures quality by being rigorous and systematic while also observing reflexivity about effects of his actions (Edwards & Holland, 2013). My previous experience of training and working with the Uganda health care system could in many ways have influenced the questions I asked and the interpretations of the information I obtained throughout the process of conducting this study. It was therefore important that I exercise appropriate reflexivity in both interviewing and analysis of the interviews to ensure that I focused on the present experiences of the participants. For example, I paid attention to questions asked in interviews to ensure they followed what was narrated by the mothers such as seeking clarifications without imposing my own ideas. Where my own experience was relevant in understanding the experiences of the participants, I reflected and reported on those experiences.

In relation to the narrative interviews conducted with the women in this study, the quality of the interviews is premised on the pragmatic epistemological and theoretical basis of this study. The interpretivist stance adopted for the qualitative strand of this mixed methods design allowed me to triangulate sources of data which ensured quality checks (Roulston, 2010). For example, I triangulated the mother's experiences in the interview with her responses on self-report measures about overall experience of childbirth, experience at the hospital and problems with labour and delivery. With the aim of gaining full understanding of each narrative, I also corroborated women's hospital experiences by asking mothers about their own experiences and the situations of other women who were on the ward at the time they delivered. This enabled me to understand the women's perceptions of own experiences in relation to those of other mothers at the time of admission at the hospital.

The interpretivist epistemological stance enabled me to co-construct the mother's childbirth experiences through questions asked during the interview and analysis of the interviews. However, the broad and open ended nature of the interview instruction followed by specific probing questions about the women's journey of childbirth enhanced the individual mother's control over how they wanted to shape and tell their stories. My general knowledge of the childbirth in Uganda, the potential difficulties in narrating negative experiences and awareness of my own biases ensured that adequate rigour and reflexivity were exercised throughout narrative interviewing similar to previous work (e.g., Riessman, 2008; Squire, 2008) and thus enhancing the quality of interview findings.

Analysis of the interviews through narrative analysis approach was rigorous and was backed by evidence from the transcripts. Through the interpretivist stance, I ensured quality of the narrative interviews throughout data reporting and discussion by use of extracts from the interviews (Roulston, 2010) as evidence ensuring integrity information gained from participants. To ensure accurate reflection of the findings of the study, data analysis,

presentation and discussion followed a priori set plan through clear objectives that guided the processes of this study. During comparison and integration of quantitative and qualitative findings I ensured that discrepant information is highlighted (Creswell, 2014) to ensure credibility of the overall report.

#### 4.10 Ethical issues

This study went through ethics reviews and obtained ethical clearance from Lancaster University Research and Ethics Committee (UREC; Appendix 9), the tertiary hospital's ethics and research committee (MREC: 682; Appendix 10) and the Uganda National Council for Science and Technology (SS 3733; Appendix 11). Some of the ethical issues I emphasised during the process of recruitment of participants and collecting data include informed consent, anonymity, confidentiality and involvement of a field assistant are discussed below.

##### 4.10.1 Informed consent

An elaborate process of informed consent was undertaken as previously illustrated in the recruitment and follow up sections. I first sought the women's verbal consent at the time of initial contact after mothers were given information sheets about the study. This involved mothers consenting to be telephoned by the researcher at four months. At the time of follow up I again asked each mother if she was still interested in taking part in the study and only those who verbally consented to being visited by the research team were followed up for possible involvement in the study. At the time of the visit to the participants' homes, I reviewed the study information (Appendix 1) given to the mothers at the time of initial contact at the hospital to ensure that mothers understood the purpose of the study and what I expected from them in this study.

Study information was translated into Luganda and I gave mothers opportunity to choose their preferred version according to fluency in either English or Luganda. I also gave mothers opportunity to ask questions and have their concerns addressed by the researcher. Mothers who could not read or write were assisted by the field assistant. The information sheets had my contacts, contact details of the supervisors, and the chairperson of the tertiary hospital ethics committee for mothers to raise their concerns whenever necessary. The consent form (Appendix 12) elaborated when and how the mother could withdraw their consent. Mothers who met the inclusion criteria and consented to taking part in the study signed a written consent form prior to participation in the first phase of the data collection exercise involving videotaping and filling quantitative measures. Upon completion of the first phase all mothers were given an opportunity for a narrative interview and only those who verbally consented participated in the interview.

#### 4.10.2 Confidentiality and anonymity

Confidentiality and anonymity are key aspects of research and I made efforts throughout the study to ensure they are maintained. All information obtained from the participants in form of self-report measures, audio and video recordings were coded with identifiers known only by the researcher and kept under key and lock only I had access to throughout the data collection exercise. The field assistant and the translator of the interviews signed confidentiality agreements (Appendix 13 and 14). Audio and video recordings and transcripts of the interviews were transferred to a laptop which was accessible only via a password. Data from the questionnaires were inputted into a software package and kept on a password protected laptop. Original audio and video recordings were erased from the digital recorders and hard copies of the questionnaires kept under key and lock accessible by I only. At the time of analysing interviews, the names of people and places were changed to pseudo names to limit possibility of identifying participants. The name of the tertiary hospital and specific time when participants were recruited were not disclosed in the study report. Reference to the name of the hospital by

the participants during the interview was changed to “the tertiary hospital” including in the final overarching story presented in the qualitative findings chapter.

#### 4.10.3 Involvement of a field assistant

The involvement of a field assistant in the process of data collection was informed by cultural issues I anticipated due to the nature of the study and the literacy levels of the participants. First, I thought that some participants might be uncomfortable sharing some of their experiences with a male researcher. Secondly, the study setting was known to be a culturally patriarchal area. A visit by a male researcher at the participant’s home alone when the heads of families are away at work was feared to have potential negative ramifications for the women in this study. I therefore recruited a field assistant fluent in Luganda to play two major roles. First and foremost, to enhance social credibility of the purpose of the study and visit. Secondly, to administer the Luganda measures to mothers who could not read and/or write to prevent researcher bias in case those measures were administered by myself.

Although the field assistant was not actively involved in participant recruitment on the ward at the tertiary hospital, I thought it important for the mothers to know who exactly would be going to their homes if they chose to participate in the study. As noted earlier, I introduced the field assistant to each of the mothers contacted on the ward and therefore by the time we visited the participant’s home, it was clear that most of the mothers could recognise us from our initial contact.

#### 4.11 Conclusion

In this chapter, I sought to outline and describe the methodology, research design and methods that I employed in conducting this study. I employed a mixed methods design based in this

study based on pragmatic epistemology which enabled me to draw from post-positivist and interpretivist strands. The process of recruitment of participants enabled me reach required participants who met the inclusion criteria and participate in the study. Data was collected in a single session at the participants' homes. This included video recorded mother-infant interactions, self-report demographic data, PTS symptoms, depression and maternal attachment. Individual face-to-face interviews with mothers completed the data collection exercise. I have discussed methods used to analyse quantitative and qualitative findings and the weave strategy I employed to integrate the findings. I outlined mechanisms undertaken to ensure sound quality of the study including reliability and validity of measures, rigour and researcher reflexivity. Furthermore, I have given detailed ethical considerations undertaken throughout the stages of the study including cultural sensitivity through the use of a female field assistant. In the next two chapters I present the findings of this study beginning with quantitative findings in Chapter 5 and a shared childbirth narrative in Chapter 6.

## 5 CHAPTER FIVE: QUANTITATIVE ANALYSIS

### 5.1 Introduction

In this chapter, I present findings from a sample of Ugandan women and infants delivered at an urban tertiary hospital. The chapter begins with a description of the demographic characteristics of the sample. This is followed by information about childbirth experiences including pregnancy, labour, birth and the women's rating of their experiences of childbirth. I then present mother-infant interaction scores before showing the association between childbirth experiences and mother-baby interactions. Descriptive statistics of PTS symptoms due to labour and delivery events experienced by the mothers are examined before presenting results of regression analysis of associations between PTS symptoms and mother-infant interactions controlling for selected maternal and infant variables. The chapter ends with a summary of key findings of the study.

### 5.2 Demographic information

Forty-nine mothers and their singleton babies took part in this study. Table 14 shows detailed demographic characteristics of the sample. Eighty-six percent of the women reported being married or living with a partner at the time of data collection. In terms of education, 73% of the women attained at least a secondary school level. Less than half of the women (41%) were employed. All women reported belonging to a religious group and the majority (67%) were Christians while 33% were Muslims. The mothers average age at the time of delivery was 28.3 years ( $SD=5.5$ , range 18-38). Parity at birth was 27% primiparous and 73% multiparous. The average number of previous birth experiences was 2 ( $SD=1.8$ , range 0-7). In terms of gender of the infants, 51% were female. The average weight in grams of the babies at the time of birth as

reported by the mothers was 3484 ( $SD= 770$ , range 2000-6600). At the time of data collection, the average age of babies in weeks was 20 ( $SD=2$ , range 17- 24).

Table 14: Demographic characteristics of the sample

<b>Characteristics</b>	<b>M (SD) or n (%)</b>	<b>Range</b>
<b>Infant characteristics</b>		
Baby gender, female	25 (51)	
Baby age (weeks)	20.1 (1.9)	17-24
Weight at birth (g)	3494 (770)	2000-6600
<b>Parental Characteristics</b>		
Father's age (n=48)	35 (7.5)	24-63
Mother's age (n=48)	28.3 (5.5)	18-38
Mother's previous births	2 (1.8)	0-7
<b>Mother's education (n=48)</b>		
None or primary	13 (27)	
Secondary	26 (53)	
Tertiary/ University	10 (20)	
<b>Mother's marital status</b>		
Single	6 (12)	
Separated/divorced	1 (2)	
Married/cohabiting	42 (86)	
Cowives, yes (n=44)	10 (22)	
Number of cowives	2 (0.9)	1-3
Mother employed, yes	20 (41)	
<b>Mother's religion</b>		
Christian	33 (67)	
Muslim	16 (33)	
<b>Family characteristics</b>		
Number of children	3 (1.5)	1-7
People living at home	5 (2.0)	3-13
<b>Dist. to hospital (KM, n=48)</b>		
Less than 10	22 (46)	
11- 20	23 (48)	
21-30	3 (6)	

M = mean, n = number, SD = standard deviation.

### 5.2.1 Childbirth experiences: labour, birth and general

Objective number one of this study sought to examine the women's childbirth experiences. In this section I present results about labour, delivery and childbirth experiences operationalised as overall childbirth experiences and hospital experiences. The mothers reported several problems associated with intrapartum experiences. On average, women reported being in labour

for 3.4 days (SD=5.0, range 0.0-30). The most common self-reported problems during labour and delivery were fear of death (53%), emergency caesarean operation (49%), prolonged labour (39%), feeling exhausted (35%), severe bleeding (27%) and obstructed labour (27%). Under the category ‘other’, women reported problems such as baby falling off the table in theatre, retained placenta following vaginal delivery and hypertensive emergency before delivery among others. The most common mode of delivery was caesarean section reported by 46 (94%) of the mothers. Of these, 17 (35%) were planned caesarean deliveries and 29 (59%) emergency caesarean sections. Figure 6 shows details of the problems encountered during labour and/or delivery.

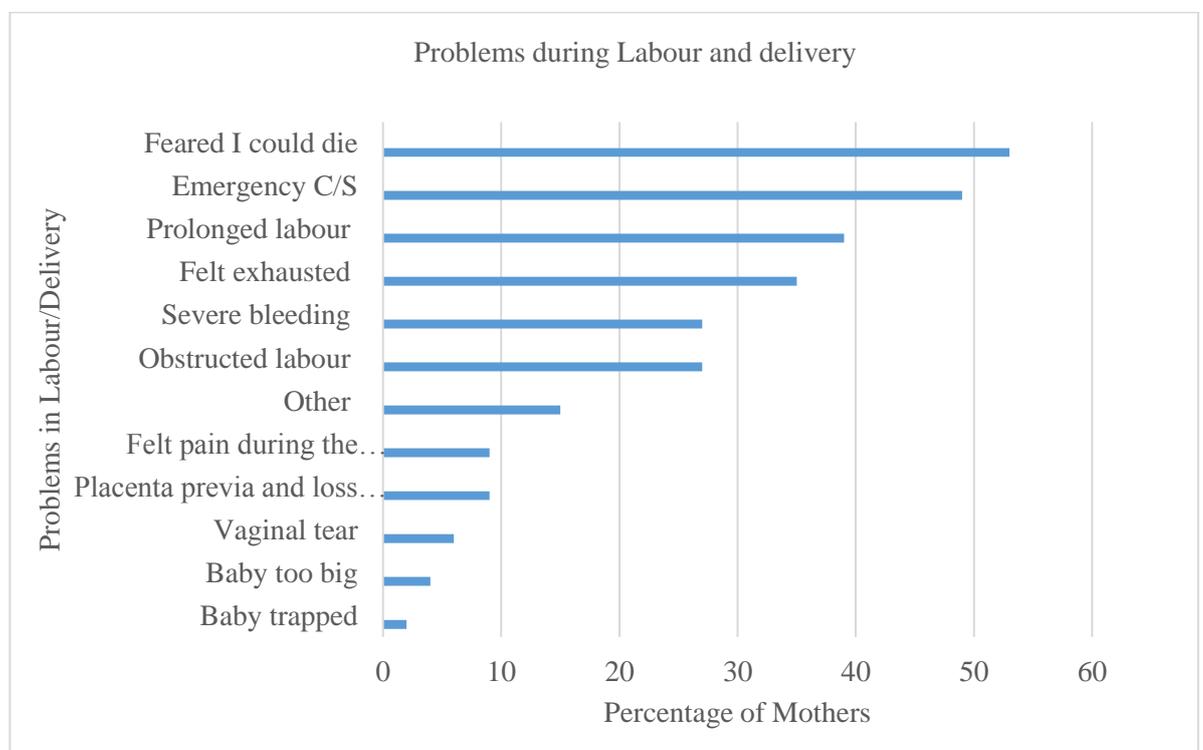


Figure 6: Problems during labour and delivery

The problems experienced during labour and/or delivery shown in figure 6 are ordered according to percentage of women reporting.

To assess the mothers’ perceptions of their childbirth experiences, the mothers self-rated their overall childbirth experiences and hospital experiences on a scale of 1 to 5 (1 = Very good, 5 =

Very bad). The women's overall experiences and hospital experiences were normally distributed as shown in Appendix 15. The women's overall childbirth experiences and hospital experiences were then categorised as either positive (scores of very good, good or fair) or negative (scores of very bad or bad). Consequently, 36 (73%) mothers had positive overall experiences of having a baby while 29 (59%) had positive hospital experiences at the time of delivery. These findings did not support my first hypothesis that the majority of mothers would report negative experiences of childbirth.

### 5.2.2 Mother-infant interactions

In considering the interactions between mothers and babies (objective 2) scored by four Adult and two Child emotional availability (EA) scales (Table 15), I highlight the mean, standard deviations, median and range of scores. In terms of distribution, all subscales showed normal distribution as reflected in similarity on measures of central tendency (means and medians). Maternal *non-hostility* had the highest global mean score on the Adult subscales at 23.4 (SD=4.1, range 11-29). The mean global scores of maternal *sensitivity*, *structuring* and *non-intrusiveness* were 19.7, 19.8 and 19.4 respectively. On the child subscales, child *responsiveness* to the mother showed the highest mean at 20.1 (SD = 5.2, range 11-29). My second hypothesis that most of the mother-infant interactions would be less optimal as shown by a global score of 19 or less on EA scales was partially supported as shown in table 15. The majority of mother-infant interactions scored below 20 on four scales except on maternal *non-hostility* and child *responsiveness*.

Table 15: Mother-infant EA scores

EA subscale	M(SD)	Median	Range	≤19(%)	≥20(%)
Sensitivity	19.7(4.3)	19	9-27	30(61)	19(39)
Structuring	19.8(4.5)	19	10-28	39(80)	10(20)
Non-intrusiveness	19.4(4.9)	19	9-29	26(53)	23(47)
Non-hostility	23.4(4.1)	24	11-29	9(18)	40(82)
Responsiveness	20.1(5.2)	20	11-29	24(49)	25(51)
Involvement	18.4(5.9)	17	9-29	33(67)	16(33)

### 5.2.3 Childbirth experiences and mother-infant interactions

In this section, I present findings on objective number three which sought to assess the association between childbirth experiences and mother-infant interactions (Table 16). Negative correlations were observed between childbirth experiences and mother-infant interactions indicating that maternal negative childbirth experiences were correlated with less optimal mother-infant interactions. Negative overall childbirth experiences were significantly correlated with only Child subscales, both *responsiveness* and *involvement* ( $r = -.29, p < .05$ ). Negative hospital experiences were significantly correlated with two Adult scales, *structuring* ( $r = -.24, p < .05$ ) and *non-intrusiveness* ( $r = -.29, p < .05$ ) in addition to significant correlations with both Child scales, *responsiveness* ( $r = -.31, p < .05$ ) and *involvement* ( $r = -.35, p < .05$ ). The third hypothesis was therefore only partially supported.

Table 16: Correlation between childbirth experiences and mother-infant interactions

EA	<i>Sensitivity</i>	<i>structuring</i>	<i>Non-intrusiveness</i>	<i>Non-hostility</i>	<i>responsiveness</i>	<i>involvement</i>
Childbirth						
Overall experience	-.25	-.14	-.28	-.06	-.29*	-.29*
Hospital experience	-.24	-.37*	-.29*	-.13	-.31*	-.35*

\* $p < .05$

I also examined between group differences of four categories of mothers classified according to combined childbirth experiences (overall childbirth experiences and hospital experiences) on the EA scores of mother-infant interactions. In this section I present ANOVA results (Table 17) of these groups of women and their respective mother-infant interactions. Twenty-six (55%) mothers reported having positive experiences, both overall childbirth experiences and hospital experiences while 29% (n=10) reported positive overall childbirth experiences but negative hospital experiences. The third largest category of mothers (17%, n=8) had negative childbirth experiences overall and at the hospital while six percent (n=3) of the women reported negative overall experiences of childbirth but positive hospital experiences. In terms of mother-infant interactions, women who reported overall positive experiences of childbirth and positive hospital experiences and their babies had higher mean scores on all six EA scales indicating more optimal emotional availability during mother-infant interactions. However, no significant differences between groups of mothers on EA subscales were found. A group of mothers who reported negative overall childbirth experiences and hospital experiences showed a trend on Child *involvement* of the mother,  $F(3, 43)=2.61, p=.06$  and *structuring*,  $F(3,43)=2.73, p=.055$ .

Table 17: Between group differences of childbirth experiences and EA scores

<b>Group</b>	Overall + &Hospital + (n =26)	Overall + &Hospital - (n =10)	Overall - &Hospital + (n=3)	Overall - &Hospital - (n =8)	Statistic F-Test
<b>EA subscale</b>					
Sensitivity	20.8(4.2)	18.1(5.1)	20.0(6.6)	18.3(2.7)	1.27
Structuring	21.1(4.0)	17.3(4.9)	22.0(4.6)	17.8(4.8)	2.73
Non-intrusiveness	20.7(5.0)	17.9(4.4)	18.7(7.5)	17.6(4.6)	1.25
Non-hostility	23.9(3.6)	22.0(5.4)	23.3(7.2)	22.9(3.4)	.53
Responsiveness	21.3(5.6)	18.8(4.3)	21.7(7.1)	17.3(3.3)	1.44
Involvement	20.1(6.4)	16.4(3.5)	19.3(7.8)	14.4(3.5)	2.61

#### 5.2.4 PTS symptoms arising from labour and delivery

Mothers were assessed for PTS symptoms arising from labour and delivery experiences in line with the fourth objective of this study. The mean score of the mothers on IES-R was 34.8 (SD=16.3, Median=33, range 7-66) while the means on IES-R subscales were: Intrusion, 24.6 (SD=10.7, Median=23, range 5-45); Avoidance, 14.2 (SD=6.6, Median=14 range 0-34); and Hyperarousal, 9.7 (SD=6.6, Median=9, range 0-26). The proportion of women who had a total subscale score of 9 and above were 46 (94%) Intrusion; 39 (80%) Avoidance, and 27 (55%) Hyperarousal as shown in Appendix 16. Hypothesis four was therefore supported as most mothers had PTS symptoms on all IES-R subscales. In terms of distribution, total scale score and subscales were fairly normally distributed as seen from similarity of measures of central tendency (means and medians), and in the Stem and Leaf plots (Appendix 16). Because IES-R has not been validated in the current sample, the mean scores of PTS symptoms for this study are presented in Figure 7 alongside means of three samples from high income countries where the measure has been validated. This is to facilitate the reader's interpretation of the current findings.

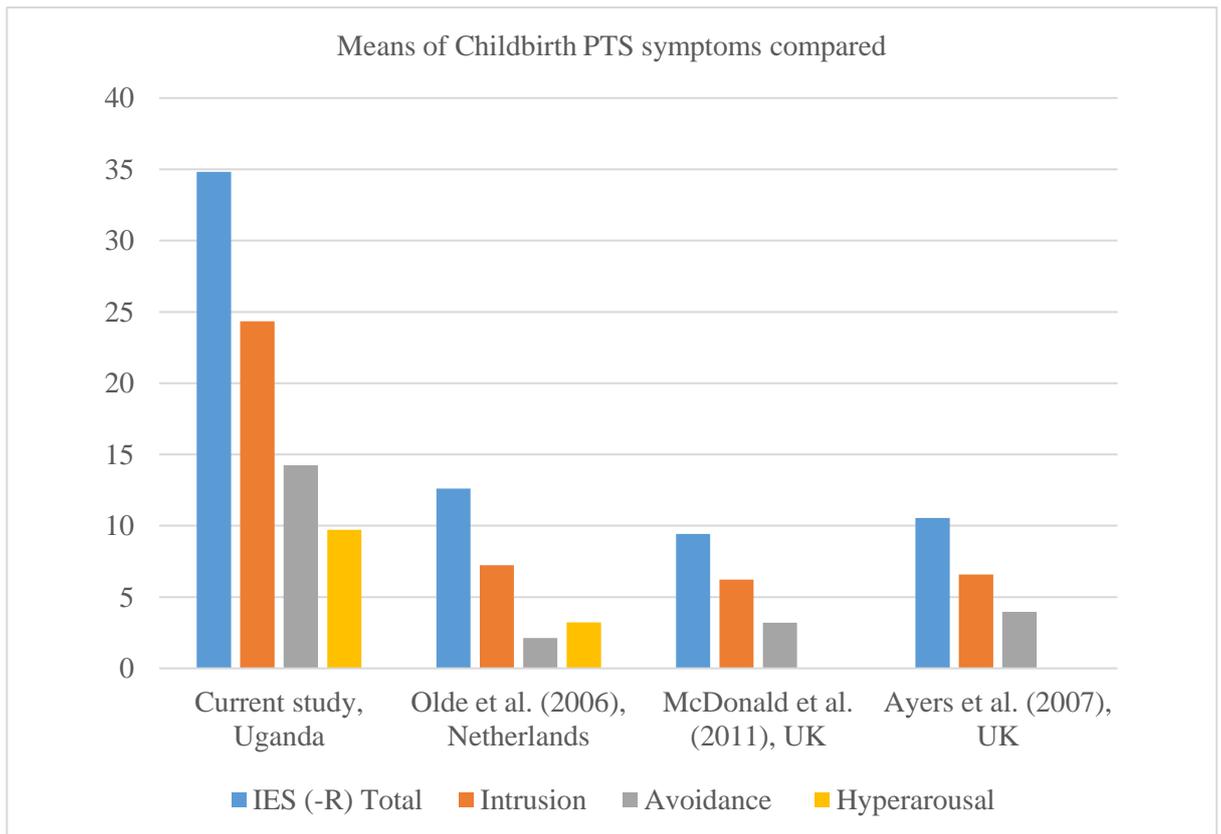


Figure 7: Comparison of means of PTS symptoms

It is however important to note that the three studies I relied on for comparison were not directly comparable. The two UK studies (McDonald et al., 2011 and Ayers et al., 2007) assessed PTS symptoms following normal childbirth using the two subscales of the original IES (Intrusion and Avoidance). The Olde et al. (2006) validated the Dutch version of IES-R by scoring PTSD symptoms arising from normal childbirth experiences using the original IES scoring method which was adopted for the current study to enable comparison between the four studies. The means of the current sample on IES-R total scale and subscales are higher than reported in all the three studies measuring childbirth related trauma with IES/IES-R.

### 5.2.5 The influence of maternal PTS symptoms on mother-infant interactions

The fifth objective sought to assess the influence of PTS symptoms on mother-infant interactions after controlling for demographic factors, childbirth experiences, maternal postnatal depression, and maternal attachment style. I conducted hierarchical regression analyses to determine the predictors of mother-infant interactions. However, I start by highlighting the descriptive statistics of depression symptoms and maternal attachment not previously reported in this chapter. This is to give the reader an overview of descriptive statistics of the scores of the sample on these variables and considerations for inclusion in the regression analyses presented in this section. Table 18 shows the means, standard deviations, median and range of women's scores on EPDS and ASQ subscales. All scales and subscales were normally distributed as shown by similarities in measures of central tendency (means and medians). The mean score of depression symptoms measured by the EPDS was 12 (SD=5.7, range 1.00-25.00). The majority of the women scored above the median of 11 on EPDS with close to half of the mothers (49%) meeting the cut-off of 12 and above that has been considered a threshold for determining clinically significant depressive symptoms (Cox, Holden, & Sagovsky, 1987). The highest mean score of the mothers on ASQ subscales was on Discomfort with closeness and the lowest on Relationship as secondary.

Table 18: Descriptive statistics of EPDS and ASQ

<b>Subscale</b>	<b>M(SD)</b>	<b>Median</b>	<b>Range</b>
<b>EPDS</b>	12(5.7)	11	1.00-25.00
<b>ASQ</b>			
Confidence	35.0(5.5)	35	22.00-46.00
Preoccupation with relationships	30.1(5.4)	29	19.00-43.00
Discomfort with closeness	36.0(6.7)	37	22.00-50.00
Need for approval	24.8(6.1)	24	13.00-37.00
Relationship as secondary	22.0(6.4)	20	11.00-35.00

To meet Objective 5 in which I sought to assess the influence of PTS symptoms on mother-infant interactions after controlling for other predictors, I only controlled for the influence of childbirth experiences. Several factors informed this decision. Firstly, preliminary analyses showed that only childbirth experiences were significantly correlated with mother-infant interactions (Table 16). Secondly, the small sample size precluded potential predictors such as demographic factors, maternal postnatal depression, and maternal attachment style. Thirdly, mother's education level, the only demographic factor found to be correlated with mother-infant interactions, was also correlated with hospital experiences. Consequently, I did not include maternal education in the regression models. Similarly, depression was highly correlated with PTS symptoms (Appendix 17) and therefore not controlled for in determining the effect of PTS symptoms on mother-infant interactions. Finally, all subscales of ASQ measuring maternal attachment styles showed unsatisfactory reliability (internal consistency) as presented in section 4.5.3 and were therefore also not included in the regression models. The final regression models therefore comprised of only two predictor variables. Because hospital experiences were highly correlated with overall childbirth experiences, and the former was significantly correlated with four of the six EA scales (two adult scales and both child scales) more than the later as shown in Table 16, I generated four regression models reflecting pattern of significant associations. I performed preliminary analyses to ensure there was no violation of the assumption of normality, linearity, multicollinearity and homoscedasticity. Each regression model had two steps as shown below.

First was a model with *structuring* as the dependent variables (Table 19). PTS symptoms was not a significant predictor of *structuring*. In the final model, hospital experience was a significant predictor of maternal *structuring* ( $\beta = -.39$ ,  $t = -2.64$ ,  $p < .05$ ) with negative hospital experience being associated with less optimal maternal *structuring*.

Table 19: Hierarchical regression with structuring as dependent variable

Variable	Step 1	Step 2	91%CI
Constant	24.62***	24.20***	[19.75, 28.64]
Hospital experience	-1.48*	-1.54*	[-2.71, -0.36]
PTS Symptoms		0.17	[-0.07, 0.10]
R <sup>2</sup>	.13	.14	
F	6.93*	3.49*	
$\Delta R^2$	.13	.00	
$\Delta F$	6.93	.18*	

\*p<.05, \*\*p<.01, \*\*\*p<.001

In the second model, I sought to predict maternal *non-intrusiveness*. PTS was also not a significant predictor (Table 20) but hospital experience was a significant predictor of maternal *non-intrusiveness* in the final step ( $\beta = -.33$ ,  $t = -2.30$ ,  $p < .05$ ). The mothers' negative hospital experience was associated with less optimal *non-intrusiveness*. The final model further explained 12% of the variance in *non-intrusiveness* but was not significant so it should be interpreted with caution.

Table 20: Hierarchical regression with non-intrusiveness as dependent variable

Variable	Step 1	Step 2	91%CI
Constant	23.67***	22.22***	[17.32, 27.11]
Hospital experience	-1.30*	-1.47*	[-2.77, -0.80]
PTS Symptoms		0.06	[-0.33, 0.15]
R <sup>2</sup>	.09	.12	
F	4.21*	2.98	
$\Delta R^2$	.09	.03	
$\Delta F$	4.21*	1.68	

\*p<.05, \*\*p<.01, \*\*\*p<.001

In the third regression model, I sought to predict child *responsiveness* (Table 21). PTS was not a significant predictor of child *responsiveness* but hospital experience was a significant predictor of child *responsiveness* to the mother in the final step ( $\beta = -.32$ ,  $t = -2.01$ ,  $p < .05$ ) showing that the mothers' negative hospital experience was associated with less optimal child *responsiveness*. The final model accounted for 10% variance in the dependent variable but was not significant so should be interpreted with caution.

Table 21: Hierarchical regression with responsiveness as dependent variable

Variable	Step 1	Step 2	91%CI
Constant	24.78***	24.12***	[18.92, 29.32]
Hospital experience	-1.42*	-1.50*	[-2.87, -0.13]
PTS Symptoms		0.03	[-0.07, 0.12]
R <sup>2</sup>	.09	.10	
F	4.64*	2.44	
$\Delta R^2$	.09	.01	
$\Delta F$	4.64*	.31	

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

In the final regression model (Table 22), child *involvement* of the mother was the dependent variable. PTS symptoms was not a significant predictor of child *involvement* of the mother. Hospital experience remained a significant predictor of child *involvement* of the mother ( $\beta = -.38$ ,  $t = -2.63$ ,  $p < .05$ ) indicating that negative hospital experiences were associated with less optimal child *involvement* of the mother during the dyadic interactions. The full model accounted for 14% of the variance in child *involvement* of the mother but not significant and should be interpreted with caution.

Table 22: Hierarchical regression with child involvement as dependent variable

Variable	Step 1	Step 2	91%CI
Constant	24.26***	23.30***	[17.61, 28.98]
Hospital experience	-1.84*	-1.96*	[-3.46, -0.46]
PTS Symptoms		0.04	[-0.07, 0.15]
R <sup>2</sup>	.13	.14	
F	6.45*	3.47	
ΔR <sup>2</sup>	.13	.01	
ΔF	6.45*	.55	

\*p<.05, \*\*p<.01, \*\*\*p<.001

Furthermore, to enhance accuracy of conclusions made from the findings of the current study, I conducted a post-hoc power analysis using the results of these regression models. Based on a medium effect size observed when predicting mother-infant interactions with a sample of mothers (n=47) who completed all items on the predictor variables, the estimated power achieved was .67. Therefore, replication with a bigger sample would be required to confirm these findings.

### 5.3 Conclusion

The results show that almost all women (96%) reported having at least one problem during labour and/or delivery reflecting the high-risk nature of the sample. Fewer women reported having negative experiences of childbirth as measured by overall childbirth experiences and hospital experiences, and therefore hypothesis one was not supported. In terms of mother-infant relationships, the majority of the observed interactions were less optimal scoring 19 or below on EA scale except maternal *non-hostility* and child *responsiveness* to the mother. Hypothesis 2 was therefore partially supported. As expected in hypothesis 3, there was a significant

association between negative childbirth experiences and less optimal mother-infant interactions but this was only partially fulfilled as two Adult emotional availability scales did not meet this expectation. Most of the women had total scores of 9 and above on IES-R scales indicating presence of PTS symptoms among the mothers at four months postpartum thus supporting hypothesis number four. But postnatal depression and PTS symptoms were not correlated with mother-infant interactions. Similarly, PTS symptoms did not predict mother-infant interactions after controlling for the women's experiences at the hospital. Hospital experience was a significant predictor of four EA scales, that is, maternal *structuring*, *non-intrusiveness* child *responsiveness* to and *involvement* of the mother. Secondary analyses showed that dimensions of insecure attachment on ASQ were negatively correlated with childbirth experiences indicating that the more insecure the mother was the more negative the childbirth experiences reported. Similarly, dimensions of insecure maternal attachment style on ASQ were positively associated with PTS symptoms and postnatal depression indicating that the more insecure a mother was the higher the symptoms of mental problems. In the next chapter, I present an overarching childbirth story to offer qualitative perspectives of the women's childbirth experiences before making an interpretation of the finding of the current study in the discussion chapter.

## 6 CHAPTER SIX: A SHARED NARRATIVE OF CHILDBIRTH EXPERIENCES

### 6.1 Introduction

The use of structural narrative analysis enabled the integrity of the women's childbirth narratives to be maintained and an overarching narrative of childbirth experiences to be developed. The overarching narrative is comprised of four acts that integrate the elements of tone, imagery, events, characters, emotions and feelings, thoughts and themes. The four acts are 1) Becoming pregnant – this act highlights the issues reported by the participants in the period leading to the confirmation of pregnancy. 2) Being pregnant – experiences of the participants from confirmation of pregnancy and lasting the period of pregnancy. 3) Giving birth – the third act highlights the women's experiences of labour and delivery from the time they recognise they are due to deliver until completion of the birth process. 4) Post-delivery – the experiences of women following birth in the hospital, at the time of discharge from hospital and the days following return to their homes as new mothers. Whereas the quantitative experiences of childbirth were predetermined to include maternal experiences until time of discharge from hospital following delivery, I extended analyses of the qualitative narratives to days following discharge from hospital to reflect a complete narrative of mothers who for various reasons sought post-delivery care in other health facilities following discharge from the hospital. The post-delivery experiences narrated by such mothers reflected the quality of intrapartum care they had received at the hospital. Consequently, as part of their overall childbirth experiences, the mothers' post-discharge perceptions of the hospital needed to be included in the findings to allow for a full report of childbirth experiences. I deemed this necessary especially for the few women who narrated leaving hospital prematurely and continuing immediate postpartum caesarean operation recovery –which otherwise would have taken place before discharge –at home, as illustrated later in *Act 4*.

## 6.2 Characteristics of mothers who participated in narrative interviews

Forty-one out of the 49 women who participated in this study volunteered to take part in the individual narrative interviews. Table 23 shows demographic factors of these 41 mothers. This group of mothers were similar to the total sample. For example, the women's age at the time of delivery ranged from 18 to 38 years. The majority (83%) of the mothers were married or in a cohabiting relationship at the time of data collection. However, from the women's narratives, it was observed that marital status changed for a number of women following confirmation of pregnancy or during pregnancy as indicated in parentheses in the marital status column. A number of single women entered a marital relationship following confirmation of pregnancy. Two women reported temporary separation during pregnancy due to pregnancy related issues. Ten women (24%) had no previous birth experiences while the rest of the women's previous births ranged from one to seven. All the participants reported belonging to a religious group. The majority of the women were Christians (68%), with the two main denominations represented being Anglicans (29%) and Catholics (22%). Thirty-two percent of women described their religious affiliation as Muslim. All women reported attaining some level of education from primary school to the highest being a University degree. The most common mode of delivery was emergency caesarean section (61%) followed by planned caesarean section (34%) and vaginal delivery (5%). Forty-six percent ( $n = 19$ ) of the women did not plan to deliver at the tertiary hospital but were referred due to labour or delivery complications.

Table 23: Demographic factors of women undertaking narrative interviews

ID	Pseudonym	Age at birth	Marital status of (Start of pregnancy)	Religion(Denomination)	Education Level	Previous birth	Referral, Yes or No	Duration of labour	Mode of delivery
01	Monica	28	Single	Christian (Catholic)	O' Level	3	No	18 hours	Emergency C/S
02	Julie	20	Married	Muslim	O' Level	0	No	7 days	Emergency C/S
03	Katie	38	Married	Christian (Catholic)	O' Level	3	No	1day	Planned C/S
04	Mai	35	Married	Muslim	University	5	No	26 hours	Emergency C/S
05	Faith	29	Single	Christian (Anglican)	A' Level	4	Yes	30 days	Emergency C/S
06	Mary	19	Married	Christian (Anglican)	A' Level	0	Yes	2 days	Emergency C/S
07	Maureen	25	Married	Muslim	University	1	Yes	3 days	Emergency C/S
08	Harriet	30	Married	Christian (Anglican)	Primary	1	Yes	5 days	Vaginal
09	Diana	35	Married	Muslim	O' Level	6	No	2 days	Planned C/S
10	Mariam	24	Married	Christian (Pentecostal)	Tertiary	1	No	30 hours	Emergency C/S
13	Leticia	29	Married	Christian (Anglican)	O' Level	2	No	8 hours	Planned C/S
14	Rose	34	Single (separated)	Muslim	O' Level	4	No	1 day	Emergency C/S
15	Rachael	38	Married	Christian (Catholic)	O' Level	3	No	1 day	Planned C/S
16	Jackie	30	Married	Muslim	O' Level	2	No	2 weeks	Planned C/S
17	Hadijjah	26	Married	Muslim	University	1	Yes	2 weeks	Planned C/S
18	Marion	30	Married	Muslim	O' Level	2	Yes	2 days	Emergency C/S
19	Carol	26	Married	Muslim	O' Level	1	No	1 day	Planned C/S
20	Fatia	32	Married	Christian (Anglican)	University	1	No	2 days	Planned C/S
21	Anne	29	Married	Christian (Catholic)	Primary	1	Yes	14 hours	Planned C/S

22	Margie	33	Married	Christian (Anglican)	O' Level	3	No	1 day	Planned C/S
23	Lydia	27	Single	Christian (Catholic)	Tertiary	0	Yes	1 day	Emergency C/S
24	Zainab	30	Married	Muslim	O' Level	1	No	3 days	Emergency C/S
25	Rita	28	Married (Single)	Christian (Pentecostal)	A' Level	0	Yes	1 week	Emergency C/S
26	Sharon	25	Married	Christian (Seventh Day Adventist)	Tertiary	1	Yes	13 hours	Vaginal
27	Julian	31	Single	Christian (Pentecostal)	University	0	No	2 days	Emergency C/S
28	Alice	35	Married	Christian (Pentecostal)	O' Level	1	Yes	11 days	Emergency C/S
30	Amidah	22	Single	Christian (Anglican)	Tertiary	0	No	1 day	Emergency C/S
31	Norah	28	Married	Muslim	O' Level	2	Yes	5 hours	Emergency C/S
32	Zuena	32	Married	Christian (Catholic)	A' Level	5	No	0	Planned C/S
33	Rehema	21	Married (Single)	Christian (Anglican)	O' Level	0	Yes	2 days	Emergency C/S
34	Milly	29	Married	Christian (Pentecostal)	Primary	4	Yes	3 days	Emergency C/S
35	Regina	36	Married	Muslim	A' Level	7	No	3 hours	Planned C/S
37	Faridah	29	Married	Christian (Anglican)	O' Level	2	No	0	Emergency C/S
39	Sarah	23	Married	Christian (Anglican)	A' Level	1	Yes	1 day	Emergency C/S
40	Winnie	26	Married	Christian (Catholic)	O' Level	1	No	2 days	Planned C/S
42	Fatuma	25	Married (Separated)	Christian (Pentecostal)	O' Level	1	No	3 days	Emergency C/S
43	Catherine	36	Married	Christian (Catholic)	Primary	3	No	2 days	Emergency C/S

45	Resty	18	Married (Single)	Muslim	Primary	0	Yes	3 days	Emergency C/S
46	Shadia	32	Married (Separated)	Christian (Anglican)	Primary	2	Yes	4 days	Planned C/S
47	Joy	28	Married (Single)	Christian (Catholic)	Tertiary	0	Yes	1 day	Emergency C/S
48	Barbara	23	Married	Christian (Anglican)	A' Level	0	Yes	1 week	Emergency C/S

Education level in years: Primary = 7; O' Level =11; A' Level = 13

### 6.3 Overarching narrative

#### ***Act 1: Becoming pregnant – ‘something is not right...could it be I am pregnant?’***

The predominant themes in this act were uncertainty among women in regard to their experiences leading up to confirmation of pregnancy and the women’s level of preparedness for the pregnancy. A pessimistic tone characterised the early pregnancy experiences of the majority of women. Physiological changes due to pregnancy including nausea, loss of appetite and fevers were largely misinterpreted as signs of serious health scares. Fear of the unknown characterised women’s initial experiences until pregnancy was confirmed usually following their attempts to seek medical interventions for the reported medical issues (Monica, Mary, Harriet, Rachael, Jackie, Fatia, Rita, Zuena, Faridah, Catherine, Resty and Barbara) as illustrated below.

I was previously on family planning. I was using the IUD (Intrauterine device) but it had stopped my menstruation so I decided to remove it. When I stopped using family planning, I immediately got pregnant. I did not even know when I conceived. (Jackie)

When I got to know that I was pregnant, okay, at first I had a lot of nausea. At first I did not know. I thought I had fever. I went to the hospital and I was told I was pregnant. (Monica)

I started feeling pain and movements in my abdomen and went to (name) hospital. I had a scan but I was told there was no problem but they suspected I might have a bladder problem. (Zuena)

For a few women however, fear was associated with what they perceived as delayed conception when they wanted to have a baby. Unlike most mothers, at the onset of signs of sickness, suspicions of pregnancy were confirmed with a pregnancy test.

[...] when I became pregnant I thought they were fibroids. But my general feelings changed. So I decided to wait for at least three months to go and test. But when I went to test they told me that I was pregnant. (Rachael)

I started taking herbal medicine and after a month I felt unwell. I was at my work place and I started feeling dizzy. My legs were shaking and I was sweating. I went to a clinic and bought a pregnancy test. Then on testing I found out that I was (.) I had conceived. I felt happy. (Sharon)

Similar to Sharon, confirmation of pregnancy following scares of illness came with great relief and rejoicing for women who wanted to have babies.

I was so happy that I even forgot all about my previous sicknesses. I got to know what was causing the sickness (Mary).

But for others, the joy of getting pregnant was disrupted by distress resulting from changes commonly associated with pregnancy.

“I was ready for the pregnancy because I was married and we wanted the baby. I felt happy when I discovered I was pregnant, but again it became so distressing. I became very sickly” (Barbara).

Women’s experiences varied depending on whether the pregnancy was planned, unplanned or unclassifiable. The majority (19) of the women explicitly reported not being prepared for pregnancy an indication they did not actively try to conceive. For the multiparous women, unplanned pregnancies were due to the women’s beliefs that they could not conceive again after what they viewed as a very long time without conceiving (Marion, Rachael), pregnancy coming

too soon after previous birth (Rose, Faith) failure in contraceptive methods used (Mai, Mariam, Fatuma) or just unexpected (Zainab, Fatia, Norah, Zuena, Winnie, Shadia)

The pregnancy came when I wasn't prepared. I had spent like 5 years (after previous birth). I had quit family planning. I never expected to give birth again but I conceived again just like that. (Marion)

[...] I got this pregnancy when the other baby was only 3 months. I first went for family planning because I wanted to look after my baby who was three months. So they gave me the family planning injection without knowing I was pregnant. But later I noticed my situation was changing so I decided to go back to the hospital. When they checked me they told me that I was pregnant. So I was pregnant while I was also on family planning. (Rose)

I was away from home for one month so when I came back the natural family planning which rhymes with consistent breast feeding of the baby had stopped working. And that is how I got pregnant. (Mai)

With the exception of Amidah who “was ready for it”, for most single women at the time of getting pregnant, pregnancy was reported as unexpected (Rita, Julian, Alice, Rehema, Resty, Joy). Disappointment, sadness and anxiety were the most common reactions and emotions for this category of women.

The time I found out I was pregnant I was kind of disappointed because I really didn't expect it at that time. (Julian)

I was scared. I saw that the situation ahead of me was going to be hard. I thought that when I tell him about the pregnancy he would deny responsibility, because I was staying alone. (Joy)

Confirmation of an unplanned pregnancy triggered themes of distress and helplessness. The tone of the narratives of immediate issues arising from unplanned pregnancy was generally pessimistic as women sought ways of coping with the unexpected. For single women especially, themes of distress and helplessness characterised their experiences as illustrated in the following excerpts.

[...] I was scared. I saw that the situation ahead of me was going to be hard. (Joy)

I was sad when I found out. I even had difficulty going to work. [...] and got a lot of problems. Things were not easier at first. (Norah)

I first feared because this one was still very young [...] I knew I would have two babies that would all need my attention. (Mai)

Unplanned pregnancies continued to cause a lot of distress for a number of women regardless of their marital status. The characters in the women's lives especially spouses and parents played a key role in shaping the experiences of pregnancy as themes of distress, lack of social support and coping emerged. Abortion was contemplated or suggested by both single and married women or people close to them (Faith, Julian, Resty, Rehema, Milly, Norah, Rita, Rose and Zuena). Among single women, perceived lack of social support from their immediate family and lack of money were two key reasons for contemplating abortion (Julian, Resty, Rehema). Similarly, some married women also struggled with decisions to keep their pregnancies due to a lack of social support from their spouses (Milly, Norah, Rita, Rose, Zainab, Zuena and

Shadia). The misunderstandings resulting to unexpected pregnancies led to some reports of marital separations.

[...] I decided to tell my husband that I was pregnant. [...] he quarreled a lot. I decided to keep the pregnancy and eventually I left my husband's home because we were not in good terms. (Rose)

[...] I was sad that he did not believe that I was pregnant. He was not expecting it. I was also not expecting it. I felt fed up and I decided to leave him. (Zainab)

The father of the baby had deserted me because of the pregnancy. He denied being responsible for the pregnancy. I left him and stayed with my bigger sister. (Shadia)

Among both categories of women, age (Zuena), religious beliefs (Faith, Rita) and economic status (Milly) were some of the factors that influenced their decision to keep their unplanned pregnancies. It is not clear how many women in similar circumstances decide to abort. Despite these women's determination to keep their pregnancies, the tone of their narrative was generally pessimistic as demonstrated below.

[...] that time I had no joy like I had with the other children I gave birth to. I felt like having an abortion but I said 'old women don't do that'. (Zuena)

For Rita, a first-time mother, abortion was viewed as a worse and unforgivable sin in comparison to pregnancy outside wedlock according to her Pentecostal faith:

He suggested I abort, so I became a bit tough because personally I am a born again Christian. I had messed up not because I wanted but out of some forces. I said I can't

do this, if you are not ready for this baby leave me I will be able to take care of my baby  
[...] Of course I knew God had a plan for it and would see me through all the challenges  
that came. (Rita)

Resty and Joy, both single women at the time of pregnancy, managed to keep their pregnancies  
in part due to fear and support from their partners.

I came to him before telling the people at home. But I was still feeling bad. I even  
wanted to have an abortion. [...] I asked my partner to give me money to do an abortion  
but I did not know how it is done. I was told it was not something easy to do and death  
can even occur. I left it. (Resty)

It was hard for me at first because I didn't want to move in with him but when it came  
to five months I realised the situation was getting tough. It was not an easy decision.  
(Joy)

Whereas for some married women, unexpected pregnancy led to marital separations, for the  
majority of single women, pregnancy led to a marital/cohabiting relationship (Resty, Joy,  
Rehema, Rita). For Resty, a supportive partner helped her to keep her pregnancy and cope with  
her unsupportive family. While Rehema relied on support from her younger sister and mother  
before cohabiting with her partner.

[...] My partner was very happy because he liked it. He actually took very good care of  
me. It is the people at home who had a problem. (Resty)

At that time, it's only my sister who knew about it and in fact she put much efforts to  
seeing that I keep my baby. Whenever I talked about aborting the pregnancy she would

ask me to go to her place [...] I went to the village to see my mother [...] When she saw me she knew I was pregnant because the tummy had started getting big. Then I asked her what to do and she told me never to abort. (Rehema)

Milly's job provided an optimistic financial basis while she decided to keep her pregnancy against the wishes of her husband as she prepared to shoulder the responsibilities of raising her growing family.

[...] I felt I could manage to take care of my family. I have a job and I can take care of myself". (Milly).

On the other hand, women who explicitly reported planned or expected pregnancy (Diana, Leticia, Carol, Sharon, Amidah, Sarah, Milly, Regina, Catherine, Barbara) were generally happy and their narrative of getting pregnant was optimistic in tone.

[...] when I discovered I was pregnant I was happy because I wanted a child. I had just lost a child. (Regina)

When I got to know that I was pregnant I did not feel bad because I wanted to have a child. (Leticia)

I felt happy when I found out I was pregnant because I really wanted a baby. My husband was also happy. (Sarah)

Whereas some women wanted to have babies against the wishes of their spouses, the level of agreement among couples influenced women's experiences throughout their narratives. Mutual

happiness at the news of pregnancy as illustrated above by Sarah was indicative of themes of social support and the meanings women later attached to their experiences of childbirth.

The group of women whose pregnancy could not clearly be categorised as either planned or unplanned (Monica, Julie, Harriet, Mary, Maureen, Jackie, Haddijjah, Anne, Margie, Lydia, Faridah, Katie) did not express any clear emotions upon realisation of pregnancy except Mary and Anne whose excitement at the news of being pregnant indicated they wanted to have babies. Unlike the first two categories of mothers, seeking medical care was a common immediate narrative about their commitment to pregnancy experiences for this group of mothers as demonstrated here.

[...] I started going to hospital until I gave birth. (Julie)

After I missed my menstruation periods I knew I was pregnant. After one month I started going to the hospital for antenatal care in September. (Haddijjah)

As uncertain as early signs of getting pregnant were to the majority of women, the women's reactions to confirmation of pregnant, usually following a pregnancy test, ranged from emotions of excitement to sadness and anxiety as women thought about what was to come on their journey to having a baby. The women's experiences following confirmation of pregnancy largely depended on their level of preparedness and planning for the pregnancy, acceptance and support from the men responsible for the pregnancy and social support women received from people close to them. The next act highlights women's experiences of pregnancy and the factors which shaped those experiences.

*Act 2: Being pregnant – ‘I am pregnant. What do I do?’*

Irrespective of whether pregnancy was planned or not, women had similar bodily changes which contributed to their experiences of being pregnant as highlighted in this act. Transitioning from uncertainties of early signs of pregnancy and negative reactions of unexpected pregnancies characterised the majority of women’s narratives of the events and experiences of the first two trimesters. Physiological changes due to pregnancy, such as nausea and loss of appetite, earlier mistaken for some sort of illness, were embraced by the women as they sought to cope with bodily changes due to pregnancy. For some women however, these early changes due to pregnancy were severe and they sought different ways of managing including herbal medicines and family support.

I had nausea and used to vomit for up to five months. After five months the situation became better. Nausea reduced. I could eat some food at least. (Monica)

I used to vomit a lot but I later got medication and the vomiting stopped. I took herbal medicine. (Amidah)

At three months, I got some complications like vomiting. The morning sickness, so it really affected me. But, I went to my mum and she gave me some herbal medicine which I took and it stopped. (Sarah)

Some mothers were however not successful in halting the undesirable physiological changes despite attempting different ways of managing.

And I coped. The vomiting continued until the time I delivered. (Barbara)

But I used to cook and take avocado, beetroot and greens. I also went to a traditional birth attendant and she gave me some herbal medicine. I took some and I would also smear it on my stomach but it didn't work. (Norah)

As the majority of women coped with the bodily changes brought about by being pregnant, a few mothers had to deal with conflicts arising from unplanned pregnancies. The decision to keep an unplanned pregnancy and/or have a baby against the spouse's wishes left all the affected women without support and exposed them to marital conflicts during pregnancy as illustrated in imageries and accounts by Zuena, Rita and Fatuma

So we stayed there pulling ropes (in conflicts) while the pregnancy grew. (Zuena)

So I started struggling with life. Life was not so easy. (Rita)

Our relationship was so bad that I went to the village and did not want to hear from him. I hated him. There was no money. He was leaving me in the house without anyone to help me. Things like that. (Fatuma)

Negative experiences early in pregnancy especially among women with unplanned pregnancies, exacerbated by themes of lack of social support from women's spouses and immediate family, led to reports of psychological distress (Zuena, Faith, Julian, Anne, Norah and Rita) as mothers sought ways of dealing with their pregnancy experiences.

It was stressful. I even went to the hospital for counselling. (Anne)

I kept to myself. I didn't want to express to them the challenges I was going through.  
(Rita)

Being single, unemployed and with little or no family support exposed the affected women to several negative experiences. Julian and Faith expressed their sadness at their helpless and hopeless situations.

Everything was ok until he lost his job. That is when he felt like oh, he was going to struggle throughout (.) the pregnancy {sighs}. He was working at that time but after a few months he lost his job. I cried. (.) because I didn't have a job at that time. I was wondering where I was going to get support throughout the pregnancy [...] My issue was mainly about money because I knew my mum would support me with the rest of the things, but financially I didn't want to bother her. (Julian)

It was very difficult to look after myself. It was very difficult, but God helped me till labour. (Faith)

The key event in the second act of the childbirth narrative for the majority of the women is onset of engagement with antenatal care and associated medical services due to pregnancy complications. The timing of the onset of antenatal care varied from early in the first trimester after women realised they were pregnant (e.g., Julie, Katie, Maureen, Haddijjah, Joy), during the second trimester (e.g., Rose, Carol, Julian, Mary, Marion, Fatia, Margie) and a few in the third trimester (Rose, Zainab). Due to continued struggles by some women in accepting and keeping an unplanned pregnancy, antenatal care was not eagerly sought.

I started antenatal late at about five months [...] I went just because it was necessary that I should go but I didn't feel like going. (Julian)

Prior experiences of childbirth among multiparous women in part influenced the start of antenatal care. Normal previous pregnancy experiences for instance contributed to delays in

starting antenatal care as was the case with Rachael. *“I decided I would start going for antenatal at about five months, and I started going for antenatal at five months”*. (Rachael). Women with previous birth complications sought immediate attention for the management of their pregnancy. Regina for example with a history of pregnancy losses due to an incompetent cervix sought immediate engagement with antenatal services at the tertiary hospital.

Delays in commencing antenatal care left a number of women uncertain about progress of their pregnancy including the health of the babies they were carrying. Zainab and Rose waited till the third trimester before seeking antenatal care. Zainab’s narrative in particular shows her first antenatal visit followed her concerns with the position of the baby in the womb.

When I went to the hospital I knew the pregnancy was 6 months. So, on reaching there they checked me and told me the pregnancy was due. They told me that I was due.  
(Rose)

It was not until I went to the hospital for antenatal that the baby started getting into the right position. That was this year in March. (Zainab)

A number of women reported optimistic experiences of normal pregnancy (Monica, Mary, Harriet, Leticia, Carol, Margie, Sharon, Rehema, Milly, Regina, Joy).

I didn’t have any problem with the pregnancy. Everything was normal. (Sharon)

I was not so sickly. God helped me. I was not vomiting. It was only once when I got a bad fever, but later recovered. (Margie)

I was well, my body was not strained. I never shivered, I was never sickly, I was energetic [...]. (Rehema)

Social support especially from spouse and parents was a key theme associated with women's experiences of normal pregnancy. Fatia for example sought her parent's support soon after getting pregnant due to prior experience of premature birth.

So I had to go to my father's place. I was not supposed to stay here because my husband comes on weekends and goes so I couldn't stay in the house alone. (Fatia)

I went through that period. I was looked after well because honestly my husband used to give me everything that I needed {laughs}. I got everything in time. (Harriet)

The pregnancy situation was not bad. I do not usually get sick. I would also get some people to help me with house chores. (Regina)

Among multiparous women, prior pregnancy experiences influenced their views of normal pregnancy experiences. Experiences similar to what women had in prior pregnancies set women on a known pattern hence being perceived by some as normal. For example, women who had previously experienced prolonged loss of appetite and nausea (Alice, Monica), swelling of limbs (Milly) and big baby bumps (Milly, Sharon) considered these experiences to be normal in the current pregnancy despite the distress they experienced.

The tummy was very big. I couldn't sit for a long time. I couldn't walk. People used to stare at me and wonder what I, a young girl was carrying. But I was not bothered because even for my first born, my tummy was even bigger than this one. (Sharon)

Whereas Sharon was not bothered by her “huge tummy”, Norah helplessly endured the distress caused by a similar experience.

[...] My tummy was heavy and painful. I could not feel good when the baby was not in the right position. But I just said to myself all these will come to an end. (Norah)

Moreover, to some women, having similar pregnancy experiences as in previous pregnancies nurtured hopes of similar pregnancy and delivery expectations including gender of the baby.

I expected a boy because it was in the position where the other one (first born) was, one side. So I thought also this one could be a boy. (Alice)

The majority of women reported some negative experiences during pregnancy including disruptions in social relationships, pregnancy complications and illnesses during pregnancy. Pregnancy complications early in pregnancy led to fears for miscarriages (Mai, Regina, Winnie, Faridah). To these and several other women their situations persisted throughout pregnancy and required regular medical attention as narrated by women in pessimistic tones.

So I would be in and out of the hospital quite frequently until it was time. (Mai)

I kept coming to the hospital. I had been told that this pregnancy had replaced the other and could as well come out. I got so worried. I knew I was going to get another miscarriage. (Winnie)

Ill health shaped these women’s pregnancy experiences as illustrated by imageries and themes of distress expressed below.

I was just like a caterpillar. The situation was not easy. (Fatuma)

I used to feel pain whenever the baby turned. I felt like it was hurting my old wound. I was receiving treatment though. (Winnie)

Similarly, women who had previous loss of a baby worried about losing the current baby during pregnancy and/or after delivery.

I feared that I could also give birth to this one and he passes away but I had people who would comfort me. My mum and sisters were there. (Sarah)

I lost the first four pregnancies because I had not yet known what the problem was. [...] The previous one just died. I had been stitched but he just died. So I went to hospital and was admitted. (Regina)

A pessimistic tone characterised the distress endured by a number of women throughout pregnancy. Lydia's extreme situation portrays her despair as her pre-existing medical condition worsens during pregnancy.

I was given calcium but there was no change. Deep inside me, I wished I could die because there is nothing I could do. I was not thinking about the baby anymore. I was so badly affected. I have had no calcium in my bones for a long time. (Lydia).

Unlike Lydia, whose severe bone condition meant she did not think about her baby during pregnancy as much as she would have liked, Faridah thought she had lost the pregnancy following pregnancy complications which required a womb wash. Worrying about serious medical conditions, Faridah's pessimism could not allow her recognise seemingly obvious pregnancy signs.

This was so worrying. I wondered what to do as this sickness was beyond me now. [...]  
I used to see my tummy getting bigger and thought I had fibroids. But remember from  
the time I had my womb washed, I had never had sex because I had a lot of pain.  
(Faridah)

Distress associated with illness late in pregnancy could have been perceived as labour pains  
especially by women who reported unusually long periods of labour before seeking medical  
attention.

Now in the labour I spent almost a month and a half because labour was on and off. On  
the night of 12<sup>th</sup> May I couldn't get sleep. I was in deep pain. I started bleeding. (Faith)

Whereas pregnancy was to a number of women a normal experience with no unusual events,  
some women had to make key decisions with extremes of either separations or moving in with  
their partners, either of which ultimately enabled the affected women to keep the pregnancy to  
full term. Factors such as level of social support, economic status, religious beliefs, expectations  
for the baby, previous pregnancy experiences and the women's health influenced the women's  
reactions to and coping with pregnancy experiences. In general, women who had planned for  
the pregnancy coped well despite reported incidents of distress during pregnancy. Normal  
pregnancy experiences inadvertently nurtured a degree of certainty and complacency among  
this category of women that led some to be unsuspecting to potential risks in the uncertain  
labour and delivery as illustrated in the next act.

***Act 3: Giving birth – 'Who is taking me to theatre?'***

Although most women sought normal deliveries, only two reported having vaginal deliveries.  
Whilst fear of the caesarean operation, death and cultural issues were reported as reasons for

not wanting a caesarean operation, some women were quick to point out that their caesarean operation was not because of laziness.

I had first feared. The usual talk that when you get a caesarean operation it means you are lame, you are weaker, you can no longer do your duties as before. What if you die in theatre and the rest of those things? Those are thoughts I was having. (Mai)

I continued working and I used to be very busy. I was not operated because I was lazy. (Milly)

To the majority of women, their experiences of labour and delivery were characterised by lack of control, uncertainty, helplessness and prolonged distress in part due to their own lack of knowledge and a stretched health care system. Similar to initial reactions to pregnancy, women, with the exception of those who had scheduled delivery by planned caesarean section, were not only uncertain about their due dates, but could not accurately recognise and/or respond appropriately to early signs of labour (Milly, Monica, Mary, Sharon, Alice, Rehema, Lydia). For Monica, *“when I got labour pains, at first I did not know that they were labour pains since I was not so sure of how old the pregnancy was”*.

Whereas 13 (32%) of the women reported having planned to deliver by caesarean section, the reality was that none of the mothers had control of when to deliver. With the exception of two women (Zuena and Faridah), all women with planned caesarean section deliveries went on to have labour pains in the period they waited for their operation. The uncertainty resulting from lack of control contributed to the women’s distress in labour and/or as they waited to deliver lasting between a few hours to two weeks.

[...] when I arrived, they checked on me and told me I will deliver normally. I spent four days. In those 4 days they were saying that there were many patients for operation they won't manage to operate me then. [...] I think it was after five days when they operated me. (Barbara)

Women described their labour experiences in a pessimistic tone characterised with themes of distress, helplessness, and thoughts of impending death as feelings of uncontrollable pain overwhelmed them.

I was in a lot of pain. Then I started asking where the theatre was. I was like take me for the operation because I felt I was going to die. (Mary)

I was crying out to be taken to the theatre for operation because I was in serious pain. I could hardly speak, I was stammering. I spoke like a child learning to speak. (Milly)

While there, you are always in fear, because at that time they have already told you that you will undergo an operation. There are many people we hear of who die in those theatres, she dies and the baby also dies. That's how things happen. So I was in fear for my life and my baby's life. So I got strong. Because I was feeling labor pains, I just wanted one thing, the baby to come out. (Jackie)

Whereas most women reported yearning to be taken to theatre due to prolonged labour pains, some mothers (Rehema, Alice, Fatuma) reported intense fear of the caesarean operation and wished for alternatives.

They said I had to be operated [...] They gave us an ambulance and we went to the tertiary hospital [...] I asked the nurse if there was no other solution apart from operating me. I was scared because it was my first time. (Rehema).

On the third day I was told that I was going to be operated. I accepted because I had been in untold pain long. [...] At 11pm I was told to be ready. I was scared. My uncle, aunt and sister comforted me. They told me I would not die. (Alice)

Fatuma, a second-time mother returned to her home in labour due to fear when she got to know her obstetric condition required a caesarean operation.

[...] I first ran away from hospital. I went on Friday. I came and spent the day home on Saturday and Sunday. I feared the knife. [...] on Monday I got to the hospital at 8(am). My situation was not good. I was taken to the theatre immediately. I worried about the operation. I thought I would die. That confused me a lot. (Fatuma)

The sight of a dead body of a mother who passed away during operation on her way to theatre triggered Joy's intense fears as described here.

[...] what scared me the most as we were going to the theatre with our things, we bypassed a lady who had been operated and died. I was very scared. I asked why they carried the body through the same way we use to theatre. [...] I hadn't been scared before. But what I saw, scared me. I was scared. (Joy)

Margie, a multiparous mother with previous caesarean operation experiences attributed her fear to lack of counselling.

I was scared. I don't know why I feared this operation. For all the operations I have had, I first got counselled. For this one, when I got to the theatre, I found two women. These two did not take care of me or counsel me like you would do for someone going into a difficult time. A time of life or death. (Margie)

Upon realising that they had no control of when to deliver by caesarean operation due to a crowded labour ward and limited theatre space, some women (Amidah, Zuena) bribed the medical staff to have an “emergency operation” to reduce the time of waiting in labour.

The nurse told us to give her 200,000 (shillings) to get for us a doctor to operate me. We gave it to her. Then they put my name on the list. I stayed the whole day then went to the theatre at 7 in the evening. I was already fed up of the situation, the crowds. (Amidah)

On the very day I was admitted I asked a nurse to find a way to get me operated because the situation on the ward was not good. [...] The nurse accepted to have 250,000 shillings but she told me to give it to a cleaner who would take me to the ward. I had prepared myself with some money. (Zuena)

Among women with previous delivery experiences who had normal experiences with the current pregnancy, past experiences shaped their expectations for normal labour and delivery (Sharon and Milly). Unlike the majority of women, this category of women exercised a higher level of certainty and control of their experiences. Milly’s certainty for example was due to her previous four delivery experiences.

When it came time to giving birth, I felt pains. I went to [name] where I have always delivered from. I was prepared. I had labour pains for two days before I even went there. I am like that. That is the way I handle it. I never hurry to hospital. (Milly).

However, such certainties in uncertain labour and delivery situations contributed to these women’s distress as the unexpected events in labour and delivery unfolded. Following normal pregnancy experiences, Milly and Sharon had planned to deliver at a local health facility but

complications in labour and delivery respectively characterised by severe distress ensured they required referral to a tertiary obstetric facility. Women who first attempted delivery at lower health facilities encountered several negative experiences which left many of them fearing for their lives and/or the lives of their babies as decisions were made to be referred (Mary, Harriet, Sharon, Milly, Barbara, Maureen, Marion, Norah, Sarah, Shadia). Barbara and Maureen, both first time mothers narrate their situations at their respective local health facilities.

[...] I stayed at the health centre for a full week. {Sighs} the situation was bad because I was feeling a lot of pain and yet no signs. They checked me and said the cervix hadn't opened yet the pain was too much. I was thinking that the baby might become distressed and die. And I was worried that I could also die in the process. [...] After sometime they said I could not deliver normally. They referred me to the tertiary hospital. I knew I might die on the way. (Barbara)

After three days of exercises at the urging of a medical staff to enable the baby to descend, Maureen was exhausted and had swollen legs but her labour was not progressing. Following induction of labour and loss of water, the medical staff finally noticed the gravity of Maureen's condition.

The nurse checked me again and said there was a problem. The umbilical cord was coming first. That is when she said she could not manage the situation and she was referring me to the tertiary hospital. [...] The nurse told my mother "Please pray for your daughter for her condition to improve and let her also pray for herself" [...] I feared my baby or both of us could die. (Maureen)

Despite the initial obstetric complications women faced at primary health care facilities prior to being referred, most the affected mothers were happy with the lifesaving medical interventions they received at the tertiary hospital following obstetric emergencies.

We didn't have to wait on the line. We were seen very fast. They examined me and checked whether the baby was OK. (Maureen)

The nurse then took me to the theatre but when I saw that we had gotten into the theatre, my life came back. I knew I would not die because I felt safe. They tried to do everything very fast because they knew that I was in a bad condition. (Mary).

However, several women including Rita, Alice, Barbara, Anne and Marion whose conditions were not considered very serious at the time of arrival from primary health facilities reported similar experiences of uncertainty and prolonged labour at the tertiary hospital like other mothers waiting for medical attention.

I met nurses. I gave them my file and they told me to wait for a doctor to examine. That I had a problem which required a doctor. That was around 2pm. I waited from 2. I gradually started feeling pain. By 4pm I had not seen a doctor. I went and asked the nurses where the doctor was. I was feeling more pain and it's like I was bleeding. [...] But you know I am in serious pain and I am bleeding. I sat on that bench near the examination room. [...] {laughs} actually it was a bit hard during my labour. (Anne)

I was on drip when we went to the tertiary hospital. The situation was not easy. I spent there a night. I did not know I was going to be operated. Several doctors came checked me each inserting a hand into my birth canal but nothing was changing. And they were not telling me anything. (Marion)

Amongst women who reported positive experiences at the hospital, care at the time of birth was characterised by fast medical interventions (Catherine, Mary, Maureen, Harriet, Leticia, Rose), relative risk (Mai, Milly, Katie) and the level of support women received from the medical staff (Mai, Katie, Alice, Norah, Rachael, Jackie, Carol, Rita, Rehema).

So I waited. I saw some patients taken to theatre (.) one of them was actually badly off than I. (Mai)

But the pains had just started and yet I was seeing other people who were worse off than I was. (Katie)

But the medical staff we saw did not mistreat us. They made things easy for us {laughs}. Because {Laughs}, because of money. (Carol)

Asked if the health worker asked for money before she was taken to theatre, Carol's response was "*she did not ask for it but we gave her because of the job. Because there were many people at that time. I was able to go before them all*", indicating she bribed to access faster care.

While in the theatre, the doctors cared well for me and they worked on me properly. When the baby came out they first cleaned her and brought and showed me and they told me I had a baby girl. I was happy. (Jackie)

Despite the positive experiences reported by the women, most of the women were aware of the limitations of the medical care in saving their lives and either appealed to or credited divine interventions. Harriet and Alice's experiences clearly represent their reliance on both medical staff and God as they express their relief at the birth of their babies. Alice's intense fears of caesarean operation triggered thanksgiving when her baby was finally delivered.

I felt very good. I said thank you God. I thanked the doctor. I told him I will never forget him. I thanked him for taking the trouble to help me. I told them all that I am very grateful for their service. I told him and he laughed. I told him “May God bless you and do good things for you”. I told them “What you have done for me is great. I don’t know about others, but you have saved my life”. (Alice)

Harriet and her doctor’s helplessness due to lack of theatre materials necessary for Harriet’s caesarean operation saw them resort to prayers for divine intervention.

She then came back and encouraged me to pray to God that even though we were still struggling for theatre, I still had chance to deliver normally. She said, “You know God is present and He’s with you. You have been praying to him and He will remember you. She asked that we pray together, and we knelt down and prayed. As she went back to bring a wheelchair, I delivered. (Harriet)

However, the majority of women reported more negative experiences during their time of giving birth which left some appealing to divine intervention in the midst of delayed medical interventions. Expressions such as “God was merciful” not only illustrated women’s perceived divine intervention, but their own helplessness to change their situations

I was helpless, waiting for God’s will. (Harriet)

But God was merciful to me, just when it was going to happen, I was taken for the operation and it came out successful. (Diana)

It was horrific for me but I became strong. I said ‘Only God knows whether I will recover or not’. (Carol)

Sarah's opportunity for a caesarean operation which she ironically viewed as divine intervention, followed the death of another woman who had been rushed to theatre as an emergency case ahead of her, as she waited in pain. Fearing for her own life, the death of another woman allowed theatre space sooner than Sarah had hoped and was interpreted as an opportunity, rather than a misfortune for the victim.

So God helped me I think because that woman who ruptured the uterus died. So, they told me you come. (Sarah)

Some of the distress women experienced during labour and delivery was attributed to lack of support including from the medical staff. Whereas to most women, going to theatre was a sign of relief following prolonged labour, a number of them described facing more challenges associated with forms of mistreatment perpetuated by the health workers. For these women, their theatre and immediate post-operative experiences were associated with distress and helplessness (Faith, Haddijjah, Lydia). Lydia's pre-existing medical condition exacerbated her helplessness in the absence of a carer as she made her way to the operating table.

There was a nurse sitting nearby. I asked her to support me so that I could move. She refused. I forced myself to move. But, I could not get onto the bed. It was high, my legs were weak, and I could not lift them up. They had put me on drip. In the process of struggling to climb the bed, the drip let loose and the blood poured on the plastic sheet on the bed. [...] Blood had poured on the bed and it was now slippery. I feared to fall. The bed was high. If I fell, I would be falling on the baby. (Lydia)

Zuena, Margie, Faith and Haddijjah also reported mistreatment and helplessness while under the care of theatre staff as they lay on the operating table.

I was in a lot of pain and she said get up and put right the polythene on the bed I was lying on. I got up and fixed the polythene and lay on the bed again, because I was in a lot of pain. Instead of just telling me to get up she slapped me on the head. I felt so confused. I told her “My fellow woman you have killed me” and she said “I will do it again”. So I said to her “Why do you treat me like a cow?” I feared she could inject me with something that could kill me, so I kept quiet. (Haddijjah)

Moreover, mistreatment by medical staff in some cases left mothers fearing for their own survival.

I had operations before, but this one, I feared the theatre most. The lady there really mistreated me. I thank God that I and my baby survived. My friend’s baby was dropped on the floor. (Margie)

Suspected failure by the theatre staff to share a bribe, given by Zuena to have her operation sooner than otherwise possible, led to an emotionally charged operation session leading to her baby suffering injuries.

[...] was still quarrelling about the money I had given to the nurse [...] as she was putting the baby on bed while quarrelling, she dropped the baby. She said, “Eeh the baby has fallen”, and then she picked him up. I was on the bed. I did not have energy. I would have picked my baby. I heard {imitates baby’s cry and exclaims} I felt bad. I wished I hadn’t paid and waited for two weeks. (Zuena)

Social support from the women’s family members was key in coping with the distress and helplessness as women narrated the uncaring attitude of the medical support. The people who

were significant during the time women spent at the hospital were their own mothers, spouses, sisters and friends.

I went with my husband and one attendant [...] “we have finished operating your wife and she has given birth to a baby boy”. He was so happy. My mother was also there.  
(Carol)

My husband pushed the bed up to the ward. He lifted me to another bed and took the other back. We were transferred to [...]. That is where you found us. (Margie).

But my mother really helped me a lot and I got used to the situation. (Rehema)

In the absence of her ex-husband who left her following confirmation of pregnancy, Shadia had her sister and mother to support her during the time of delivery. For Amidah, confirmation of lack of support from her boyfriend amidst fears of abandonment came at the time of delivery. Whereas, she had reported being ready for the pregnancy outside marriage, Amidah did not seem prepared for the lack of support from the father of her baby. His absence, despite having her mother with her at the hospital left her feeling abandoned.

My mother and sister were with me at the hospital. But after I was operated, my sister went and my mother stayed. (Shadia)

People kept coming to visit see us at the hospital. The father of the baby didn't come. I felt bad. (.). {Sighs}. I thought he had forgotten me. He didn't support me during pregnancy, but I told him when we were in the hospital, but he didn't come. (Amidah).

Unlike Amidah who lacked support from the father of her baby but had social support from her mother and other visitors, lack of carers during time of admission at the hospital left many women in a lot of distress. Women who lacked close relatives to attend to them not only lacked social support but reported difficulties in getting medical attention including transfers around the hospital.

When I reached the hospital, I was alone. I had no one to help me. I had to carry the luggage. (Alice)

Another challenge I had, I did not have an attendant. My husband was at home keeping the house. (Mariam)

I was alone [...]. Even when I went to theatre I was alone. (Anne)

Uncertainty and helplessness characterised most of the women's labour and delivery experiences beginning with women making sense of labour signs and continuing through their waiting time at the hospital. The duration of labour lasted from days to weeks as women either tried to have normal deliveries at their primary health facilities or they waited at the tertiary hospital. In their moments of severe labour pains, any intervention including medical attention was interpreted by some women as divine. The attitude of medical staff towards the mothers engendered more unexpected distress for some women. This left the affected women questioning the health care staff's professionalism as new mothers reflected on their experiences on their postnatal journey. In part due to prolonged labour, time spent at the hospital waiting for delivery and the inadequate hospital facilities, women yearned for a shorter recovery time on the postnatal ward as highlighted in the next phase of narratives.

***Act 4: Post-delivery – ‘When do I get out of this place?’***

Post-delivery period started with most women reporting relief and excitement about the delivery of their babies following what generally seemed a long process out of their control.

Now when the baby had come the journey was half covered. All I was waiting for was to get out of there. I almost asked them if I could go {laughs} as if, as if I am part of, of also those people working on myself. [...] It was quite a happy experience. I was worked on well. I didn't get any problem. Erm and even on the ward I didn't spend there much time after that. (Mai)

When I got to theatre the doctors were very caring. [...] They operated me and I had a baby girl. After that they got me a room. I stayed in that room for 2 days. When I left there they sent me to the ward and it was after about 2 days when you came asked us to take part in this study. (Rose)

For some mothers, however, fears for their own and the baby's safety characterised their experiences of leaving theatre and settling on the postnatal ward. Women's expectations, availability of money and level of social support were key factors found to determine women's experiences following delivery. For some women such as Faridah and Faith, a lack of money to pay for medical care including transfer to the ward from theatre, created challenges in post-delivery care.

The nurse who came to take me out asked for 40,000 that others had refused to take me. [...] She threatened to push me down if I didn't give her money. I pleaded with her not to throw me down. I was scared. I told her "I have 30,000" and she said "okay, 20,000 is for wheeling you and 10,000, let me bring you some tablets for pain". [...] And indeed if you saw her, had she pushed me, my scar would have gotten torn. My husband

got the money and gave it to her. She then put up a drip and gave me an injection.  
(Haddijjah)

Faith's situation was further complicated by a lack of close family member to support her. Faith describes her embarrassment as her male neighbour, who she had helplessly telephoned shortly before going to theatre to come to hospital, was ordered by a health worker to attend to her on the ward.

Then the nurse told the man "Get some cotton and pad your patient" (.). I felt so embarrassed but I had nothing to do because I don't know whose role that is supposed to be [...] "If you have money I can care for her but if not do it yourself". The nurse stood there instructing this man [...] I was so sorry that I felt like crying. I felt like beating up the nurse but I said I should not express my anger because she could inject me with something that could kill me. (Faith)

Mothers who experienced mistreatment by medical staff helplessly wondered if anyone knew what mothers were subjected to by those in whose care their lives were entrusted.

[...] I felt bad. I wondered how a nurse who was supposed to be a source of comfort could instead behave like that. (Margie)

Although a few women were able to pay for medical care, the majority of women expected medical care free of charge as is the norm in Uganda's public health facilities. Mothers who were able to pay the informal charges of care and prescriptions solicited by the medical staff generally reported good postnatal attention.

They also told us we had to buy our own medicine, you had to pay the doctor 5,000 (shillings) taking care of you. If you never had that money, then maybe you would get another merciful doctor or nurse. I bought medicine. (Marion)

So I left theatre and went to the ward. But there the staff are after money. You pay for everything. Whether it is removing the catheter [...] the medicine they inject you is 5,000 (shillings) per bottle. [...] And they do that in hiding. They stay in their rooms and call you there. If you don't go it is you to die. At the end of it all we spent almost 400,000 (shillings). (Leticia)

Management of post-delivery pain especially among the mothers who delivered by caesarean section was an important factor in the women's experiences and perception of postnatal care. For mothers who received the required medications in time, they describe the care received as positive.

When the chloroform (anaesthesia) started to wear off, I started to feel pain. The wound was hurting so much. We called the nurse. There is an injection she gave me and the pain subsided. I did not feel pain again. [...] Nurses took care of me. [...]. I do not know if others were also taken care of, but they did take care of me. We were told to buy some of the medicine from a pharmacy if it was out of stock. (Winnie)

However, unlike Marion, Winnie and a few other mothers, most women neither expected nor could afford to pay for medicine required for their post-delivery recovery. Medical attention for such women was not received in time due in part to what they viewed as uncaring medical staff.

We got different kinds of medicine. [...] but could we get it? I had to leave the baby to go and line up for the injections. (Mariam)

[...] there was a point that I felt so sorry for those mothers though I was going through the same thing. The same pain like them, but I felt sorry for them. Like they were, their pain was too much, more than mine. The expressions on their faces. Maybe the problem with the medical personnel, the nurses. How they treat people. Like they don't care about people's pain, what people are going through. They just shout at people. (Julian)

Mothers bemoaned a lack of knowledge of what was expected of them for the inadequate care they received as demonstrated by Katie.

I wish it was clear right from the time of admission what one needed to buy so as to plan ahead instead of getting substandard medicine. This would help us, instead of playing around with people's lives. So we would purchase them [medications] and rest in the fact that we have our own and can be worked on with good things [...] I blamed all this on, I did not even know who to blame [...] I did not know what or who to believe. (Katie)

Katie's recollection of the events surrounding her post-delivery recovery during the interview triggered fresh anguish at the health care system which exposed many mothers to uncertainties about care and mistrust of the health workers. Similar to the time of delivery, having a carer on the ward was vital for mothers recovering their functional independence following delivery. Mothers who lacked close family members to assist them on the ward (Faith, Mariam, Rachael, Anne, Milly) often relied on fellow mothers or carers of other women for the much needed support on the ward.

I stayed in the hospital alone. If I wanted something I would ask the neighbour's caregiver. (Milly)

My friend came and helped me at the hospital. My husband was far away. [...] My friend stayed with me till I was discharged after one week. (Catherine)

However, a few mothers reported having no one to turn to for support a few hours following a caesarean operation and therefore had to endure their post-operative pains to do whatever was required.

I came out (of theatre) at around 5 am. So I went to that room. Remember I had left my bag. I just left them [property] there because I got the pain and I just left them there when they called us. But thank God, God was able to keep them throughout that night. I went and got them at around 11 am myself because there was no one who was there with me. (Anne)

Anne's reference of God keeping her property throughout the night was in part due to fears of the theft of property and babies reported on the wards. Anne's situation of having to walk a few hours after a caesarean operation, though attributed to lack of a carer, was a common experience of most mothers on the ward. Helpless post-delivery mothers without the help of their caregivers, after the latter were sent out by health workers to reduce crowding on the wards, were often required to move to other parts of the ward to create room for those newly operated. Such routine transfers happened starting a few hours after operation and caused distress to the newly delivered mothers who had to secure beds/spaces while keeping an eye on their babies and property for fear of theft. Many mothers reported severe distress during such transfers as they moved unsupported with fresh post-operative wounds and still under anaesthetic effects.

[...] I was in pain, had not eaten a thing, I had come out of the theatre at night. They told us to get off, get up and go look for another bed as they were bringing in other patients who were operated in the night. [...] I failed to move. I tell you I really failed

to move because I was in too much pain. I felt like my thighs were still heavy. She went away and another one came. I lied to her that I had just been brought in and I could not move. I refused to move. We then spent the day there. (Faridah)

Like most of the mothers, Faridah's time to leave the bed still found her alone and not fully recovered. Wondering if I understood the distress she and other mothers went through, Faridah described her distress as she moved to another bed later that evening. However, other mothers were not lucky to find alternative beds.

On the second day I was told to vacate the bed because other patients needed it, yet we were also newly operated. I looked at the nurse and she accused me of insulting her. She wanted to put the patients that were operated that day, so we moved to the floor. This was very frustrating. I slept on the floor with my baby. It was cold both day and night. I feared my baby could catch a cold. And he didn't want to be covered. I wondered when I would be discharged from the hospital. The floor was dirty and wet. (Norah)

Factors including mothers' expectations of care, uncaring staff, the ward environment and a lack of carer led to mothers expressing pessimism about postnatal care and wishing for a discharge sooner than recommended. Extreme cases of despair and feeling fed-up during postnatal recovery saw mothers such as Faridah and Mariam feigning recovery to secure a discharge to return home.

I can't lie about the fact that I asked for my own discharge two days after the operation. I just pleaded to be discharged. I felt fed up of the whole situation. [...] I told him I was feeling well and that the pain had reduced. But, I was in pain and I was feeling very bad. I was just lying because of the situation. (Faridah)

Despite the differences in mothers' narratives of childbirth, they were generally united in the role of having a live baby as a positive outcome of the challenges of childbirth. At the time of discharge, a number of women reminisced on their childbirth experiences with a sense of triumph and relief.

I felt good to have my baby because some people left without babies. Sometimes we would see both a mother and a baby dead. This caused us to thank God so much because we are alive and our babies are alive. All other things were minor. (Milly)

When I look at my child, I feel good. I believe those who left without babies were so badly affected. When you have your baby with you, it makes you strong. When you do not have your baby, even the healing takes long. (Fatuma)

After recovering I was so proud of myself. I felt so good seeing my baby. I could not even remember the pain so much. (Mary)

Feelings of triumph following uncertain circumstances such as described by Zuena at the time of her discharge led to important discoveries and decisions by Harriet and Hadijjah characteristic. Harriet describes her new found standing in her community as she returned home following what appeared to her as a miraculous normal delivery.

Our member of parliament drove us back home. [...] Here the party was awesome. That's why I keep asking who am I? I feel happy looking at my healthy baby. I keep asking 'Who am I to be brought back from the hospital by such many people?' Five vehicles came to bring me home, me who does not even own a car tyre, neither sandals from a car tyre {laughs}. That's my story. (Harriet)

Haddijjah, a University graduate and a mother of two, chose to stop having more babies, attributing her decision to the suffering she endured.

But besides all that, I have gone through a bad experience. I have decided not to have more babies due to the suffering I have been through. (Haddijjah)

Some mothers volunteered to share their insights about the health care system at the tertiary hospital by directly cautioning me on what I should never do.

[...] actually if you have, you don't have to take your wife to the tertiary hospital. Maybe if you have a doctor that is your friend you take her there. But in the tertiary hospital if you don't have someone you know, don't bother. (Anne)

For the majority of mothers, returning to their respective homes with their new-born infants was a big relief, characterised by narratives of hope for full recovery and collective family happiness.

I was happy when they discharged me because when you are in hospital, you only pray for the day you get out of the hospital. (Fatia)

However, for some mothers, the much anticipated relief in the comfort of their homes was not immediately realised (Barbara, Diana, Catherine, Rita, Julie, Faith, Lydia, Faridah, Katie) and they had to seek further interventions a few days after leaving the tertiary hospital.

Julie returned to the tertiary hospital because “*had gauze in my stomach (abdomen). It had been left in. I heard that I had been worked on by students. I was stitched again and I came back home*”. While some women successfully “*tried so much to keep myself from getting anything*

*that could make me go back to the tertiary hospital?* (Mary) and the majority sought care elsewhere. To such women, the tertiary hospital was no longer a place of choice to seek medical care. Faith's experience three days after discharge was one of the extreme cases of women who loathed their hospital experiences.

The pus was more painful than labour. The baby was crying, these other children were crying and I was also crying. [...] I swore never to go to the tertiary hospital. Better I die from home and they carry my dead body to the tertiary hospital but not me to go there myself. People were asking me why I didn't want to go to the tertiary hospital. I told them the tertiary hospital is like going to hell not the hospital. (Faith)

Maternal experiences of childbirth described here had a wide range of effects on the mothers' relationships with their babies during pregnancy and after birth. For some mothers, their experiences brought them closer to their babies.

I got up with my baby but in a lot of pain and went to see the situation in the place where we were going. I said I would die with my baby. My property can get stolen, but not my baby. I had heard of stories that they steal babies. (Norah)

The other thing was that of stealing babies. For the time we spent there, two babies were stolen. I feared for my baby. It made me pay more attention to my baby. (Regina)

Fear for the safety of the baby at the hospital persisted in some mothers even after discharge from the hospital. *"But I tried to ensure that my baby was not stolen from me when I was still there. Even here (at home) I could ask, where is my baby?"* (Mary)

To some mothers, their experiences of childbirth negatively affected them and the relationship they had with their babies during pregnancy and after birth.

Deep inside me, I wished I could die because there is nothing I could do. I was not thinking about the baby anymore (Lydia).

Julian's experiences during pregnancy which were characterised by rejection by her own family and her own struggles to accept her pregnancy might have contributed to the negative feelings she had towards her baby.

I don't know why but I just thought I didn't like the baby. I kept telling mummy, 'You take away the baby. I don't want to see him'. I don't know whether it was because of the pain, but I just didn't like the baby. [...] OK she tried to encourage me to love my baby but I didn't feel like I would be able to love him. But she kept on encouraging me "Julian this is your baby, you are supposed to love him. No one is going to love him apart from you. Breast feed him". (Julian)

Intrapartum care appeared to shape experiences reported by the mothers. Support from staff whenever was reported was associated with positive experiences. The negative attitudes of the staff created the severe negative experiences that the women encountered during the time of admission. Inadequate theatre and ward facilities also contributed to the distress reported on the ward. Fear for babies being stolen from the ward was widespread among mothers, kept many of them watchful. The women's overall perceptions of their experiences though varied, having a live baby at the time of discharge was invaluable to the majority of women. A live baby enhanced the mothers' capacity to cope with postpartum challenges at the hospital.

#### 6.4: Conclusion

In this chapter I have highlighted an overarching childbirth narrative to show the experiences shared by women and the individual women's responses to those experiences from the events surrounding confirmation of pregnancy until her discharge from hospital following delivery. To most women, physiological changes due to pregnancy were interpreted as signs of ill health. These uncertainties were exacerbated by a lack of planning for pregnancy reported by several women. Poor preparedness for pregnancy resulted into distress for several women as the implications of pregnancy affected their marital relationships. Spousal support influenced the mothers' coping with subsequent experiences. Labour and delivery caused a lot of challenges for several women in part due to women's lack of knowledge and an under-resourced health system. Unmet expectations of care before, during and after delivery, mainly by a caesarean operation, left many women helpless and in severe distress fearing for own lives and the safety of their babies. After delivery, the new mothers were keen to return to their homes as soon as possible as they sought to forget about their mostly challenging childbirth experiences. Having a live and healthy baby played a big role in the women's final sense of triumph thus viewing their largely negative experiences of childbirth as minor at the time of discharge from the hospital. In the next chapter, I integrate the women's narratives with findings from the self-report data presented in Chapter five, and the theories, in the discussion of the overall findings of this study.

## 7 CHAPTER SEVEN: DISCUSSION

### 7.1 Introduction

In this chapter I present the discussion of findings by integrating results of a mixed methods study in which I sought to examine the association between childbirth experiences and mother-infant relationships among a sample of women who delivered at an urban tertiary hospital in Uganda. To integrate findings from quantitative and qualitative strands of this study, I employed Creswell's (2014) weave strategy. I therefore discuss the mothers' experiences of childbirth paying specific attention to the factors which influenced those experiences and the meanings mothers attached to their experiences of childbirth. By weaving between findings from self-report measures and narratives, I offer a comprehensive picture of the process of having a baby in this sample of Ugandan women. Secondly, I use findings from mainly self-report measures and insights from narratives to demonstrate the influence of specific factors of childbirth and the mothers' attachment styles on maternal postnatal mental health. I then examine how childbirth experiences, maternal characteristics and associated postnatal mental health are associated with and/or predict interactions between mothers and their babies. Finally, I use Frank's (1995) theoretical typology of illness as a lens to further an understanding of the women's childbirth experiences drawing from the women's narratives of childbirth experiences and quantifiable self-report findings. But first I provide a general overview of how my findings compare with previous studies.

My findings generally support previous findings from high income countries on the association between specific childbirth experiences, postnatal mental health and subsequent relationships between mothers and their babies. For example, all these high-risk mothers who took part in this study reported PTS symptoms arising from labour and delivery. Women's narratives reflect the events which might have influenced self-rated maternal experiences thus providing an

understanding of the meanings mothers attached to their individual experiences. There is evidence of both positive and negative experiences of childbirth and subsequent associations of those experiences on the observed mother-infant relationships. Childbirth experiences, specifically the mothers' hospital experiences were the strongest predictors of mother-infant interactions. However, unlike evidence from previous literature, the PTS symptoms arising from events of labour and delivery in this sample did not have any significant correlations with mother-infant interactions. Similarly, postnatal depression and maternal attachment styles did not have any significant associations with interactions between the mothers and their babies. In the following sections I discuss these findings following the order of the study objectives beginning with childbirth experiences as outlined in section 3.7.

## 7.2 Childbirth experiences

The childbirth period in this study include maternal experiences including pregnancy intrapartum (labour and delivery). I therefore discuss these experiences first by considering issues surrounding pregnancy. This is followed by intrapartum experiences and finally highlighting the meanings and perceptions of the women's hospital and overall childbirth experiences to examine my hypotheses about the sample.

### 7.2.1 Pregnancy and associated factors

The women's narratives of childbirth show that personal circumstances and early pregnancy experiences influenced the mothers' experiences of childbirth indicating that childbirth for this sample could be better understood as a process rather than a single event. A pattern of childbirth experiences emerged between the mothers' experiences of pregnancy, labour and delivery suggesting substantial similarities between the women's reactions to confirmation of pregnancy and subsequent experiences during pregnancy and intrapartum. For example, many women who

expressed happiness at the time of confirmation of pregnancy reported largely positive experiences of pregnancy, labour and delivery. Similarly, several mothers whose reactions to pregnancy suggested a lack of planning, tended to report negative experiences of childbirth. Similar observations have previously been made (e.g., Bernier et al., 2010; Gharaibeh & Hamlan, 2012) indicating that pregnancy experiences might shape the events surrounding labour. The women's narratives provided an opportunity to examine how the mothers' level of planning for the baby influenced their accounts of their general experiences of childbirth.

The level of the women's preparedness for pregnancy was an important factor found to influence subsequent childbirth experiences. Women's narratives in *act 1* suggest that to a large number of mothers, pregnancy was unexpected. The reactions to confirmation of pregnancy reported by the mothers demonstrated the mothers' little knowledge about contraceptive methods among this sample. A few mothers reported not expecting to become pregnant after discontinuing contraceptive methods they were using, due to undesirable side effects. It should be noted that these women seemed not to expect pregnancy despite showing no evidence of utilisation of a scientifically recognised family planning method. This finding reflects the low coverage and utilisation of family planning methods cited in recent reproductive health reports and national maternal health policy (Ministry of Health; TARSC, HEPS, 2013; The Republic of Uganda, 2007). A recent study indicated that utilisation of maternal health services in Uganda is better in urban areas (Rutaremwana, Wandera, Jhamba, Akiror, & Kiconco, 2015) similar to the location of the current sample. The absence of steps taken by women in preventing unwanted pregnancies by several mothers in this sample might reflect the women's religious beliefs. A number of mothers expressed a belief that God had ultimate control over the future of their personally unexpected babies. Moreover, some mothers also indicated that religious reasons helped them to keep their unplanned pregnancies following initial abortion considerations. Understanding of such beliefs needs to be integrated into national maternal health strategies

such as those aimed at reducing unwanted pregnancies (Republic of Uganda, 2007) if meaningful outcomes are to be achieved.

Several mothers misconstrued early pregnancy signs as symptoms of ill health, in part due to the unexpected nature of pregnancy, and a lack of knowledge. This exposed such mothers to risks of contraindicated medical interventions including use of contraceptives and certain antimalarial drugs while already pregnant as seen in *act 1*. For instance, symptoms such as fevers and nausea women reported early in pregnancy were often interpreted by mothers as signs of malaria, a common parasitic infection in sub-Saharan Africa. The most common self-prescribed and off the counter medications used in treatment of these malaria like symptoms such as Artemether/Lumenfantrine, are not recommended in pregnancy (WHO, 2010). The risks of uncontrolled use of contraindicated medications in pregnancy therefore posed health concerns to unsuspecting mothers and their babies before confirmation of pregnancy. Such risks to the developing foetus might have negative implications for the affected babies in this sample including quality of interactions with their mothers. However, the impact of such risks to the baby was beyond the scope of this study.

Similarly, the uncertainty which characterised several women's early pregnancy experiences might have exacerbated the women's experiences of some of the prenatal complications reported in *acts 1* and *2* in the previous chapter. A number of mothers reported seemingly common signs of pregnancy (Slade, Cohen, Sadler, & Miller, 2012) as illnesses requiring medical interventions. Regardless of the women's preparedness for pregnancy, the early maternal experiences for both expected and unexpected pregnancies show that the first trimester was a period of uncertainty similar to observations by Slade et al. (2012). Pregnancy and childbirth, according to Slade et al. (2012), is a time like no other for a woman, often characterised by various levels of developmental crisis related to women's bodily changes. It might be argued, however, that negative reactions to unplanned pregnancies exacerbated the

women's perceptions of their bodily changes due to pregnancy as more negative. This was evident in the relatively long time it took for the mothers who did not expect pregnancy to confirm they were pregnant. But even after confirmation of unexpected pregnancy, several mothers took a long time to adjust to pregnancy associated changes as seen in *act 2*. Both psychological and physical symptoms of ill health characterised the experiences of this category of women with a few requiring further medical and psychosocial interventions throughout pregnancy. It is therefore plausible that unplanned pregnancies offset normal developmental mechanisms of pregnancy highlighted by Slade et al. (2012) increasing risks of pathological symptoms. I discuss interpretation of childbirth experiences as illness in general later in this chapter.

Confirmation of pregnancy by women who planned their pregnancy, unlike their counterparts who never expected to become pregnant, was received positively. Actively planning for pregnancy, as demonstrated by some women in *act 1*, might have prepared those mothers for physiological and psychological changes normally associated with pregnancy and childbirth (Slade et al., 2012). Furthermore, women who reported wanting to have a baby seemed to adjust positively and faster to the initial bodily changes characterised by ill health, than those whose pregnancies were unexpected. As shown in *act 1*, confirmation of expected pregnancies brought joy to the mothers which enabled them to embrace the associated physiological changes. For example, some mothers reported not minding pregnancy related issues such as nausea and loss of appetite, but rather were overjoyed by the desired pregnancy. Similar findings were reported by Wilson et al. (2007) who observed that desire to have children was associated with less prenatal anxiety.

Other factors such as social support and economic status also influenced the women's subsequent experiences, similar to previous findings (e.g., Figueiredo et al., 2009; Kokubu et al., 2012; Parfitt and Ayers, 2014; Wilson et al., 2007). Among the majority of women, positive

couple relationships following confirmation of pregnancy contributed to perceived positive experiences of pregnancy due to the support women received from their partners. The male partner's acceptance of responsibility of pregnancy for both married and single women was one of the key concerns especially among women who had not planned for the pregnancy. It has been previously reported that childbirth is a responsibility of women in some African cultures (Kyomuhendo, 2009; Sawyer et al., 2011). For this sample, the potential risk of men denying responsibility for especially the unplanned pregnancy and thus paternity of the babies, caused distress to the affected women regardless of their marital status as seen in *acts 1* and *2*. These findings suggest that the responsibility of preventing unwanted pregnancies rests solely on women as well. Consequently, how the male spouse or partner responded to pregnancy greatly influenced the subsequent experiences of pregnancy and delivery for a number of women. Contrary to previous findings that men are treated by women as outsiders in regard to childbirth (Kyomuhendo, 2004), women in this sample desired close support of their partners. The mothers who perceived less support following confirmation of pregnancy reported having marital conflicts exacerbated by the pregnancy situation. It might therefore be argued that women do not mind their spouses being less involved in childbirth issues, once the male partners accept their biological responsibilities of paternity. The women's anxiety resulting from especially unplanned pregnancy might have contributed to their perceived lack of support from their partners similar to observations made by Wilson et al. (2007), leading to an escalation of spousal conflicts.

My findings show considerable conflicts following confirmation of unplanned pregnancies especially among a proportion married or cohabiting couples. As shown in *act 1* and *2* of the childbirth narrative, a breakdown in marital relationships persisted throughout pregnancy and in some cases led to separations, indicative of persistent conflicts and a perceived lack of spousal support. A deterioration in relationship as seen in *act 2* among some married women, characterised by a lack of partner support, has also previously been reported postpartum (Parfitt

& Ayers, 2014). Parfitt and Ayers (2014) showed a heightened lack of social support following delivery. This might in part be due to reduced attention towards either partner caused by the new demands of caring for the baby. For the current sample, marital conflicts during pregnancy suggest the mothers' perceptions that their male partners did not seem to accept their own roles in unplanned pregnancy and blamed the wives for doing nothing to prevent it. Nevertheless, my study builds upon Parfitt and Ayers (2014) findings by showing that lack of partner or family support during childbirth is associated with psychological distress as illustrated in women's narratives of experiences of pregnancy. Moreover, women's narratives show that support from partners was associated with more positive experiences during pregnancy as demonstrated below among single women who entered marital or cohabiting relationships following confirmation of pregnancy.

Contrary to some married women who separated from their spouses, due to conflicts resulting from unplanned pregnancies and a subsequent lack of spousal support, a number of single women at the time of pregnancy started cohabiting with their partners. For such women the support received from their partners, though initially unexpected, helped them to cope with unplanned pregnancies. The need for spousal support by the current sample is similar to findings reported by Sawyer et al. (2011). Absence of spousal reassurances as highlighted by some mothers in *act 2* meant some women had to prepare for the baby on their own, a situation which caused a lot of distress for the expecting mothers. The despair which characterised single women's early pregnancy experiences could also be attributed to their doubts of financial help from their partners who were yet to accept and show culturally expected responsibility of providing financial support for childbirth (Kyomuhendo, 2009). For the single women in this sample who were mostly young and unemployed (e.g., Rehema, Joy and Resty), cohabiting with their partners eased the financial burdens of preparing for the baby thus making their subsequent experiences of pregnancy to be positive. For these women, their attitudes to pregnancy also changed as evidenced by stopping plans to terminate the pregnancies expressed

in *act 1*. Overall, women with no or little partner support not only predicted negative experiences as seen in *act 1*, but the majority went on to report more distress throughout pregnancy as seen in the next paragraph. In the absence of professional psychosocial support and as is culturally the norm, many affected women turned to their immediate families such as mothers and sisters (Kyomuhendo, 2009). For example, some women went back to their biological families who supported them throughout pregnancy due to factors such as marital conflicts, partner being away quite often and living alone prior to pregnancy.

Despite some women resolving to keep their unplanned pregnancies against the wishes of their partners due to the women's religious beliefs that God had plans for the babies, lack of partner support had substantial negative implications for those women. The expectations of pregnancy and their babies among these women were negatively impacted. Narratives in *act 1* and 2 show that despite decisions to have the baby, the negative attitudes some mothers had towards their pregnancies persisted increasing risks of poor maternal-foetal bonds. There is evidence from attachment studies that prenatal factors such as uncertainty (Campbell-Jackson et al., 2014) and negative attitudes towards pregnancy (Kokubu, Okano, & Sugiyama, 2012) have a negative impact on maternal bonds with the baby beginning in pregnancy. Moreover, religious beliefs were used more as justifications for keeping unplanned pregnancies as some women had reported plans and attempts of abortions in *act 1*, during the early stages of pregnancy. The internal conflicts resulting from conforming to religious beliefs to keep unexpected pregnancies against own and partner wishes could have contributed to negative experiences later in pregnancy and birth. This study extends understanding of the experiences of childbirth by focusing on circumstances of the women which influence issues surrounding pregnancy and birth. Social challenges discussed so far and cases of physical health I consider next greatly contributed to the women's experiences of childbirth.

Whereas a number of women had normal pregnancy experiences devoid of any major health problems, some mothers narrated poor physical health conditions in addition to the physiological changes discussed earlier. For example, pre-existing health problems were exacerbated by pregnancy causing the affected women challenges during pregnancy. Additionally, a previous history of miscarriage and scares of miscarriage in the current pregnancy caused health concerns for some women in this sample as shown in the first three *acts* of the shared narrative of childbirth. Both previous and current miscarriage concerns were related with health problems such as incompetent cervix and recurrent bleeding which required surgical and medical interventions respectively. Fears of miscarriage characterised the affected women's experiences of pregnancy similar to findings reported by Campbell-Jackson et al. (2014). The affected women reported being constantly aware of the risks of miscarriage despite seeking regular medical interventions to ensure they carried their babies to full-term. My findings about health problems during pregnancy in general leading to caesarean deliveries reflect findings by Weisman et al. (2010) and Bernier et al. (2010) in Israel and Canada respectively .

Health problems during pregnancy and a history of previous pregnancy and delivery complications including caesarean deliveries were reported by several women as indicators for being classified as high risk mothers long before the time of labour and delivery. This not only implied the women's vulnerable maternal status and associated negative perceptions of their experiences but predicted their caesarean mode of delivery. Consequently, up to 35% of the mothers (n = 17) were scheduled for planned caesarean delivery due to known obstetric conditions. Mothers with such early indications of caesarean delivery could have experienced pregnancy as negative, due to fears of being viewed by society as weak and not being able to have a normal vaginal delivery (Kyomuhendo, 2009). These findings might nevertheless add to previous reports that symptoms of ill health in pregnancy are associated with caesarean deliveries (Weisman et al., 2010) as the majority (94%, N = 46) of the current sample delivered

by caesarean operation. A lack of comparable sample of mothers with normal delivery in the current study does not allow for conclusions to be made regarding associations between ill health in pregnancy and caesarean delivery. Several other problems were reported during labour and delivery which might be associated with the women's pregnancy and previous experiences of childbirth discussed so far as highlighted next.

### 7.2.2 Intrapartum experiences

The women's experiences during labour, delivery and the time following delivery at the hospital as shown in *act 3* and *4* and self-report findings (section 5.1.1) reflect some of the challenges of maternal health in sub-Saharan Africa including delays in seeking care and accessing appropriate care during labour (e.g., Adeoye et al., 2015; Balikuddembe et al., 2011; Mbonye et al., 2007). On examination of time spent in labour for example, women's narratives show a number of women delaying to seek care apparently because they considered their condition was not serious enough, despite reporting labour signs. Similarly, there were delays in primary health facilities as women laboured for days to have a normal delivery. Referrals to the tertiary hospital by 46% (n = 19) of the women who participated in the childbirth narratives, often followed severe obstetric complications being adjudged by the attending staff, to be beyond what they could handle. Such delays left the affected women with little time to seek lifesaving interventions due to obstetric emergencies. It is not surprising that mothers in this sample reported several problems during labour and delivery.

Fear of death, emergency caesarean section, prolonged labour and feeling exhausted were the four most common problems reported during labour and delivery. These problems occurring mainly during the mothers' admission at the hospital could have contributed to the women's perceptions of hospital experiences. Fear of death though not in itself a cause of maternal mortality and morbidity (WHO, 2015) is particularly important for the current study exploring

posttraumatic stress symptoms associated with childbirth. The 53% (n = 26) women reporting fear of death at the time of labour and/or delivery add to the growing evidence of childbirth as a traumatic event (Ayers, Bond, Bertullies, & Wijma, 2016; McKenzie-McHarg et al., 2015). Additionally, the fear of death predisposed mothers to postpartum mental health problems discussed later. Despite the majority of the current sample of women having delivered by caesarean section (94%, n = 46), the fear reported by the women should not be mistaken for preoperative anxiety. Women's narratives of fear of death as highlighted in *act 3* pertained to their experiences of prolonged labour and associated complications. Although fear of death is commonly associated with anaesthesia and surgery (Fitzgerald & Elder, 2008), women's narrative accounts of labour and delivery suggest that their fear was largely due to experiencing labour and delivery as traumatic. Preoperative anxiety whenever present was attributed to lack of support and counselling from medical staff as expressed in *act 3* and *4*.

Furthermore, self-reported fear of death by more than half of the mothers was in many ways corroborated by the women's narratives of prolonged distress and helplessness before and during delivery as seen in *act 3*. Similar findings about fear of death associated with near-miss maternal experiences have been seen in Burkina Faso (Storeng, Murray, Akoum, Ouattara, and Filippi 2010) . For a number of women, the actions of the medical staff during operation exacerbated their fear of death as they not only felt unsupported but were threatened and mistreated by the very people they hoped would save their lives following distress of labour experiences. For example, some mothers reported feeling pain during the operation which they attributed to negligence and poor attitude of the medical staff. Such experiences left the affected women mistrustful of the medical staff yet reliant on them to save both their lives and the babies. The cognitive conflicts resulting from such dilemmas could have exacerbated the women's helplessness further increasing the perception of fear. Negative attitudes of medical staff and the distress experienced during childbirth by the women have been reported elsewhere in sub-

Saharan Africa (Chadwick, Cooper, & Harries, 2014; Kigenyi, Tefera, Nabiwemba, & Orach, 2013).

Emergency caesarean delivery was the second most reported problem during labour and delivery (49%, n = 24). As noted earlier, women referred from primary health facilities with obstetric complications following their attempts at normal delivery contributed to cases of emergency caesarean operations. Failed attempts of normal delivery could therefore have contributed to the women's perceptions of emergency caesarean operations as a problem. Findings reported by Weisman et al. (2010) indicated that unlike women who had vaginal delivery, caesarean delivery following prolonged labour as was the case with a substantial number of the current sample, was perceived more negatively. Moreover, cases of extreme labour pains were reported by multiparous women who described experiences of unbearable pains in comparison to previous labour experiences. Narratives in *act 3* show women's distress and helplessness as they waited for caesarean operation. Cultural beliefs which portray women delivering by caesarean section as lazy, and therefore an indictment on women's personal capabilities (Kyomuhendo, 2009), could also have added to women's negative perception of emergency caesarean deliveries. These observations suggest that it may not be the caesarean delivery per se, as suggested by Weisman et al. (2010), but the associated challenges such as uncertainties and lack of control regarding events surrounding delivery which contribute to the negative experiences reported by mothers.

It was evident in *act 3* that cultural beliefs shaped women's reactions to caesarean operations, as they considered the inevitability of having caesarean deliveries following labour complications. Women's narratives of despair as they waited for caesarean operations, during and shortly after operation suggest both fear of death and their held cultural implications for the lifesaving medical interventions. Whereas one mother (Milly) explicitly narrated in *act 3* how busy and hardworking she was during pregnancy and that her caesarean operation could never

have been because she was lazy, others alluded to the same belief before and during the operation. The urgency shown in women's narratives in *act 3* to be taken to theatre though reflects the distress they had, might also suggest their unconscious cultural desire to show strength in childbirth (Kyomuhendo, 2009) when caesarean operation is unavoidable. In many cases however, caesarean operations were delayed, similar to findings by Balikuddembe et al. (2011), who reported on time between decision to operate and actual operation. The extended time spent in waiting after a decision to operate was made left many of the affected women in despair and blaming the medical staff for being inconsiderate.

It is however plausible that what continues to be viewed as poor attitude of health workers in parts of sub-Saharan Africa (Chadwick et al., 2014; Kigenyi et al., 2013) could reflect the negative influences of culture on the medical practice, especially among female staff who were accused by mothers of mistreatment. The mothers' narratives regarding health workers who were usually female being unhelpful might be due to entrenched cultural beliefs of childbirth being an individual woman's battle as argued by Kyomuhendo (2009). If that were the case, female medical staff regardless of professional ethics might be aloof to the distress of fellow women in labour and therefore see them as requiring less or no assistance as appeared to be the case in this study. This suggests a need for future research to explore the role of culture beliefs of childbirth in obstetric care in parts of sub-Saharan Africa where such beliefs are accepted.

The perception of labour as prolonged by 39% (n = 19) was similar to findings from previous studies (Ferber & Feldman, 2005; Weisman et al., 2010; Wilson et al., 2007). In addition to the mothers who underwent emergency caesarean operations following failed attempts of normal delivery, several mothers who had planned caesarean deliveries (35%, n = 17) narrated distressful experiences of labour. Under normal circumstances, women scheduled for elective caesarean operations would not be exposed to labour pains, but because of a stretched health care system several mothers went into labour as they awaited the operations. For such women,

their labour experiences were not only unexpected, but perceived as negative. Owing to a small sample of women who had vaginal deliveries in this study (6%,  $n = 3$ ), it was not possible to compute any statistical differences of delivery experiences in regard to mode of delivery. However, Weisman et al. (2010) observed that women who had caesarean deliveries reported more negative experiences than those who delivered vaginally. Likewise, experiences of extreme labour pains similar to pain catastrophizing reported in literature (Ferber & Feldman, 2005) were evident in women's narratives due to reported intensity and duration of labour.

Duration of labour for this sample was on average above three days. Although the duration of labour for the current sample is longer than reported in high income countries (Davies et al., 2008; Hunker et al., 2009; Nystedt, Hogberg, & Lundman, 2008; Seng et al., 2013; Weisman et al., 2010), it is comparable labour of up to eight days reported elsewhere in sub-Saharan Africa (Kabayambi et al., 2014; Sawyer et al., 2011). However, the time spent in labour by mothers in this study needs to be interpreted with caution. It is plausible that the time spent at the hospital waiting for planned caesarean section before onset of labour was also reported as labour by some women thus adding to overall duration of labour reported by the mothers. It was also evident that some women were not certain of their expected dates and could not recognise early signs of labour. Similarly, due to pregnancy related complications, some women reported persistent distress in the final part of the third trimester which could have been misinterpreted as labour pains leading to perception of prolonged labour lasting as long as 30 days as reported by one mother (Faith). However, regardless of the accuracy of the duration of labour, this study highlights the experiences reported by women during their perceived prolonged labour with potential negative implications to the affected mothers and their babies (Nystedt et al., 2008; Seng et al., 2013). Being taken for caesarean operations following prolonged labour was seen as a sign of much awaited relief by several mothers indicating the fatigue suffered by the affected women.

Fatigue was another major problem self-reported by 35% of mothers in this study. Narratives also show women reporting feeling tired following days of labour especially among mothers who were referred to the tertiary hospital following complications at their local health facilities. Unlike findings reported by Ya-Ling et al. (2015), women's fatigue in this study was a combination of many events occurring before, during and after delivery and not just due to caesarean delivery. Labour and preoperative fatigue, as pointed out by some mothers, had serious medical implications for the outcomes of both the affected mothers and their babies. Several mothers feared for their babies and were relieved to find out their baby's condition following delivery was good. However, because this study relied on the mothers' self-reports, the babies' Apgar scores in the medical birth records were not obtained. Such records would have indicated the effects of prolonged labour and fatigue on the baby if any, which could have consequences for the development of the child including mother-infant interactions if the baby is not well managed following birth. Low Apgar scores have previously been reported to be associated with difficult childbirths including caesarean deliveries, such as those reported by the current sample (Rogers & Graves, 1993). Following delivery, most women sought opportunities to be discharged at the earliest possible time as seen in *act 4* of the shared childbirth narrative. This could be attributed to the cumulative fatigue experienced during labour and the health care situation encountered at the hospital. Other problems reported in during labour and delivery (Figure 5) also accounted for the women's perceptions of their childbirth experiences discussed next.

### 7.2.3 Women's perceptions of own childbirth experiences

The hypothesis (1) that the majority of the mothers would report negative experiences of childbirth was not supported by the study findings, as demonstrated by self-reported hospital experiences and overall childbirth experiences. Nevertheless, the mothers' scores on these two items of childbirth experiences need to be interpreted within the broader context of their

experiences discussed so far and the cultural and religious beliefs that could have informed the meanings and perceptions of those experiences. My findings show that 59% (n = 29) mothers reported positive experiences at the tertiary hospital. A higher proportion of mothers reported having positive overall childbirth experiences (73%, n = 36). Despite the problems women reported during pregnancy, labour and delivery as discussed in the previous section, the perception by the majority of women as having had positive childbirth experiences at the hospital and overall is interesting. A few factors might account for the women's overall positive appraisals of apparently negative experiences.

Firstly, the women's attempts to be viewed as strong in the face of negative childbirth experiences, conforming to prevailing cultural beliefs (Kyomuhendo, 2009) might have contributed to their views about the experiences encountered throughout childbirth. From the time of confirmation of pregnancy, several women demonstrated this strength in different ways. For example, keeping unplanned pregnancies sometimes at the cost of their marital relationships demonstrated the mothers' perseverance in meeting cultural expectations of childbirth as a woman's role (Kyomuhendo, 2009). Successfully navigating the challenges encountered during pregnancy and at the hospital was therefore likely to be rated as positive by mothers who demonstrate these cultural beliefs of childbirth. However, as pointed out by Evans (2013), these negative beliefs might increase risks of maternal morbidity and mortality, as women not only endure negative experiences, but gain praises from society for demonstrating strength (Kyomuhendo, 2009).

By judging their experiences as positive based on the final outcome of having a live baby, as seen in *act 4* at the time of discharge, women inadvertently denied key lessons they could learn from their negative experiences of childbirth. Most mothers tended to downplay the impact of their narrated negative experiences with statements such as "I ignored all that" and "that was minor" upon beholding their new born babies. Such attitudes might indicate the women's

growing tolerance of negative childbirth experiences, especially among multiparous mothers who reported similar experiences in their previous pregnancies and births. Furthermore, tolerance of high risk maternal experiences might explain the escalating lifetime maternal mortality rates reported in low income countries such as Uganda compared to the rest of the world (WHO, 2014).

The other possible reasons for the majority of the women positively appraising their childbirth experiences are expectations of care and the actual need for care the mothers received at the tertiary hospital. Several women, especially among those who first sought to deliver at their local health facilities, implied in the narratives their negative perceptions of the tertiary hospital. In addition to primary health facilities being more accessible to such mothers, many preferred the care offered at those facilities in part because of prior normal delivery experiences. On the contrary, some mothers suggested their reluctance to deliver from the tertiary hospital was due to the assumed poor quality of care. However, upon arriving at the tertiary hospital as emergency cases, the women's narratives show that the immediate medical attention given to the mothers at the tertiary hospital was a key reason for appreciating the obstetric care. Timely obstetric interventions and positive attitudes by health workers were received with gratitude. The women's appreciation similar to what Sawyer et al. (2011) reported, mirrored the mothers' perceptions of own luck due to large number of women helplessly waiting for similar care. Understanding the care context in which mothers delivered, as perceived by the women themselves, is important to interpret the mothers' perceptions of events surrounding their births. Consequently, compared to mothers who chose and were scheduled to deliver at the tertiary hospital, referred mothers narrated positive experiences at the hospital. The preferential treatment referred mothers received due to their emergency conditions, unlike their counterparts who waited in distress for an opportunity to be operated on, might explain the positive perceptions by the majority of those mothers. Similarly, because these emergency interventions and the entire intrapartum care received by women with severe obstetric complications were

perceived as lifesaving (*act 3*), the beneficiaries thus positively appraised their hospital experiences.

The severity of the obstetric conditions and the large numbers of mothers queuing for similar care meant that mothers interpreted their own needs of care relative to others. Women's narratives in acts 3 and 4 show some mothers sympathising with other mothers whose conditions they considered worse than their own. Additionally, due to reports of maternal deaths during delivery, witnessed by several mothers at the time of admission at hospital, mothers were constantly aware of their own potential worst outcome. Surviving such deaths resulted in some women feeling indebted to the medical interventions which could explain their appraisal of childbirth experiences, relative to others who according to Kyomuhendo (2009), would be considered to have lost the battle of childbirth. As shown in *act 4*, several women were not only grateful to have a live baby, but expressed the protective role a live baby had on the effects of the challenges of childbirth similar to findings from Gambia (Sawyer et al., 2011) and South Africa (van Reenen and van Rensburg, 2013). The higher than hypothesised positive appraisal of childbirth experiences by this sample might therefore be a reflection of the women's own survival of challenging childbirth and delivery of a live baby rather than the experiences being rated.

The findings of this study extend previous work on women's perceptions of events surrounding birth (Herishanu-Gilutz et al., 2009; Hunker et al., 2009; Reisz et al., 2015; Wilson et al., 2007) by highlighting the context of the health care and how women's birth experiences are shaped. The difference in the proportion of mothers reporting positive hospital experiences and overall childbirth experiences needs critical examination. There was more than a 10% difference in women's appraisal of hospital experiences (59%) and overall childbirth experiences (73%) as positive, indicating different factors informed the mothers' perceptions of the two aspects of childbirth I measured. Similar to the mothers' experiences of pregnancy discussed in the

previous section, support and positive attitude from the medical staff at the tertiary hospital contributed to positive childbirth experiences as seen in *acts 3 and 4*. Roux and van Rensburg (2011) report, in regard to maternal experiences of unplanned caesarean section, that mothers who received support from staff viewed intrapartum care more positively. For the current sample however, fewer mothers reported receiving appropriate support from staff. Moreover, among those who reported being supported, financial incentives to health workers could be responsible for the positive attitude and care reported by the mothers. As seen in *act 4*, some mothers still regretted bribing medical staff upon realising that they did not receive the expected support and care. This might explain the decline in number of mothers reporting positive hospital experiences in comparison to overall childbirth experiences. These findings have implications for the role of support especially intrapartum medical care in shaping women's experiences of childbirth.

In the absence of support from medical staff, mothers relied on family members present at the hospital for comfort as seen in *act 3 and 4*. Partner support during labour and delivery was especially important for the mothers. This finding builds on reports by Sawyer et al. (2011) and Roux and van Rensburg (2011) who reported on the significance of men being around to support their wives during delivery. Despite the majority of mothers having carers at the hospital, the absence of partners was reported by some women as having a negative effect on the affected mothers as shown in *act 4*. The presence of a partner during delivery might have far reaching implications to the mothers beyond the support given at the time of birth, as it symbolises acceptance of paternity of the new born baby. In a culture where descent is heavily considered to be patriarchal (Kyomuhendo, 2009), the male spouse's/partner's presence and support at the hospital is invaluable (Bryanton, Gagnon, Hatem, & Johnston, 2008; Sawyer et al., 2011) especially among women in this study who reported conflicts related to unplanned pregnancies. However, mothers who did not have close family members at the time of labour could have suffered traumatic experiences both directly and witnessed helplessness of other

mothers without any social support which exacerbated their own vulnerability to potential death as seen in *act 3* and *4*.

Several labour and delivery problems (Figure 5) resulted into women's uncertainty and lack of control of events surrounding childbirth, which could also explain the women's perceptions of hospital experiences for the current sample. In line with literature on experiences of labour and delivery (Parfitt & Ayers, 2014; Weisman et al., 2010; Ya-Ling, Chich-Hsiu, Stocker, Te-Fu, & Yi, 2015), several negative experiences were encountered by the women intrapartum. There were further delays in receiving care at the tertiary hospital including women who reported emergency conditions. The delays at the tertiary hospital contributed to several problems reported during labour and delivery and subsequently their hospital experiences as seen in both self-rated reports and narratives. My findings support previous studies which have reported on experiences of care and maternity services in Uganda including delays and insufficient facilities (e.g., Balikuddembe et al., 2011; Kaye et al., 2014; Kyomuhendo, 2004; Mbonye et al., 2007). Similar to previous observations, many obstetric challenges reported by the current sample resulted from the delays in accessing appropriate care further demonstrating the women's low control over the medical interventions they required.

Finally, throughout the women's narratives of childbirth experiences the mothers coped with challenges trusting divine interventions. For a number of women reliance on supernatural powers for a positive end to their childbirth experiences was evident right from the time of confirmation of pregnancy. This mostly the case among women who had unplanned pregnancy and those who faced challenges during pregnancy. During the most distressful time of labour and delivery, narratives show several women praying to God for, what might be considered a miracle, for their survival. These findings add to previous research in parts of sub-Saharan Africa where spiritual beliefs have been found to influence women's experiences of childbirth (e.g., Chadwick et al., 2014; Roux and van Rensburg, 2011; Sawyer et al., 2011). My findings

also show medical staff encouraging mothers to pray for God's interventions when medical help seemed not to be sufficient. Such faith in God having the ultimate control was demonstrated by several mothers through praising and thanking, first, God and then theatre staff for saving their lives. Due to positive emotions, immediately after delivery, as expressed by the majority of mothers, positive perceptions and meanings these mothers attributed to their seemingly negative experiences cannot be considered unreasonable. The women's positive views at discharge, thus reflected their sense of God 'enabled' triumph in the challenging childbirth, symbolised by a live baby and could explain the self-rated perceptions of overall childbirth experiences and hospital experiences. It is however worth examining the impact of the mothers' perceptions and meanings attributed to their experiences on postnatal mental health and mother-infant interactions in the following sections.

### 7.3 Maternal postnatal mental health and related factors

Posttraumatic stress (PTS) symptoms arising from maternal experiences of labour and delivery were assessed alongside two factors theoretically linked with PTS symptoms and maternal perceptions of trauma, depression and maternal attachment styles respectively. A strong correlation ( $r = .452$ ,  $p = .001$ ) between PTS and depression symptoms indicate comorbidity of these postnatal mental health symptoms as has previously been observed (e.g., Davies et al., 2008; Parfitt and Ayers, 2009; Seng et al., 2013). For the current sample, high levels of PTS and depression symptoms suggest the general association of the negative childbirth experiences with postnatal maternal mental health. These findings support hypothesis four where I expected the majority of mothers to report experiences PTS symptoms arising from labour and delivery. The women's mean total score on IES-R was 34.8 (range 7-66) higher than comparable studies from high income countries (Figure 6). Because of the cross-sectional nature of the current study, causal effects cannot be argued. However, maternal factors associated with the high risk nature of the sample, such as the stressful experiences which characterised women's experiences,

might have contributed to the postnatal mental health symptoms observed in this sample. It is however important to note that no woman was excluded from participating in this study basing on PTS symptoms from previous traumatic experiences. Perinatal mental health symptoms were also not assessed. These two factors might account for the high level of PTS symptoms in this sample due to evidence from previous research (Seng et al., 2013). Similarly, women who suffered severe obstetric complications were not excluded from the study as was the case in findings involving community samples (e.g., Davies et al., 2008; Olde et al., 2006). Other factors not measured in this sample could therefore have contributed to the postnatal mental health symptoms observed.

Maternal attachment styles, especially dimensions of Attachment Styles Questionnaire (ASQ) measuring insecure attachment, were found to be positively associated with postnatal mental health symptoms (Appendix 17), indicating that, the more insecure the women were, the higher the observed PTS and depression symptoms. This finding suggests that personal characteristics of the mothers could have predisposed them to perceptions of childbirth experiences as traumatic rather than the actual experiences. There is evidence of maternal insecure attachment or poor relationships not only influencing perception of childbirth as negative (Gharaibeh & Hamlan, 2012; Wilson et al., 2007) but also predicting postnatal mental health symptoms (e.g., Chrzan-Dętkoś & Łockiewicz, 2015; Page, Combs-Orme, & Cain, 2007; Parfitt and Ayres, 2009). Depression unlike PTS symptoms was particularly found to be significantly positively correlated with all the four ASQ dimensions of insecure attachment, indicating that maternal characteristics were more associated with the former than the later. The mechanism of how PTS symptoms develop seems less direct and might explain the lack of significant associations between some dimensions of maternal insecure attachment style and PTS symptoms. For instance, whereas only 53% of the mothers reported fear of death during labour and delivery, a key predictor of posttraumatic stress, all mothers showed some PTS symptoms. The crowded maternity wards which meant that mothers were in close proximity of each other, and

inadvertently witnessed the distress and helplessness experienced by other women, might account for some of the PTS symptoms. However, other factors outside childbirth experiences might have contributed to postnatal mental problems observed in this sample.

The negative association observed between maternal attachment styles and childbirth experiences indicate that personal maternal characteristics could have influenced the women's appraisal of the experiences of childbirth beyond the actual childbirth events. Specifically, having discomfort with relationships, and viewing relationships as secondary were significantly negatively associated with more negative hospital experiences and overall childbirth experiences respectively (Appendix 17). High scores on attachment-anxiety dimensions such as seen in the women's scores on ASQ subscales of Discomfort with relationships and Relationship as secondary, have previously been argued to be linked with a raise in perceptions of distress and coping strategies which exacerbate distress (Shaver and Mikulincer, 2002a). This heightened sensitivity to distress and failure to deal with the challenges of childbirth positively, might therefore explain some of the reports of negative childbirth experiences. Conversely, women who scored low on attachment-anxiety dimensions indicating a more secure attachment style could have managed distress associated with childbirth better, by for example, seeing the good intentions of staff despite the obstacles they faced. Women's narratives in *act 3* and *4* demonstrate variations of mothers' reactions to similar experiences of distress. For example, whereas some mothers saw their distress as more manageable and the medical staff as supportive, others seemed to focus more on the obstacles of medical interventions. Similarly, relationship problems observed throughout some narratives between women and their spouses, and with medical staff, suggest higher risks of perception of negative childbirth experiences (e.g., Parfitt and Ayers, 2014).

Moreover, the stress and depressive symptoms which characterised marital conflicts seen in *acts 1* and *2* might explain the high level of postnatal depression observed in the current sample,

as previously reported (e.g., Hunker et al., 2009; Ohoka et al., 2014). These findings therefore call for interpretation of childbirth trauma and associated postnatal mental problems with caution, as maternal attachment and relationships seem to have influenced how women perceived their childbirth experiences and their postnatal mental health. However, the ASQ measure used to assess maternal attachment styles of the current sample did not achieve satisfactory reliability (see section 4.5.3) and therefore the correlations reported here with childbirth experiences and postnatal mental health symptoms should also be interpreted with caution. In the next section, maternal experiences discussed so far are considered regarding their associations with mother-infant interactions.

#### 7.4 Factors associated with and/or predictors of mother-infant interactions

After examining childbirth experiences and postnatal mental health problems following those experiences as discussed in the previous sections, the two other key objectives sought to assess the association between childbirth experiences and mother-infant (objective 3) and to examine if PTS symptoms arising from labour and delivery predicted mother-infant interactions after controlling for demographic factors, childbirth experiences, depression and maternal attachment styles (objective 5). Whereas the purpose of this study was to examine the association between childbirth experiences and mother-infant interactions, the quality of mother-infant interactions observed in the current sample is noteworthy. Global scores on four of six EA scales (Table 15) showed that most mother-infant interactions were less optimal, partially fulfilling hypothesis 2. Total global scores on all the six scales ranged from as low as equal or less than nine ( $\leq 9$ ) to the highest possible score of 29. Lower global scores represent problematic or less optimal emotional availability while higher scores represent optimal emotional availability (Biringen, 2008; Biringen et al., 2014). For the current study, the less optimal emotional availability exhibited during the interactions between mothers and their infants could largely be attributed to the childbirth experiences discussed earlier in this chapter.

For example, the lack of planning for pregnancy demonstrated by several mothers and subsequent challenges reported during pregnancy and the intrapartum period suggest that women were at risk of developing poor attachment relationships with their babies both prenatal and postpartum (e.g. Wilson et al. 2007). Overall, the high-risk nature of the sample of mothers therefore could have contributed to the less optimal emotional availability in interactions. Interestingly, two EA scales (maternal *non-hostility* and child *responsiveness*) did not conform to my hypothesis. Patterns of interactions on both EA scales for most of the sample were found to be optimal. In the following paragraphs, I highlight the reasons for the relationship between childbirth experiences and mother-infant interactions observed in the current sample.

#### 7.4.1 Associations between childbirth experiences and mother-infant interactions

A negative correlation observed between childbirth experiences and mother-infant interactions indicated that negative maternal experiences were associated with less optimal mother-infant emotional availability. The women's self-rated maternal scores of overall childbirth experiences and hospital experiences were each negatively associated with the mothers' emotional availability to their babies. Similarly, the infants whose mothers reported more negative experiences of childbirth showed less optimal emotional availability to their mothers during the interactions. However, my hypothesis (number 3) that childbirth experiences would be significantly negatively associated with mother-infant interactions was only partially supported by the findings, as some EA scales did not achieve significance. Specifically, overall childbirth experiences were not significantly associated with maternal EA scales but with both child EA scales (Table 16). Hospital experiences were significantly correlated with both child EA scales and two maternal EA scales (*structuring* and *nonintrusiveness*). These findings nevertheless suggest that the experiences of this high-risk sample of mothers, not only predisposed women to postnatal mental health problems discussed earlier but also had a direct association with

interaction behaviours of both the affected mothers and their children. The implications of these findings to the affected mothers and their infants cannot be under estimated.

From the perspectives of attachment theory, less optimal mother-infant interactions such, as observed among dyads who experienced negative childbirth experiences in this sample, increases the risks of insecure attachment relationships and associated childhood problems (Ainsworth, 1982; Belsky and Feron, 2008; Bowlby, 1982). Specifically, the mothers' scores on EA *non-intrusiveness* and *structuring* reflect maternal intrusiveness, over stimulation and controlling behaviours, which Belsky and Felon (2008) argued that are linked with avoidant attachment styles. The babies in the current study whose mothers were showing these less optimal behaviours might be at risk of developing insecure attachment relationships. The less optimal emotional availability associated with childbirth experiences among women experiencing maternal morbidity should therefore concern all stake holders in maternal-child health beyond the reductions of maternal mortality as seems to be the focus of current maternal health interventions (WHO, 2016). Several maternal factors associated with the mothers' perceptions of their childbirth experiences might help explain the observed mother-infant interactions.

Maternal negative responses to pregnancy, either because pregnancy was not planned, or they lacked spousal support, could explain difficulties in maternal relationships with their babies (Kokubu et al., 2012; Parfitt & Ayers, 2014). Mother-infant bonds are known to form as early as during pregnancy continuing postpartum (Davies et al., 2008; Slade et al., 2012). It is plausible therefore that the negative emotions associated with an unwanted pregnancy, contributed to an impaired maternal-foetus bond among some mothers, such as highlighted in *act 2* and *4* by Lydia and Julian respectively. Narratives of a number of mothers show their desires or attempts to have an abortion following confirmation of pregnancy which could have compromised their emotional connections to the babies starting in pregnancy. Subsequently,

poor maternal-foetal attachment is likely to have persisted postpartum, manifesting in the observed less optimal mother-infant interactions (Maas, de Cock, Vreeswijk, Vingerhoets, & van Bakel, 2016). If this were the case for the current sample, interventions focusing on improving pregnancy experiences especially maternal attachment to the baby among high risk mothers would be required to minimise negative outcomes.

Indeed, a woman's desire to have children has been reported to be positively correlated with the mother's subsequent closeness to her baby (Wilson et al., 2007), which might indicate positive emotional involvement. The difficulties narrated by some mothers during pregnancy such as struggling with accepting and keeping their unexpected pregnancies might have contributed to the poor emotional availability shown by the babies to their less enthusiastic mothers. These findings show that unplanned pregnancies might have negative effects on the babies as well as to the affected mothers. If this were the case, my findings call for maternal health measures aimed at enhancing effective family planning practices among women who might want to delay or stop having children as a number of mothers attributed their unplanned pregnancies to ineffective contraceptive methods. It is, however, not clear how mother-foetal bond for mothers who went on to have positive experiences later in pregnancy might differ postpartum from those whose experiences were persistently negative. This question was not examined in the current study due to the small sample size. Future research is required to examine the impact changes in mothers' desire to have babies, as was observed by a section of current participants following stability in marital relationships, might have on later mother-infant relationships. It is plausible that optimal mother-infant interactions are achieved as maternal desires for the baby are enhanced similar to general attachment relationships (Wilson et al., 2007).

Health problems during pregnancy narrated by a number of women could also help explain the negative correlation between overall childbirth experiences and mother-infant interactions. Previous findings have showed that maternal health problems especially among multiparous

women are negatively associated with maternal sensitivity (Bernier et al., 2010). However, despite the health problems and other challenges narrated by several women in this study, the high resilience demonstrated by the majority of mothers through appraising their overall childbirth experiences as positive might offer alternative explanations. The joy expressed by mothers in *act 4* attributed to having a live baby, following a challenging childbirth experience led mothers to be drawn closer to their babies. These findings support reports by Gharaibeh and Hamlan (2012) who noted that women's perceptions of their pregnancy and childbirth experiences as very good were associated with higher scores of maternal attachment to their infants. A rating of positive experiences during pregnancy and birth seemed to prepare mothers emotionally to meet the needs of their babies which manifested as more optimal emotional availability between the dyads. Likewise, maternal expectations of the baby during pregnancy was reported by Pearce and Ayers (2005) to be significantly correlated with the bond mothers had with their babies. The women's experiences at the hospital might offer better explanations for the association between childbirth experiences and mother-infant interactions.

My findings show that hospital experiences were significantly correlated with up to four EA scales indicating a stronger influence of hospital experiences on mother-infant interactions than overall childbirth experiences. As highlighted earlier, significant negative correlations were observed between hospital experiences and two adult EA dimensions: *structuring* and *non-intrusiveness* and both child dimensions. Specific obstetric factors such as labour and mode of delivery which characterised the women's hospital experiences might have contributed to the observed correlations. There is evidence regarding the effects of events surrounding labour and delivery on mother-baby relationships (Bernier et al., 2010; Ferber & Feldman, 2005; Figueiredo, Costa, Pacheco, & Pais, 2009; Kokubu et al., 2012; Pearce & Ayers, 2005; Reisz et al., 2015; Seng et al., 2013; Weisman et al., 2010; Wilson et al., 2007; Ya-Ling et al., 2015).

Labour and delivery accounted for a big proportion of negative experiences reported by the majority of the mothers in the hospital and might have contributed to the observed mother-infant interactions among the affected women. Literature reviewed prior to conducting the current study showed a number of specific maternal experiences during labour and delivery that could help in the interpretation of the current findings. For example, Ferber and Feldman (2005) and Reisz et al.'s (2015) findings on the effects of pain catastrophizing and birth experiences respectively are comparable to self-report and narrated experiences of labour and delivery in the current sample. Women's positive birth experiences were reported by Reisz et al. (2015) to be associated with mothers' use of fewer negative adjectives when describing their babies. To the contrary, pain catastrophizing in labour was reported to predict poor dyadic reciprocity between the mother and infant (Ferber and Feldman, 2005). The dimensions of dyadic reciprocity including reciprocity (give and take patterns), adaptation and regulation, and harmony defined as the extent to which the interactions are smooth (Ferber and Feldman, 2005), are comparable with maternal and child EA dimensions. The constructs making up EA dimensions of *structuring* and *non-intrusiveness* are influenced by the child's reactions (Biringen, 2008) like the give and take demands of reciprocity. My findings thus add to Ferber and Feldman's observations regarding the negative effect of pain in labour on mother-infant interactions, similar to distress associated with prolonged labour in the current sample.

Obstetric problems reported in labour and delivery at the tertiary hospital, by the majority of the women in this study, offer further insights into the observed associations between hospital experiences and mother-infant interactions beyond the less specific overall childbirth experiences. The intrapartum challenges women faced, as shown in *act 3* and *4* of the narratives, and self-report problems during labour and delivery (Figure 5), largely suggest inadequacies in the health care system including attitudes of the staff (Balikuddembe et al., 2011; Kigenyi et al., 2013). It is highly plausible that these challenges contributed to the women's hospital experiences. The observed correlations with EA scores thus have implications for obstetric care

at the tertiary hospital in particular and Uganda's maternal health policies in general. Women's narratives demonstrated an under resourced health care system where staff seemed overwhelmed with the number of mothers requiring both pre-and post-delivery attention.

The time spent in the hospital by most of the mothers before and after delivery was viewed by many as too long, adding to their negative hospital experiences. However, despite findings by Bernier et al. (2010) that a long stay in the hospital negatively correlated with maternal sensitivity, it might not be the time spent at the hospital per se, but negative experiences on the ward, such as highlighted in *act 3* and *4* of the childbirth experiences which contribute to low maternal sensitivity. The negative ward experiences characterised by inadequate facilities which left many women in a lot of distress, alongside the perceived poor attitudes of staff resulted in a number of women seeking early discharge from the hospital. For such women, their stay at the hospital seemed long and could amount to what Bernier et al. (2010) reported as long stay, in terms of actual days of up to eight days, with subsequent effect on mother-infant interactions. As previously noted, the mother's perception of the event might be more significant than the event itself. In this sample therefore, women's perception of their stay at the hospital as very long, both during labour and after delivery, could result in similar experiences as reported by Bernier et al. (2010).

Surprisingly, the largely preventable negative hospital experiences, show a greater significant negative correlation with mother-infant interactions, ostensibly due to the expectations mothers might have had for better care. When the mothers' expectations are not met, the impact on their perceptions of care is more negative (Kaye et al., 2014). Subsequently, the consequences of negative hospital experiences appear among affected mothers and their babies as observed in less optimal interactions. This finding also highlights the women's perception of childbirth as an illness, as discussed in the next section, which was not well managed by the medical care system. Gaps in the health care system, unlike the mothers own perceived weakness as might

be the case with overall childbirth experiences, are likely to be viewed more negatively by women who perceive childbirth as an illness requiring specific medical attention. There is indeed evidence from recent studies in Uganda showing that mothers attribute negative birth experiences including morbidity to failures of either staff or the care system (e.g., Kabayambi et al., 2014; Kaye et al., 2015). Persistence of such negative views about obstetric care by Ugandan women might increase the risks of poor mother-infant relationships and potential long term effects to the child.

The influence of negative childbirth birth experiences on the infant were further observed when I examined the between group differences of self-reported overall childbirth experiences and hospital experiences on mother-infant interactions. Though not significantly different, it was interesting to note that the mean EA score of child involvement of the mother was lower among the children whose mothers reported negative experiences of childbirth overall and at the hospital in comparison to those whose mothers had positive experiences (Table 17). This finding suggests a possible impact arising from negative childbirth experiences on the infants of affected women even when the impact on the adult (mother) is not obvious. Furthermore, this finding emphasises the need for observer rated measures which include assessment of the behaviours of the infant alongside maternal behaviours (Davies et al., 2008). Whereas self-report measures are particularly prone to social desirability biases (Davies et al., 2008), maternal behaviours during brief video recorded observations might also suffer similar negative consequences. However, infant *involvement* of the mother during interactions seems to offer a unique way of assessing the child's role in the interaction, as it demonstrates the infant's initiatives which might reflect his known expectations of the mother.

My findings about the negative correlations between childbirth experiences and mother-infant interactions support the ongoing debate that maternal health programmes in developing countries need to extend beyond the current focus on reductions of maternal mortality (WHO,

2015) and examine the impact of maternal morbidity to surviving mothers and their children (Hardee, Gay, & Blanc, 2012). Drawing from evidence from high income countries, efforts to improve the quality of early mother-infant interactions, targeting especially high risk mothers, are long overdue in low income countries facing high maternal morbidity. Having considered the correlations between childbirth experiences and mother-infant interactions, I now turn to PTS symptoms hypothesised to predict mother-infant interactions.

#### 7.4.2 Predictors of mother-infant interactions

In this section, I briefly discuss the influence of selected sample characteristics in addition to childbirth experiences explored in the previous section, on mother-infant relationships. Hypothesis 5 addressed the influence of factors such as demographic factors, postnatal depression and maternal attachment styles on mother-infant interactions due to evidence from previous studies. However, I decided to exclude several potential predictors of mother-infant interactions determined by the literature review including maternal employment status, depression and maternal attachment styles due to various reasons. Key among the reasons for preclusion were a small sample size which could not allow for evidence supported inclusion of many independent predictors, and unsatisfactory reliability of ASQ, the measure of maternal attachment style for the current sample. Additionally, I excluded depression due to its high correlation with PTS symptoms, my hypothesised key predictor of mother-infant interactions. Nevertheless, I briefly highlight the association these precluded factors had with the outcome variable as seen in preliminary correlational analyses which informed my decisions for the hierarchical regression, the focus of my discussion later in this section.

My findings show that depression and maternal attachment style were not associated with mother-infant interactions contrary to previous evidence. Previous literature showed that postnatal depression (e.g., Figuereido et al., 2009; Kokubu et al., 2012; Edhborg et al., 2011;

Seng et al., 2013) and maternal attachment style including romantic relationships (e.g., Dickstein et al., 2009; Gharaibeh and Hamlan, 2012) were associated with the quality of mother-infant relationships. The lack of association between depression and mother-infant interactions in the current study could be attributed to two factors. Firstly, the generally homogeneous sample regarding postnatal mental health. As with PTS symptoms discussed later in this section, most of the women reported depression symptoms with close to 50% of the sample meeting the minimum symptom level of clinically significant depression. The high level of depression symptoms reported by most of the mothers could have limited detection of statistical differences in the small sample in the current study resulting in the observed lack of association.

Secondly, the measure of the outcome variable (EA) might help explain these unexpected findings. Previous evidence on the effect of depression on mother-infant interactions on EA scales has been inconclusive. For example, whereas Fonseca, Silva & Otta (2010) using observer rated EA scales found no differences between depressed and non-depressed mothers, Vliegen, Luyten & Biringen (2009) using a self-rated version of EA reported that depressed mothers scored lower on all dimensions of EA except non-hostility. Interestingly, most (80%) of the current observer rated sample of mothers scored higher on *non-hostility* and quite low on other EA scales as shown in Table 15. My findings add to Vliegen et al. (2009) observations about the influence of depression on mother-infant interactions. Child *responsiveness* to the mother was the only other EA scale with higher scores for most of the sample, albeit only marginally (51%). The higher scores on non-hostility might also be a manifestation of difficulties in detecting maternal hostility to the infant but not necessarily its absence as seen when self-rated measures are used. Maternal hostility to an infant if present tends to be more covert (Biringen, 2008) making it harder to be detected in brief observations such as conducted for this study. The discrepancies in the effect of depression could therefore be due to measures used including severity of depression diagnosis not just symptoms as was the case in this sample.

A broader perspective needs to be taken to interpret findings about maternal attachment style and its influence on mother-infant interactions in the current sample. Whereas dimensions of insecure maternal attachment styles assessed with ASQ were all correlated with postnatal depression (Appendix 17), maternal scores on ASQ scales were generally not significantly associated with mother-infant interactions. This shows that maternal characteristics in this sample such as relationships with others, including health workers, might have influenced mothers' childbirth experiences and the level of depression symptoms postpartum. This was especially evident among women with higher scores of dimensions of anxious attachment styles (Appendix 17). These anxiously attached mothers could therefore have been predisposed to increased perceptions of stress normally associated with pregnancy (Slade et al., 2012) resulting in more pronounced negative childbirth experiences. Similarly, heightened perceptions of pregnancy and intrapartum stress could have contributed to high levels of depressive symptoms observed in the current sample. The absence of significant correlations however, between maternal attachment styles and mother-infant interactions could be due to moderating factors such as socioeconomic status of the mothers and unidentified family situations. Moreover, the unsatisfactory reliability of ASQ reported for the current sample might have negatively affected any possible associations with the dependent variable. Due to this reason, I did not include maternal attachment style as a predictor in the regression analyses.

Maternal employment status was the only demographic factor which showed significant correlations with childbirth experiences and mother-infant interactions. Maternal employment status was significantly correlated with overall childbirth experiences ( $r = -.31, p < .05$ ), maternal sensitivity to their infants ( $r = .38, p < .01$ ) and child responsiveness to the mothers ( $r = .35, p < .05$ ). Three factors could account for this relationship. Firstly, maternal employment and therefore financial independence was seen in the women's narratives to be associated with

positive childbirth experiences. Moreover, women who gave health workers money for intrapartum care tended to narrate more positive experiences compared to those who did not have money to pay for the required services including bribing the medical staff to access care. Consequently, positive hospital experiences were generally observed to be associated with more optimal emotional availability. It is plausible that women who reported positive hospital experiences were more prepared to have babies as shown by their initiatives in ensuring quality intrapartum care and thus more optimal emotional availability seen among such mothers and their babies. Secondly, maternal employment has been reported to be positively associated with maternal emotions towards infant (Figueiredo et al., 2009). The same study reported that unmarried and unemployed women showed more unclear emotions and less positive emotions to their children. It is therefore plausible that the babies whose mothers were employed were also used to positive emotions displayed by their mothers. This could help explain the *responsiveness* to the mothers observed among these babies. Thirdly, although no significant relationship was found between maternal education and emotional availability scales, mothers who were employed were generally those with a higher education level. Previous studies have indicated that high maternal educational status is positively associated with maternal positive emotions and attachment towards baby (Bryanton et al., 2008; Figueiredo et al., 2009). Maternal positive emotions could therefore explain both maternal sensitivity and child *responsiveness* to employed mothers.

Similarly, narratives of childbirth in the current study show that unemployment was a key contributing factor to challenges reported by, especially unmarried, women including difficulties in bonding with their babies as exemplified by Julian in *Act 4*. Moreover, as seen throughout the women's narratives of childbirth, financial independence helped most women cope with several challenges of childbirth including accepting unplanned pregnancy. Financial stability as seen in women's narratives contributed to a relative advantage of employed women over their unemployed counterparts. It is plausible that the positive effects associated with

employment including positive emotions of self-worth continued to show four months postpartum in more optimal sensitivity and responsiveness for mothers and their babies respectively. Unfortunately, a small sample size could not allow for delineation of the effect of maternal employment status on mother-infant interactions reported here. A larger sample size would be required to include all potential predictors, two of which I discuss in the next paragraphs.

Interestingly, despite the remarkably high PTS symptoms seen in this sample in comparison to other studies, posttraumatic symptoms were neither correlated with nor predictive of EA scores. Issues regarding the nature of the sample and factors assessed in this study might help provide some insight into this finding. Firstly, the relatively large families averaging five people (Range, 3-13) per home (Table 14) might have buffered the effects of maternal mental health symptoms on the interactions between the mother and her baby. Social support to the affected mothers might be more available in these large families thus reducing the impact of mental health symptoms on maternal functioning including interactions with her baby. Similarly, other adults in the home might play a role of alternative attachment figures to the baby thus fostering more optimal emotional availability among the babies of affected mothers. However, transferability of emotional availability of such babies to their less optimal emotionally available mothers would need to be examined to test my hypothesis.

Secondly, mothers reported several potentially traumatic childbirth experiences, but only labour and delivery were used as traumatic events in assessing PTS symptoms. Discrepancies in perceived traumatic events from a wide range of maternal experiences could have therefore contributed to unclear relationships between PTS symptoms and mother-infant interactions observed in the current sample. Moreover, the homogeneous nature of the sample regarding PTS symptoms meant less variability in the sample which could explain the findings reported in this study. Moreover, a small homogeneous sample could have further compromised

detection of statistical differences regarding influence of PTS symptoms on mother-infant interactions. There was evidence from factors such as hospital experiences and maternal employment status with reasonable variability in the sample being associated with a few EA scales.

A few previous studies have reported absence of association between PTS symptoms/PTSD and mother-infant relationships (e.g., Ayers et al., 2007; Parfitt and Ayers, 2013). The lack of association has been attributed to timing of assessment with suggestions for delayed impact of PTS symptoms on the mother-infant bonds (Ayers et al., 2007). However, other studies have showed negative impact of PTSD very early in infancy (e.g., Davies et al., 2008) contrary to previous suggestions of delayed impact. It is important to note that the current study as was the case with Ayers et al. (2007) study, focused on PTS symptoms and not a PTSD diagnosis. A logical argument might therefore be that mothers with symptoms sufficient for a diagnosis of PTSD are likely to have impaired relationships with their babies not just presence of PTS symptoms. Future research assessing the presence of PTSD following childbirth in a comparable sample might lead to a better account of its impact on mother-infant relationships.

The mothers' self-rated hospital experiences were the only predictors of mother-infant interactions. Specifically, negative hospital experiences predicted less optimal maternal *structuring* (Table 19), *non-intrusiveness* (Table 20), child *responsiveness* (Table 21) and child *involvement* (Table 22). These findings have a number of implications for the current sample of mothers and their babies in particular and obstetric care at the tertiary hospital where these mothers delivered in general. The negative effects of hospital experiences during intrapartum on these precursors to attachment relationships might have risks to development of secure attachment relationships and future childhood development as previously argued (e.g., Berlin et al., 2008; Fuertes et al., 2009; Pederson et al., 2014).

As noted earlier, several factors at the time of the women's admission at the hospital might have contributed to the negative predictive effects observed in EA scores. Future research considering specific obstetric problems reported by the women and the quality of care might help delineate aspects of the hospital experiences that have contributed to the current observations. However, it might also be that the mothers' negative perceptions of the experiences at the hospital in general are directly responsible for less optimal emotional availability in which case efforts should be made to ensure expectant women's positive hospital experiences. There is evidence from previous studies (e.g., Kyomuhendo, 2003) and in the current study (*act 3* and *4*) of expectations of poor medical care keeping women away from hospitals. Such expectations could have long standing effects on the mother, when her expectations are fulfilled with negative experiences at the hospital, similar to those reported by the majority of women in this study.

However, maternal *sensitivity* and *non-hostility* were neither significantly correlated with nor predicted by hospital experiences thus raising further questions about these dimensions of EA. Maternal *sensitivity* to the infant had been expected to be negatively associated with negative childbirth experiences due to evidence from the literature (e.g., Bernier et al., 2010). It is possible that other sample characteristics such as maternal employment status earlier shown to be associated with more positive emotions and maternal sensitivity moderated the effects of hospital experiences. This was however not confirmed statistically because it was beyond the scope of the current study. Theoretically, maternal *sensitivity* in video recorded observations is prone to be biased due to mothers "acting for the camera". The pseudo maternal *sensitivity* might thus flatten out variations among mothers resulting in difficulties in detecting statistical differences. The unclear relationship between maternal sensitivity and hospital experiences in this high-risk sample however has implications for future research assessing this key precursor of mother-infant attachment relationship in similar samples. Exploration of more specific issues

associated with hospital experiences might provide a better understanding of the influence those issues might have on maternal sensitivity.

The inconclusive nature of my findings adds to previous studies. A few studies in the literature review also found no significant correlations between specific aspects of childbirth experiences and mother-infant relationships (Carlander, Edman, Christensson, Andolf, & Wiklund, 2010; Figueiredo et al., 2009; Kinsey, Baptiste-Roberts, Zhu, & Kjerulff, 2014; Ya-Ling et al., 2015). Some studies found no significant correlations between mode of delivery and bonding (Carlander et al., 2010; Figueiredo et al., 2009) neither with postpartum fatigue (Ya-Ling et al., 2015). Further research is necessary to help address the inconsistencies still seen in studies exploring the impact of childbirth experiences and related factors on attachment relationships between mothers and their children. What was consistent in the current sample of high-risk mother though, as seen from women's narratives, was that positive emotions were not as common as might be expected in normal childbirth experiences. Symptoms of ill health, real or imagined as seen beginning at confirmation of pregnancy through labour and delivery, characterised the mothers' experiences. Childbirth was therefore to several mothers similar to experiences of illness.

#### 7.4.3 Childbirth as experiences of illness

To further examine the meanings women attached to their childbirth experiences as per objective number six of this study, I employed a theoretical frame work advanced by Frank (1995) regarding illness narratives. From the women's overarching narrative of pregnancy, labour, delivery and post-delivery experiences presented in Chapter 6 and highlighted so far in this chapter, features characteristic of Frank's typology of narratives of illness can be observed. In this section, I demonstrate how cultural beliefs, personal circumstances, and religious views

of the mothers combined to shape the mothers' experiences of childbirth in ways similar to the restitution, chaos and quest narratives advanced by Frank (1995).

Individual maternal experiences of childbirth were largely shaped by three key factors including personal situations such as level of planning for pregnancy and marital status; cultural beliefs about childbirth; and religious beliefs about divine plans and control of life as described earlier in this chapter. Those three factors combined in different ways and at different times during the women's journey of childbirth to shape their experiences which can be viewed as being comparable to narratives of illness. Throughout the events surrounding pregnancy and intrapartum care, there were attempts by women to not only understand what was going on but also find ways of overcoming the negative experiences, similar to what might be expected when faced with situations of illness. Cultural and religious beliefs influenced women's coping with personal circumstances and expectations of having a baby. Cultural beliefs of childbirth being a battle (Kyomuhendo, 2009) and religious beliefs of God being the ultimate power to decide humanity's destiny enhanced the mothers' own courage and strength when faced with negative experiences. Whereas most women sought to maintain a culturally accepted image of strength in childbirth, whenever overwhelmed with personal circumstances, the women's religious beliefs enabled them to surrender their destiny of being mothers to a supernatural power. By so doing, the women's need to remain strong in childbirth was still exercised on their behalf by a more powerful God thus allowing them to acknowledge their individual weaknesses including fear of death during labour and delivery. Women were seen coping with their fears by praying to God to intervene in what might be seen as their weakest moments of the battle of childbirth. This back and forth interplay between a demonstration of their own strength and surrendering to supernatural power when overwhelmed with challenging situations, continued among several women until the time of discharge from the hospital.

The reliance on God when faced with complications of childbirth could be argued to have allowed mothers not to attribute failures on self as that would make them be viewed by society as weak women. Moreover, for the majority of the mothers, major negative experiences took on the form of illnesses that began with physiological changes early in pregnancy through to a caesarean mode of delivery and subsequent post-operative recovery. These symptoms of changing health also enabled mothers to retain their attitude to childbirth as strong women while externalising their negative experiences as an illness outside their control. Frank's typology of narratives of illness offers an interpretation of women's experiences shaped by their own cultural and religious beliefs. While exercising their own control as they sought medical interventions for symptoms of changing health or when control was surrendered to God during labour and delivery, mothers' narratives took on the form of restitution as women looked forward to recovery. Cultural beliefs about childbirth in many parts of Uganda recognise pregnancy as some form of sickness (Kyomuhendo, 2009). But unlike other illnesses, society expects expectant women to demonstrate strength during pregnancy and win the battle of childbirth similar to features of restitution narratives. It is therefore not surprising that restitution narratives were the most common in this sample as mothers were largely aware of their experiences and sought medical, traditional medicines and social interventions from family and friends to restore normality. Even when interventions seemed not to work such as during persistent adverse effects of pregnancy, most of the affected women had hope that such negative experiences would end with delivery.

Labour and delivery presented several expressions of narratives of restitution. Through the problems encountered during labour (Figure 5), several mothers, following threats to life due to obstetric complications such as prolonged labour and severe bleeding, sought urgent medical interventions. As is typical of restitution stories, the sufferer's faith being in the power of medicine or physician (Frank, 1995), several women put their hope for their own life and that of their babies in the caesarean operation. This was evident in *act 3* as mothers earnestly

demanding to be taken to theatre. The relief which characterised the women's confirmation of an opportunity to be taken to theatre and the actual relief following delivery of the babies was evidence of the mothers' assurance of survival.

However, during times of internal conflicts when neither the women, nor God, seemed in control of specific childbirth experiences such as during severe distress, the women's descriptions of their experiences met the characteristics of chaos narratives characterised by the mothers' helplessness. Chaos narratives were also observed early in pregnancy due to uncertainties caused by symptoms of illness and challenges of unplanned pregnancies especially among single women and intrapartum when mothers were under intense helplessness with seemingly no end in sight. During the women's most uncertain moments and due to the helplessness exhibited in those experiences, the affected women seemed overwhelmed with their current situations. The women's narratives of such circumstances could best be categorised as chaos as women seemed neither to comprehend what was happening or imagine a better outcome rather than feeling lost within their experiences (Frank, 1995). Extreme physical and/or psychological distress was evident in such narratives. Such women not only feared they could die but some suggested death was a better option to their suffering. Frank describes some of the characteristics of chaos narratives as being too hard to hear due to their anxiety laden nature; the key message featuring imaginations of life never getting better; and that "these stories cannot literally be told but can only be lived" (Frank, 1995 pp. 98). As some mothers narrated their extreme negative experiences of childbirth, all the three characteristics of chaos narratives were apparent. For example, one mother (Faridah) *in act 4* wondered if I understood her lived experience of being asked to carry her baby and property and move to another section of the ward just hours after her caesarean delivery. Despite labouring to find the right words to express her experiences to me during the interview, it was clear to Faridah that I would never understand what she went through on the post-delivery ward. Such was the closest any listener would come to understanding what mothers perceived as the most difficult experiences of childbirth.

However, despite the challenging events which characterised the negative experiences, a few mothers sought to see the positive side of their experiences thus turning them into quest narratives.

Quest narratives were in general the least common in this sample. Although the women's overall determination to have their babies could be described in Frank's terms "a journey that becomes the quest" (pp. 115), for most women being unprepared for the pregnancy meant a delayed sense of quest and confrontation of what awaited them. For such mothers, their quest was not clearly defined for a big part of their childbirth experiences due to mixed feelings about their pregnancy. Quest narratives of illness according to Frank (1995) demonstrate the ill believing that something can be gained following the experience. For the current sample, the benefit would arguably be the birth of the baby. But to several mothers, the baby being unplanned was never a desired benefit rather one they gradually accepted as a reality. The events of pregnancy including marital conflicts and symptoms changing health distracted the mothers quest for the baby. As earlier described, this turned the women's narratives into either restitution or chaos as mothers sought to return to normality or became overwhelmed with their experiences respectively. Intrapartum experiences especially the problems of labour and delivery provided little room for the mothers seeing any positive out of their suffering other than seeking faster relief from their distress. If any positive was to be seen by the mothers, it had to wait for complete navigation of labour and delivery problems in presented in Figure 5. Examination of the women's retrospective reflections on their experiences of childbirth and what those experiences meant to them was therefore the best measure of the extent of their transformation by the experiences of childbirth. Quest narratives according to Frank (1995) depict a degree of the ill being transformed by the illness. Despite absence of evidence of women confronting their childbirth experiences directly as might be expected in quest stories, a few women illustrated their being transformed by what they went through. The gains made by three mothers following their conquering of negative childbirth experiences in *act 4* were to

individual mothers and society, a mark of quest narratives (Frank, 1995). Individual gains included an unexpected positive experience of normal delivery by *Harriet* which propelled her to a new social status and *Haddijjah's* decision to stop having children. *Anne* on the other hand had a message to society to consider seeking maternity care at the tertiary hospital only if one personally knows a medical staff at the facility. Nevertheless, these mothers' quest moments reflected their personal resilience which might portray them in society as strong women who overcame negative childbirth experiences.

Quest narratives according to Frank (1995) should be about the positive lessons the ill gain from their experiences. For the mothers experiencing negative childbirth experiences, one of those lessons could be argued to be considering having fewer children especially among multiparous mothers to reduce the lifetime risks of maternal deaths. With little evidence of women's reflections on the implications of their negative experiences of childbirth, it is not surprising that despite the current sample reporting an average of two prior births per mother (Table 14), only *Haddijjah* narrated an explicit decision to stop having children. One possible reason for this as earlier noted is that most mothers have embraced childbirth as a struggle and are not hindered by any negative consequences. Repeat high risk childbirth experiences, without women making efforts at limiting childbirth, exposes the affected mothers to higher chances of maternal mortality. These mothers might however argue that many others before them have gone on to have risk free normal deliveries even after having prior childbirth complications. These observations add to the ongoing debate about what constitutes normal childbirth (Young, 2009). My findings suggest agreement with the current consensus about normality of childbirth varying according to the prevailing cultural beliefs and at best being determined retrospectively (Young, 2009). Indeed, many of the mothers in the current sample including first time mothers never thought of themselves as high risk mothers until complications in labour and delivery. This study is the first to report childbirth as an experience of illness shaped by cultural beliefs, women's personal circumstances and religious views. I have demonstrated that the women's

childbirth experiences can be interpreted through features of Frank's (1995) typology of illness narratives.

## 7.5 Conclusion

Childbirth in this sample of mothers can be understood as a process beginning at time of confirmation of pregnancy. The unexpected nature of pregnancy reported by a number of mothers, meant that early signs of pregnancy were mistaken by several women as symptoms of ill health. The subsequent experiences of the women throughout pregnancy and leading up to labour, delivery and post-delivery can be interpreted as illness narratives regardless of level of planning for the baby. Despite the largely negative experiences during pregnancy and intrapartum, as demonstrated through self-report and narratives, the majority of women appraised their experiences of having a baby as positive. A live baby following challenging experiences influenced the women's overall appraisal of their experiences. The meanings women attached to their experiences of childbirth were shaped by personal circumstances, religious and cultural beliefs about childbirth. All the women, however, reported experiencing PTS symptoms arising from labour and delivery. Childbirth experiences, but not PTS symptoms or postnatal depression, were associated with mother-infant interactions. The women's hospital experiences in particular had greater negative associations, and predicted mother-infant interactions. In the next chapter, I present the key observations and the implications of this exploratory study.

## 8 CHAPTER EIGHT: CONCLUSIONS

### 8.1 Synopsis of the project

The focus of this study was premised on previous knowledge that despite growing evidence of posttraumatic stress symptoms arising from childbirth experiences (McKenzie-McHarg et al., 2015), little was known about the impact of childbirth on maternal mental health specifically from low income countries. Due to reports of high maternal morbidity in many low-income countries, it was important that a study was conducted to explore the psychological effects of these negative experiences on both the mother and her infant. I therefore sought to examine the experiences of the mothers related to childbirth and how these experiences might be associated with the mother-infant interactions at home. Due to the exploratory nature of the study, I assumed that a sample of high risk mothers was appropriate because of a higher chance of these mothers reporting negative childbirth experiences common in low income countries (WHO, 2015). This would then allow for a preliminary in-depth understanding of the phenomenon under investigation and make appropriate recommendations for future directions including research. I therefore purposively sampled Ugandan mothers of live singleton babies delivered on a high-risk postnatal maternity ward of an urban tertiary hospital in May and June, 2015. Four months later, 49 mothers and their babies residing in a radius of 30 KM from the tertiary hospital met the inclusion criteria and took part in this study. I collected data from the women in their homes with the help of a field assistant.

In this exploratory study, I employed a convergent, equal status, mixed methods research design, based on a pragmatic paradigm, to retrospectively investigate the events surrounding childbirth and the meanings mothers attach to those experiences. To meet the aim and objectives of the study, the operational definition of childbirth was extrapolated to include women's experiences of pregnancy, intrapartum and the immediate days following delivery. I collected

quantitative and qualitative data in a single session and analysed them separately following the order shown in the study design (Figure 4) before integrating the findings. The purpose of the quantitative data was to assess the association between childbirth experiences and mother-infant relationships. This was achieved using Pearson correlations and regression statistics of specific measurable variables through IBM SPSS package version 22 (IBM Corp, 2013). The qualitative narrative data enabled me to examine a broader picture of events, meanings and mechanisms of the issues surrounding childbirth for the sample. Structural narrative analysis was undertaken in analysing qualitative interviews to maintain the integrity of the women's experiences illustrated in Chapter 6 as an overarching childbirth story of 4 acts: becoming pregnant; being pregnant; giving birth; and post-delivery.

Although research interest on posttraumatic stress symptoms arising from childbirth experiences has risen in the past couple of years especially in high income countries (McKenzie-McHarg et al., 2015), this is the first study that has focused on the possible association between childbirth experiences including PTS arising from those experiences and mother-baby relationships in Uganda. This study therefore not only provides original findings from a Ugandan context but offers the possibility to interrogate previous research findings on the subject under investigation. I present key findings, my contributions to knowledge and the implications of my research findings while acknowledging the strengths and limitations of this study.

#### 8.1.1 Childbirth experiences as a mother's journey to regain normality

In this section, I present a summary of findings examined under objectives one and six. Regarding objective one of this study which sought to examine the women's experiences of childbirth, and the hypothesis that the majority of women would report negative childbirth experiences, several observations were made. For this high-risk sample of mothers, childbirth

experiences were largely characterised by women's efforts to restore a normal life. First, through mistaken signs of ill health, women sought for interventions only to find out with varying surprise that they were pregnant. The women's reactions to and coping with demands of pregnancy varied depending on level of planning for the pregnancy and support from spouse and family. Secondly, as might be expected, several problems were reported during labour and delivery by this high-risk sample of mothers resulting into caesarean deliveries by the majority. During delivery, priority was given to women who had emergency obstetric conditions, the majority of whom were referred from primary health facilities with severe obstetric complications. Support from health workers and spouse/family helped women deal with fear of death and other intrapartum challenges. Maternity care was characterised by challenges attributed to an under resourced health care facility and negative attitudes of staff. Interestingly, despite the problems reported during pregnancy and intrapartum and the nature of the sample, the majority of women self-reported positive childbirth experiences. The appraisal of seemingly negative childbirth experiences as positive could be attributed to religious and cultural beliefs about childbirth, and the predominantly restitution type of narratives which characterised women's stories of childbirth. This was further evident in the happiness expressed by the majority of mothers as they left the hospital with live and healthy babies. However, appraising apparently negative prenatal and intrapartum experiences as positive due to cultural and religious influences was not a sufficient protective factor from postpartum mental health problems including PTS symptoms arising from labour and delivery.

#### 8.1.2 Role of childbirth experiences and maternal factors on maternal postnatal mental health

As part of objective four and associated hypothesis, all women reported experiences of PTS arising from labour and delivery. Similarly, postnatal depression symptoms were endorsed by

several women with 49% meeting a cut off score for clinically significant symptoms of depression, as measured by EPDS. This finding contrasts some previous studies which have found no PTS symptoms following childbirth (e.g., Jones et al., 2013). However, the PTS symptoms and depression in this sample could be attributed to the high-risk nature of the sample and the severe obstetric complications reported by the participants compared to the community samples with less risks in several studies from high income countries (e.g., Davies et al., 2008; Olde et al., 2006). This finding demonstrates the potential effects of negative childbirth experiences on the women's postpartum mental health. Maternal factors other than the reported childbirth experiences could also have contributed to the postnatal mental problems seen in this sample. Maternal attachment styles, especially the women's scores on ASQ scales measuring aspects of insecure attachment were found to be positively associated with postpartum depression and PTS symptoms. Maternal attachment styles could have negatively influenced the women's prenatal experiences including perceptions of spousal support and intrapartum care from the medical staff. Interactions between maternal factors and actual negative childbirth experiences including prenatal and previous birth experiences could therefore have predisposed mothers to mental health problems postpartum.

### 8.1.3 Factors associated with or predicting mother-infant interactions

In this section, I summarise findings regarding objectives two, three and five. The women's experiences of childbirth (overall childbirth experiences and hospital experiences), were found to be associated with mother-infant interactions in this sample. Overall childbirth experiences were significantly correlated with both child EA scales (*responsiveness* and *involvement*). Hospital experiences were found to be significantly correlated with four of the six EA scales, that is, two adult (maternal) EA scales, *structuring* and *non-intrusiveness*, and both child EA scales (*responsiveness* and *involvement*). However, childbirth experiences were not

significantly correlated with maternal *sensitivity* and *non-hostility* in this sample. Similarly, despite the relatively high levels of symptoms of postnatal mental health problems compared to studies from high income countries, neither PTS nor depression symptoms were associated with any of the EA scales. The characteristics of the sample such as large families could explain these unexpected findings due to social support the affected women might have had thus buffering the effects of mental health symptoms on the mothers and babies.

Consequently, PTS symptoms did not predict interactions between mothers and their babies as I hypothesised. Hospital experiences predicted mother-infant interactions, in particular, maternal *structuring* and *non-intrusiveness*, and child *responsiveness* to and *involvement* of the mother. The specific hospital experiences women reported and their impact on postnatal behaviours of mothers and their children therefore need to be examined further to alleviate the impact of negative childbirth experiences on attachment relationships.

## 8.2 Strengths and limitations of the study

I realised several strengths and potential limitations throughout the design and conduct of this study. First, I describe the key strengths followed by weaknesses of this study.

### 8.2.1 Strengths of the study

The key strength of this was the mixed method design I employed. The other strengths were the naturalistic environment in which data were collected; and use of observation measure to assess mother-infant interactions which allowed the role of babies in the interaction to be assessed. The convergent, equal status, mixed methods design I employed in this study enhanced the breadth and strength of the findings reported in this study. Self-report measures and a

quantifiable measure of mother-infant interactions allowed for statistical examination of the variables under investigation and to objectively assess the relationships between those variable. The subjective assessment of childbirth experiences enabled an in-depth understanding of the women's experiences and the factors which shaped those experiences. This further helped in understanding the meanings mothers placed on their experiences and the interpretations of some of the self-report findings such as women's appraisal of their overall childbirth experiences and hospital experiences. Comparisons of self-report findings and narratives thus reflected complementarity of data gained from the sample. Although it might be argued that a sample of 49 participants was too small for the quantitative strand of this study, the equal status design allowed for many mothers to take part in the qualitative interviews. The extensive qualitative data gained from 41 mothers facilitated a more comprehensive understanding of the issues which shaped the women's childbirth experiences.

The specific methods I utilised to collect and analyse qualitative data, that is, narrative interviewing and structural narrative analysis respectively allowed for a detailed meaning making process for both the participants and myself as the investigator. The results of this interpretative exercise enhanced the quality of the findings. Women had an opportunity to verbalise their personal views of childbirth to an interested researcher. Similarly, this was an invaluable experience for me as a researcher listening to the mothers' experiences and witnessing them spontaneously reacting to the meanings of their own experiences of childbirth. The measure I designed purposely for this study to assess childbirth experiences allowed for a new approach to measuring childbirth experiences and resulted into informative findings about experiences of women at the hospital. By integrating these diverse findings, a fuller picture of the relationship between specific issues investigated was gained.

Collecting data from the participants' own homes, though it tested my patience and skills as a researcher due to difficulties I encountered in scheduling appointments with participants and finding their homes, made participants control the process of data collection and feel valued. Reaching each participant, some of whom lived far from the main accessible roads away from the city, demonstrated the relevance I attributed to the study and thus encouraged mothers to take interest in the subject of investigation. This also reduced the non-response rate as I was able to reach close to 100% of the targeted number of participants despite the anticipated difficulties in following up women four months after recruitment at the tertiary hospital.

The use of a video recorded observation of social interactions between mothers and their babies in their respective homes enabled representation of close to normal everyday interactions. Coding these interactions by the global scoring procedure of specific components of each of the EA constructs allowed for objectivity in determining the observed interactions thus avoiding biases inherent in self-report measures especially if mothers were to score own relationships with their babies. Furthermore, by using observational measures comprising of child scales, the contribution of the babies to the observed interactions was assessed through the child EA scales of *responsiveness* to and *involvement* of the mother. This not only enabled direct assessment of associations of maternal variables with the babies' level of interactions but also provided an added mechanism to examine any possible cases of irregular maternal behaviours and emotions during interactions as they may not be easily recognised and responded to by the baby.

### 8.2.2 Limitations of the study

Three categories of limitations can be pointed out in this study. First and foremost, methodological limitations such as the non-probability purposive sampling strategy employed; the small sample size for the quantitative strand of this study; the cross-sectional nature of the study. Secondly, limitations due to measures used including tools not validated with comparable

populations; the measure I designed to assess childbirth experiences relied heavily on two items and was not tested for reliability; self-report measures of mental health problems were not diagnostic tools. Thirdly, the homogenous nature of the sample, all women were high risk mothers; and delivered mainly by caesarean section.

Despite the advantages of adopting purposive sampling strategy which allowed me to quickly reach the targeted group of high risk mothers residing in a radius of 30 KM from the tertiary hospital, it limited both the diversity of the sample and generalisability of the findings. The findings reported in this study therefore though useful in understanding the childbirth experiences of this sample of Ugandan women, may have been biased by my sampling strategy. This therefore limits the extent to which these findings are representative of and/or can be generalised to a larger population of mothers.

Due to an emphasis on convergent equal status mixed methods design, and the outcome measure for the mother-infant interactions, it was not feasible to have a bigger sample of participants for this study. The limited resources including time and finances I had available for this PhD study could not allow for extended fieldwork to record many mother-infant interactions and later score them. Consequently, a small number of mother-infant dyads were included hindering extensive quantitative analyses. For example, the small sample though it enabled an in-depth examination of qualitative data, limited the range of, and appropriateness of statistical analyses such as multiple hierarchical regressions. I had to exclude potential predictors of mother-infant interactions determined theoretically from the literature review, such as depression, maternal attachment style and maternal employment status. A full picture of results of regression analyses was thus compromised due to preclusion of potential predictors and insufficient number of cases required per the remaining predictor variables. A post-hoc power estimate of .67 suggest that a larger sample size could contribute to better interpretations of the findings.

Similarly, the low number of participants could have contributed to smaller variability among participants resulting into undue cases of lack of correlations among variables investigated in the current study. However, it is plausible that the gap arising from this weakness was narrowed by the extent of qualitative findings gained by employing the mixed methods approach.

The cross-sectional nature of this study does not permit assertion of causality of observed mother-infant interactions. A lack of assessment of pre-natal mental health despite efforts to highlight psychological distress reported in women's narratives of pregnancy undermined accuracy of postnatal PTS and depression symptoms. There is evidence of pre-natal mental health problems predicting postnatal depression (Hunker, Patrick, Albrecht, & Wisner, 2009; Ohoka et al., 2014) and PTS symptoms (Seng et al., 2013). The cross-sectional nature of data collection not only limited the extent of measuring retrospectively pre-natal factors but also inference of causality attributable to predictor variables. The negative childbirth experiences narrated and the problems women encountered intrapartum may therefore not be the only factors responsible for postnatal mental problems and less optimal mother-infant interactions.

Although each mother was given opportunity to choose the venue of the interview within her home to ensure confidentiality, there were limited options and some interviews were conducted in close proximity of family members. The home environment thus might have affected the level of detail and the content women could share about their experiences of childbirth. For example, though men were generally away from home at the time of data collection, a few mothers whose spouses or other adults were at home could have experienced difficulties disclosing issues related to significant others that might have had impact on maternal experiences. The self-censorship by such mothers, if it happened, might have compromised the general quality and depth of interviews.

The measures used in this study presented some possible areas of weakness. The use of an observation measure to assess mother-infant relationships though intended to minimise bias could have affected the quality of findings due two major factors. Firstly, a short video recorded observation might have encouraged mothers to display emotions and behaviours they considered appropriate for the camera, thus affecting interpretation of several adult EA scores. Consequently, this might have affected the quality of adult EA scores. Maternal *non-hostility* and *sensitivity* which were found to not to be correlated with childbirth experiences might be argued to be more prone to social influences due to attempts by an adult to meet imagined standard behaviour sought by the observer/researcher.

Secondly, whereas I trained in coding EA videos and received certification of reliability on a comparable sample prior to undertaking this study, it was not possible to procure the services of a trained person for inter-rater reliability on the current sample. The unexpectedly high charges for scoring sufficient numbers of videos by the available persons qualified in EA coding hindered the examination of inter-rater reliability. Inter-rater reliability done by a trained person in scoring EA scales and blind to other data collected though required was therefore not possible. This would have enhanced the credibility of findings on mother-infant interactions. Information about availability of potential inter-rater coders of videos and costs involved should have been sought from the EA trainer prior to enrolling for online training and sufficient funds made available at the time of planning and budgeting for the study.

A brief scale used to assess childbirth experiences –mothers’ experiences at the hospital and overall childbirth experiences –might have missed several aspects of maternal experiences that could have enhanced understanding of specific childbirth factors. Of psychometric significance, the reliability of this two item childbirth experiences scale was not ascertained. Whereas I pilot tested this scale alongside other measures used in this study, a reliability test such as test-retest for this brief scale specially designed for this study would have ensured a better interpretation

of findings regarding childbirth experiences. Use of a validated multiple item childbirth experiences tool such as the Experience of Birth Scale, previously been used by Ayers et al. (2007) to assess for multifaceted aspects of birthing including emotions, control and support, could have been an option if the maternal experiences I explored in this study focused on birth experiences only.

The self-report measures used to assess maternal mental health and attachment styles were not validated with comparable populations to those from which I recruited the current sample, thus cannot be considered to be completely reliable. It may also be argued that the translation process contributed to loss of accuracy of some of the measures. The pilot testing of the measures I conducted to ensure translated measures were clear to the Ugandan sample relied on a very small number of mothers ( $n = 6$ ). The use of a field assistant to read and fill questionnaires for many mothers who could not read and/or write Luganda could also have complicated interpretation of the items by the mothers and affected their responses. Besides these quality related challenges, the measures used in assessing postnatal mental health were not diagnostic tools and thus limited the possibility of determining with certainty the number of mothers who might have PTSD due to childbirth and postnatal depression disorder. Such information would have helped in examination of the differences in mother-infant interactions between mothers with clinical disorders and those without mental problems. The satisfactory internal coefficients of all self-report measures except ASQ with the current sample (see section 4.6) however offers confidence in the findings observed. The ASQ had less satisfactory internal coefficients compared to previous studies (section 4.5.3) and therefore the findings on maternal attachment styles need to be interpreted with caution.

All women in this sample were high-risk mothers, a condition which portends negative childbirth experiences. The nature of the sample besides the actual experiences reported by the mothers could have influenced the findings reported in this study. Lack of a comparable sample

of mothers with no risks thus limited the level of inference that could be made regarding sample characteristics. During recruitment of women, no attention was paid to mode of delivery which resulted into oversampling of women who delivered by caesarean section. It is highly plausible that some high-risk mothers who had normal deliveries were missed because they were discharged shortly after delivery. My recruitment procedure, which required that mothers were contacted at least a day after delivery to allow for reasonable post-delivery recovery of mothers before they were approached, did not take into consideration care factors which determined the time mothers spent on the postnatal maternity ward. For instance, due to inadequate facilities at the hospital, women who had normal deliveries were discharged within hours unless they developed complications during or shortly after delivery. The three mothers with vaginal deliveries who participated in this study were those who stayed longer under medical observation following delivery. Two of these mothers had retained placenta which required operations and the third had unusually big baby who needed precautionary medical observation. The absence of mothers who had uncomplicated vaginal delivery therefore compromised examination of variations according to mode of delivery among several maternal and child variables including childbirth experiences, postpartum mental health, and mother-infant interactions. However, despite the limitations outlined here, there is no doubt that this study has made substantial contributions to knowledge about possible associations between childbirth experiences and mother-infant relationships in a low-income country.

### 8.3 Contributions to knowledge

I have integrated existing knowledge about cultural and religious beliefs previously argued to shape childbirth experiences in several parts of sub-Saharan Africa and Frank's narratives of illness. This has enabled a new way of understanding maternal experiences similar to experiences of chronic illnesses by using Frank's typology of illness narratives, namely, restitution, chaos and quest. Moreover, women's narratives of childbirth experiences reflected

the events which might have influenced self-rated maternal experiences thus providing an understanding of the meanings mothers attached to their individual experiences. Previous studies which have attempted to use Morse's (1997) approach to describe childbirth as an illness (e.g., Elmir, Schmied, Wilkes, & Jackson, 2012; Nystedt, Hogberg, & Lundman, 2008) have not demonstrated how childbirth can be interpreted as an illness. Little was therefore known about what exactly makes childbirth to be described as an illness in the sense proposed by Morse (1997). I am not aware of any study which has used Frank's typology of illness narratives as a lens to interpreting childbirth experiences. This characterisation of the meaning of childbirth experiences can enhance efforts aimed at reducing maternal morbidity and mortality particularly among Ugandan women who share similar cultural and religious beliefs.

This study extends previous knowledge on not just PTS symptoms following childbirth, but also maternal experiences which might increase the risks of postnatal mental health problems among mothers. The focus in many low-income countries has been mainly on reducing maternal deaths. The findings of my study could raise interests among policy makers, researchers and clinicians to consider the quality of life lived by thousands of mothers and their children who survive challenging childbirth experiences. But more importantly, I have contributed to understanding of potential effects of childbirth experiences on maternal postnatal mental health and relationships between mothers and their infants, as recommended by researchers and clinicians from high income countries (Ayers et al., 2008; McKenzie-McHarg et al., 2015).

By using measures developed mainly in high income countries to assess variables of interest in the current study and achieving satisfactory reliability with a small Ugandan sample, I have demonstrated the cross-cultural efficacy of those measures. For example, use of measures including IES-R and EA with this sample has demonstrated applicability of these assessment tools outside the western populations where they were designed and have predominantly been applied. However, the low internal coefficients achieved with ASQ is evidence that some

measures present challenges of applicability in diverse populations. Continuous assessment of the reliability and validity of such measures is important to ensure their efficacy.

Through workshops and seminars both in Uganda and at international level, I have shared my research findings with diverse groups of people including practitioners in different fields and researchers in maternal -infant mental health. My seminars in Uganda raised interests in the cross-cutting issues between maternal health and the psychological impact of childbirth experiences on mothers and their children. Similarly, my oral paper presented at the recent World Association of Infant Mental Health (WAIMH) raised interest from researchers and clinicians from high income countries, with potential for future collaborations. The findings of this study therefore have several implications for clinical practice, maternal-infant health policies especially in low income countries still faced with maternal health challenges, and research.

#### 8.4 Implications of the study for clinical practice, policy and research

In this section I highlight implications for clinical practice, policy and research arising from the findings of this study.

##### 8.4.1 Clinical implications

The women's narratives from the time of pregnancy through labour, delivery and post-delivery indicated a need for a more holistic approach to maternal health issues. For example, antenatal care which addresses needs of expecting mothers including psychological issues arising from and/or complicating pregnancy experiences could foster reduction of risks in childbirth. Early identification and interventions in negative maternal experiences might help reduce risks associated with those experiences to the mothers and their babies. For example, by ensuring that

women having psychological problems during pregnancy get appropriate interventions, necessary support can be offered intrapartum and postpartum to reduce risks of postpartum mental health problems.

The number of mothers seeking obstetric care at the tertiary hospital, inadequate facilities at the tertiary hospital and the attitude of the staff contributed to the experiences of childbirth and how mothers perceived those experiences. Measures to enhance quality intrapartum care therefore need to include;

- Building the capacity of more primary health facilities to handle obstetric complications so as to decongest tertiary hospitals
- Increasing facilities such as ward and theatre spaces and human resource capacity at the tertiary hospital to handle all mothers seeking maternity care.
- Ensure professional standards are adhered to by the staff providing obstetric care. Sensitisation of health workers on the mothers' perceptions of the quality of care offered by the staff and the implications of negative experiences resulting from perceived poor care might help the staff to evaluate their professional standards. Efforts by health workers to ensure adequate professional standards would enhance the quality of care and subsequently help reduce the women's perceptions of negative attitudes of staff.

Psychological interventions aimed at identifying mothers who might have PTS and depression symptoms associated with childbirth experiences should be developed and implemented. Women identified to have such mental health problems following childbirth should be treated

so as to enhance the quality of their life following challenging childbirth experiences. Specifically, trauma and attachment focused interventions should be part of postpartum care to ensure that affected mothers and their babies receive the required interventions to reduce long term effects to both the mother and child.

#### 8.4.2 Policy Implications

Maternal health policies which recognise societal factors such as level of knowledge of the users, cultural and religious issues that might hinder utilisation of maternal health packages need to be thought by policy makers and those tasked to implement them. For example;

- There should be clear policies on accessibility and provision of health care to women of childbearing age to reduce risks of contraindicated interventions in pregnancy by women who may not be aware they are pregnant and misinterpret changes due to pregnancy as symptoms of ill health.
- Religious and cultural beliefs about childbirth should be integrated in maternal health packages. For example, measures taken promotion of utilisation of modern family planning methods including abortions need to be reflected in the national maternal health packages. The belief that God has the ultimate control over if and when a woman should conceive and/or have a baby might have negative effects on women's utilisation of family planning packages even among those who might not want to have babies. And when such women get pregnant, abortion is rarely a choice of terminating unwanted pregnancies due to similar religious beliefs which show God as having plans for the baby to be born.

- Antenatal and postnatal health care packages should be more holistic including psychological interventions for couples in case of challenges during pregnancy and postnatal.

#### 8.4.3 Research implications

The findings of this exploratory study provide insights for future research. There is need to examine further the issues I investigated and findings I have reported here using more robust means and with larger samples. This would enable better conclusions to be made about childbirth experiences in low income countries and the impact of maternal experiences on mothers and their babies. Specifically, my findings suggest further research should include;

- The impact of unplanned pregnancies on maternal pregnancy and delivery experiences and how mothers cope with unexpected pregnancies and subsequently view their babies.
- The role of cultural beliefs shaping childbirth experiences needs further investigation to enhance understanding of demographic factors facilitating negative effects of culture on maternal health. This should also include the impact of cultural beliefs such as childbirth being a woman's battle (Kyomuhendo, 2009) on obstetric care in locations where such beliefs prevail. The negative staff attitudes reported by the mothers characterised by uncaring staff might reflect the general cultural beliefs that childbirth is a battle for each individual woman that should require any assistance, including by professional obstetric staff.
- Similarly, relationship status, various religious and spiritual beliefs need to be examined regarding how they shape women's choices in being pregnant.

- The impact of future investigations could be enhanced by ensuring a bigger and representative sample is recruited taking into consideration factors such as level of planning for the pregnancy, previous childbirth experiences, quality of medical care and mode of delivery.
- Validated measures of childbirth experiences including pregnancy and intrapartum experiences should be used to assess and determine the associations of those experiences with postpartum mental health, and interactions between mothers and their babies. Similarly, maternal factors such as prenatal mental health and attachment styles should be assessed preferably in longitudinal studies to determine their effects on mother-infant interactions in particular and attachment relationships in general.
- Diagnostic measures of postnatal mental health problems could be used to classify mothers with and without PTSD following childbirth so as to accurately determine the interaction patterns of mothers and babies based on maternal mental status.
- To determine the role of maternal attachment styles in shaping women's experiences of childbirth, postnatal mental health and subsequent relationships with the baby, robust measures of adult attachment style could be used to classify mothers. This would enable a better understanding on the influence of maternal attachment on the issues investigated.

## 8.5 Conclusion

I have achieved the objectives of this exploratory study which sought to examine the association between childbirth experiences and mother-infant relationships. Findings have shown evidence

of association between childbirth experiences of a high-risk sample of mothers and the attachment relationships these mothers had with their four months old infants. Further research building on the findings and recommendations of this study will ensure a better understanding of childbirth experiences in Uganda and other countries sharing similar challenges. Maternal health policies and clinical practice informed by such research findings might enhance the quality of life of thousands of women who are at risk of maternal morbidity including mental health problems resulting from negative childbirth experiences. This could further enhance the mother-infant attachment relationships and associated positive child outcomes.

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## APPENDICES

### Appendix 1: Participant information sheets (English Version)

#### **Participant Information Sheet**

##### *Childbirth Experiences and Mother –Infant Relationships*

My name is Samuel Ouma and I am conducting this research as a student in the Health Research PhD programme at Lancaster University, Lancaster, United Kingdom.

#### **What is the study about?**

The purpose of this study is to explore the association between childbirth experiences and mother –infant relationships

#### **Why have I been approached?**

You have been approached because the study requires information from 50 to 80 Ugandan women who are able to speak Luganda and /or English who have delivered at Mulago hospital high risk maternity ward and live in a radius of 30 Kilometres from Mulago hospital.

#### **Do I have to take part?**

No. It's completely up to you to decide whether or not you take part. Even after agreeing to take part in this study, you are free to withdraw your participation up to two months after the interview before your information is integrated with information from other participants, without giving the researcher reason for your withdrawal.

#### **What will I be asked to do if I take part?**

If you decide you would like to take part, the researcher will come to your home where you will be asked a number of brief questions; be video recorded interacting with your baby; and you will be offered the opportunity to take part in an audio recorded interview about your experiences of pregnancy, labour, and delivery and the time spent in the hospital.

#### **Will my data be confidential?**

The information you provide is confidential. The information collected for this study will be stored securely and only the researcher conducting this study will have access to this information:

- Video recordings will be kept on the researcher owned password protected computer
- Audio recordings will be destroyed and/or deleted after data analysis
- Hard copies of completed questionnaires will be scanned and stored on a secure server for ten years. At the end of this period, they will be destroyed.
- The files on the computer will be encrypted (that is no-one other than the researcher will be able to access them) and the computer itself password protected throughout the study period.
- The typed version of your interview will be made anonymous by removing any identifying information including your name. Anonymised direct quotations from your interview may be used in the reports or publications from the study, so your name will not be attached to them.

There are some limits to confidentiality: if what is said in the interview makes me think that you, or someone else, are at significant risk of harm, I will have to break confidentiality and speak to a member of your Local Council (LCI) to ensure your own safety and/or the safety of others. If possible, I will tell you if I have to do this. Interviews conducted in Luganda will be transcribed by two Ugandan transcribers after signing a confidentiality agreement to ensure that your information remains confidential. The field assistant helping throughout the

information gathering exercise will also sign a confidentiality agreement binding her not to share your information with anyone else.

### **What will happen to the results?**

The results will be summarised and reported in a thesis for a PhD and may be submitted for publication in an academic or professional journal and presented in professional meetings such as conferences and seminars.

### **Are there any risks?**

There are no major risks anticipated with participating in this study. However, if you experience any distress following participation you are encouraged to inform the researcher and contact the resources provided at the end of this sheet.

### **Are there any benefits to taking part?**

Although you may find participating interesting, there are no direct benefits in taking part. The researcher will however summarise the mother's interview and give it to mothers who will be selected to participate in the interview and wish to have a copy of their childbirth experiences. The findings might be adopted by Mulago hospital to enhance the care given to women coming for maternity services. Findings about mother –infant relationships might be used by Ugandan health care professionals to facilitate early attachment relationships between mothers and their children.

You will receive ten thousand Uganda shillings (10,000/=) as compensation for inconvenience and use of your time.

### **Who has reviewed the project?**

This study has been reviewed by the Faculty of Health and Medicine Research Ethics Committee (FHMRC), and approved by Lancaster University Research Ethics Committee. The study has been reviewed in Uganda by Mulago hospital Internal Review Board (IRB) and approved by the Uganda National Council of Science and Technology (UNCST).

### **Where can I obtain further information about the study if I need it?**

If you have any questions about the study, please contact the main researcher:

**Samuel Ouma**, Research Project Mobile Phone: +256 784 599239

[s.ouma@lancaster.ac.uk](mailto:s.ouma@lancaster.ac.uk)

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### **Complaints**

If you wish to make a complaint or raise concerns about any aspect of this study and do not want to speak to the researcher, you can contact:

The Chairman [REDACTED] Research and Ethics Committee or Uganda National Council of Sciences and Technology, Tel: +256 (0) 772 325869 or +256 (0) 712 860522

Dr Jane Simpson Tel: +44(0)1524 592858 Email: j.simpson2@lancaster.ac.uk  
Research Director,  
Division of Health Research  
Lancaster University  
Lancaster  
LA1 4YG

If you wish to speak to someone outside of the Health Research programme you may also contact:

Professor Roger Pickup Tel: +44 (0) 1524 593746 Email: r.pickup@lancaster.ac.uk  
Associate Dean for Research  
Faculty of Health and Medicine  
Lancaster University  
Lancaster  
LA1 4YD

Thank you for taking the time to read this information sheet.

## **Participant Information Sheet**

### **Ebiyitwamu mu kuzaala n'enkolagana wakati wa maama n'omwana**

Amanya g'oyo anoonyereza: Samuel Ouma

Omusomo: Health Research PhD Programme

Ettendekero: Lancaster University, United Kingdom.

### **Omusomo gukwata kuki?**

Ekigendererwa ky'omusomo guno kwekuzuula akakwate akali wakati w'ebyo maama w'omwana byayitamu mukuzaala n'enkolagana wakati we n'omwana.

### **Lwaki ntuukiridwa?**

Osabiddwa okwetaba mu musomo gunno kubanga gwetaagisa abakyaala wakati wa amakumi ataano n'ekinaana nga basobola okwogera oluganda, oluzungu oba byombi, nga baazalira Mulago era nga babeera mu banga lya Kilometer asatu okuva ku ddwaliro e'Mulago.

### **Ninna okwetabamu?**

Nedda. Kiri eri gwe okwetaba mu musomo gunno oba obutagwetabaamu. Nebwoba okiriza okugwetabamu, oliwaddembe okwekyusa mu myezi ebiri nga omunoonyereza avudde ewuwo, kyoka nga byozeemu tebinagatibwa na by'abalala, ate era awatali kuwa munoonyereza nsonga ekwekubiza.

### **Kiki kyenaasabibwa okola singa neetabamu?**

Singa osalawo okwetaba mu kunoonyereza kuno, omunoonyereza ajja kujja ewuwo awaka akubuuze ebibuuzo ebimpimpi, akukwate ku katambi nga onyumya n'omwana wo, ate singa olondebwa, edoboozi lyo nalyo likwatibwe ku katambi ku bikwata ku byewayitamu nga oli lubuto, mukulumwa omwana, mukuzaala n'ebanga lyewamala mu ddwaliro.

### **Ebinkwatako binaakumibwa nga bya kyama?**

Ebikukwatako bijja kukuumibwa nga bya kyaama. Bijja kukuumibwa bulungi era nga omunoonyereza yeka yajja okubimanya

- Akatambi k'ebifanaanyi kajja kukuumibwa ku kompyuta y'omunoonyereza nga yeyekka asobola okubilaba

- Obutambi bw'amaloboozi bujja kusiimulwa okuva mu kompyuta.
- Empapula ezijjuziddwamu zijja kukubibwa ebifaananyi era ziterekebwe ku kompyuta okumala ebanga lya myaka kumi. Oluvanyuma lw'ekiseera kino, zijja kusaanyizibwawo.
- Omunoonyereza yekka yajja okusobola okulaba ebiterekeddwa ku kompyuta, era yekka yajja okubeera n'akagambo ak'ekyaama akamutuusa ku bikukwatako.
- Empapula eziriko by'ozeemu tezijja kubeerako manya go. Byoyogedde biyinza okufulumila mu byafaayo ng'omusomo guno guwedde, kyoka amanya go tegajja kwatulwa.

Okukuuma ebyama kuliko ekomo: Singa ebyogeddwa mukunoonyereza biraga omunoonyereza nti gwe oba omuntu omulala ali mu kabi, awo tewaba kyaama, era omukulu omu owa LC y'ewuwo atemezebwo okulaba nti toil mu bulabe. Bwekiba kisoboka, nkubuulirako nga kino tekinabaawo. Okunoonyereza okuba kukoleddwa mu luganda kujja kuvunulwa bannayuganga babiri mu lungereza oluvanyuma lw'okussa omukono ku ndagaano eyokukuuma ebintu nga bya kyaama. Omuyambi w'munonoonyereza nabo baakussa omukono ku ndagaano y'okukuuma ebyama. Eno yakubaziyiza okugabana ebyama byo n'abantu abalala.

### **Kiki ekinaatuuka kubinaaba bivuddemu?**

Ebinaavaamu bijja kufunzibwa biwandiikibwe mu kitabo ekimaliriza omusomo gwa PhD, era bijja kwasanguzibwa ku ntimbagano z'ebitabo eby'abakenkufu abalala awamu ne mumisomo ne munkiiko gagadde ez'abakenkufu.

### **Mulimu obulabe bwonna?**

Tewali bulabe bulengeddwa mu kwetaba mu musomo guno. Naye, singa osanga obulabe bwonna owebwa amagezi okutegeeza ku munoonyereza n'okutemya kw'abo abali ku lukalala oluli mu kiwandiiko kino.

### **Mulimu eby'enfuna byonna mu kwetaba mu kunoonyereza kuno?**

Newankubadde nga oyinza okunyumirwa enyo nga wetaba mu kunoonyereza kuno, tewali byanfuna bya buliwo byojja kufuna mu kwetabamu. Omunoonyereza ajja kufunza akatambi ka maama aba yetabye mu kubuuzibwa kamuwebwe yejukanyenga byeyayitamu mu kuzaala singa aba akaagadde. Ebinaavaamu biyinza okukozesebwa eddwaliro lye'Mulago okulongoosa mundabirira y'abakyaala abazaala.

Ebinaazuulibwa ku nkolagana ya maama n'omwana biyinza okozesebwa abakenkufu mu by'obulamu okunyweza enkolagana ey'enkwaso wakati wa bamaama n'abaana.

Ojja kuweebwa omutwalo gumu ogwa siringi ya Uganda okkuliwirira kulw 'ebiseera byo.

### **Ani yekeneenzeza okunoonyereza kuno?**

Omusomo guno gwekeneenezeddwa akakiiko mu kiwayi ekikulira eby'obulamu n'okunoonyereza negukakasibwa ettendekero lya Lancaster Universite era mu kakiiko k'ekiwayi ekikola kukunoonyereza. Mu Uganda omusomo gwekeneenezeddwa akakiiko mu kiwayi ekikulira eby'okunoonyereza mu ddwaliro lye'Mulago era negukakasibwa ekibiina ky'ensi yaffe ekivunaanyizibwa sayansi ne technologiya.

### **Nyinza kujja wa ebikwata ku musomo guno singa mbeera mbyeetaaze?**

Singa obeera olina ekibuuzo kyonna, osobola okutuukirira omu kubano;

Samuel Ouma: +256 784 599239, [s.ouma@lancaster.ac.uk](mailto:s.ouma@lancaster.ac.uk)

Professor Katherine Froggatt: +44(0) 1524 593308, [k.froggatt@lancaster.ac.uk](mailto:k.froggatt@lancaster.ac.uk)

Dr Jenny Davies: +44(0) 1524592771, [j.davies@lancaster.ac.uk](mailto:j.davies@lancaster.ac.uk)

Dr Guillermo Algorta Perez, +44(0) 1524594711, [g.perezagorta@lancaster.ac.uk](mailto:g.perezagorta@lancaster.ac.uk)

### **Okwemulugunya**

Singa obeera olina okwemulugunya kwonna kubikwata ku musomo guno, nga toyagala kwogera na munoonyereza mukulu, osobola okukubira;

Sentebe w'ekiwayi ekikulira eby'okunoonyereza mu ddwaliro e [REDACTED] oba sentebe akulira ekibiina ky'ensi yaffe ekivunaanyizibwa sayansi ne technologiya.: +256 (0) 772 325869 oba +256 (0) 712 860522

Akulira eby'okunoonyereza mu ttendekero lya Lancaster: Dr Jane Simpson: +44(0) 1524 592858, [j.simpson2@lancaster.ac.uk](mailto:j.simpson2@lancaster.ac.uk)

Okukubira omuntu ebweru w'omusomo guno: Professor Roger Pickup: +44(0) 1524 593746: Email: [r.pickup@lancaster.ac.uk](mailto:r.pickup@lancaster.ac.uk)

Appendix 2: Recruitment form

**Recruitment Form**

Date..... No.....

Name of the mother.....Tel.....

Alternative telephone number (e.g. sister, in-law, neighbour) .....

Name of head of family/father.....Tel.....

**Place of residence**

LC1/Village.....

Chairman LC1 .....

Parish.....

Sub County.....

County/Division.....

District.....

**Description of place of residence**

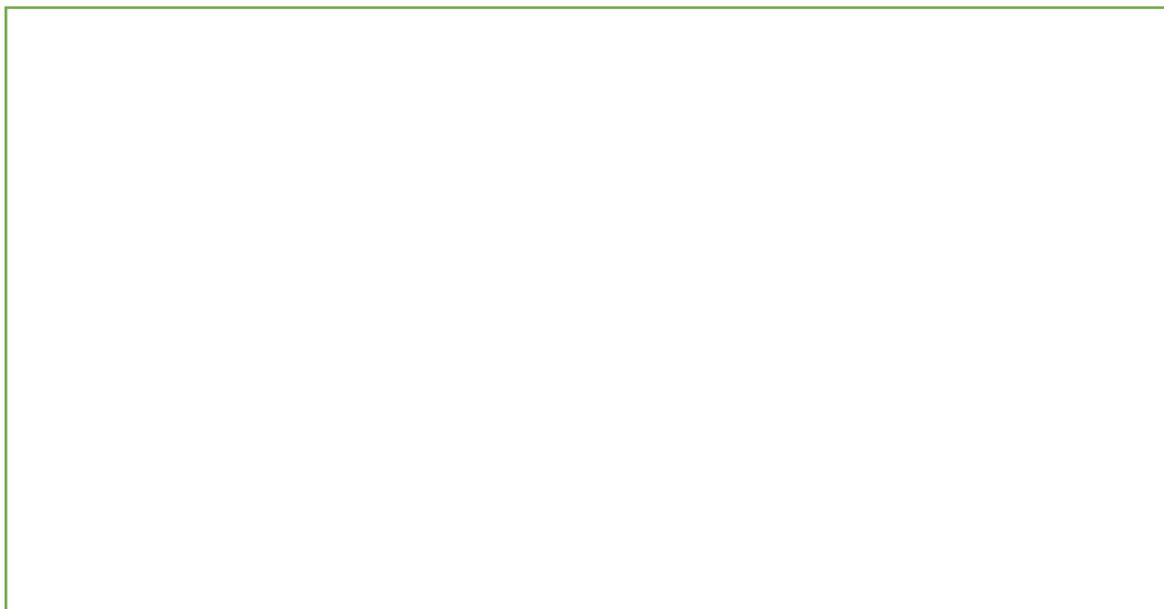
Name of key feature near participant's home/house (e.g. Church, mosque, school, fuel station)

.....

Prominent personality.....

Nearby boda boda stage .....

**Sketch of map to residence**



## Appendix 3: Data Collection tools (English Version)



Date: .....

No.....

### **Childbirth Experiences and Mother –Infant Relationships in Uganda**

I remind you that this study seeks to explore the association between childbirth experiences and the mother –infant relationships in Uganda. The meeting is expected to take 1-2 hours. We will start with a video recording of you interacting with your child as you normally would. This will be followed with a survey on your experience of delivering your baby and a couple of surveys on demographic factors and general health conditions. You will also have an opportunity to participate in an audio recorded interview about your childbirth experiences. Your participation in this study is voluntary and you are free to withdraw from the study at any time up to two months after the interview without giving reasons. Your responses to the questions below are highly appreciated. Specific parts of the information collection exercise will have their own unique instructions.

#### **1.1: Observation of mother –infant interaction (Video recorded interaction)**

##### **Instruction:**

Please interact with your baby as you normally do. If your baby gets distressed during the interaction session feel free to do anything that can sooth him/her.

**1.2: Subjective perception of delivery**

On.....you went through labour and childbirth at Mulago hospital high risk maternity ward. Below is a list of comments made by people after stressful life events. Please check each item, indicating how frequently these comments were true for you **DURING THE PAST SEVEN DAYS**. If they did not occur during that time please mark the “not at all” column

No.	Comment	Not at All	Rarely	Sometimes	Often
1	Any reminders brought back feelings about it				
2	I had trouble staying asleep				
3	Other things kept making me think about it				
4	I felt irritable and angry				
5	I avoided letting myself get upset when I thought about it or was reminded of it				
6	I thought about it when I didn't mean to				
7	I felt as if it hadn't happened or wasn't real				
8	I stayed away from reminders of it.				
9	Pictures about it popped into my mind				
10	I was jumpy and easily startled				
11	I tried not to think about it				
12	I was aware that I still had a lot of feelings about it but I didn't deal with them				
13	My feelings about it were kind of numb				
14	I found myself acting or feeling like I was back at that time.				
15	I had trouble falling asleep				
16	I had waves of strong feelings about it				
17	I tried to remove it from my memory				
18	I had trouble concentrating				
19	Reminders caused me to have physical reactions				
20	I had dreams about it				
21	I felt watchful and on guard				
22	I tried not to talk about it				

**1.3: Demographic Survey**

Please complete the following items by checking the box next to the most appropriate option or by writing your response on the dotted line.

1. District of residence: Kampala  Mukono  Wakiso  Mpigi  Luwero
2. How far is it from here to Mulago hospital? Less than 5KM  5-10KM  11-15KM   
16-20 KM  21- 25 KM  26-30KM
3. Baby's date of birth .....
4. Baby's gender: Female  Male

5. Baby's weight at birth (kg) .....
6. How old is the baby now (months).....
7. Do you have any concerns about the health of your baby? Yes  No  If yes please specify .....
8. Mother's date of birth.....
9. Mother's age (years) at the time of birth of the baby.....
10. Marital status: Single  Widow  Separated  Married/ Cohabiting
11. If married/cohabiting, do you have co-wives? No  Yes
12. If you marked yes in 11 above, how many co-wives do you have? .....
13. Mother's religion: None  Anglican  Catholic  Pentecostal  Islam   
Other  Please specify.....
14. Highest level of education attained by the mother: None  Primary  O' level   
A' level  Tertiary  University
15. Do you work? Yes  No
16. If you answered yes in 15 above, what do you do? .....
17. What is the main source of your financial support? .....
18. How many children do you have? .....
19. How many people all together do you live with in your home? .....
20. How many births have you had before this baby? .....
21. If you have given birth before, how would you describe your previous birth(s)?  
.....  
.....
22. How old is the father of your baby? .....
23. Highest level of education attained by the baby's father: None  Primary  O' Level   
A' Level  Tertiary  University
24. What does the father of your baby do for a living? .....
25. Do you live with the father of your baby? Yes  No
26. Does the father of the baby have regular contact with the baby? Yes  No

27. If you marked No in 26 above, please explain why.....
28. How long were you in labour before delivering this baby? .....
29. How was the birth of your baby? Vaginal  Caesarean
30. If Caesarean, indicate whether planned or emergency: Planned  Emergency
31. Did you experience any problem during labour or delivery? Yes  No
32. If you answered yes in 31, which of the following did you experience? Tick as many as apply to you: Severe bleeding  Prolonged labour  Emergency caesarean operation   
 Vaginal tear  Feared I could die  Abnormal foetal heart  Obstructed labour   
 Felt exhausted  Baby getting trapped in the birth canal  Other  Please specify.....
33. In one sentence how was your experience of labour and childbirth?  
 .....
34. How would you describe your experience at Mulago hospital at the time of delivery?  
 Very good  Good  Fair  Bad  Very bad
35. How would you describe your overall experience of having this baby right from the time you found out you were pregnant up to the time of discharge from the hospital after delivery?  
 Very good  Good  Fair  Bad  Very bad

**1.4: Attachment Style Questionnaire**

Show how much you agree with each of the following items by circling them on the following scale:

	1= Totally Disagree	2 = Strongly Disagree	3 = Slightly Disagree	4= Slightly Agree	5= Strongly Agree	6 = Totally Agree
1. Overall I am a worthwhile person.	1	2	3	4	5	6
2. I am easier to get to know than most people.	1	2	3	4	5	6
3. I feel confident that other people will be there for me when I need them.	1	2	3	4	5	6
4. I prefer to depend on myself rather than other people.	1	2	3	4	5	6
5. I prefer to keep to myself.	1	2	3	4	5	6
6. To ask for help is to admit that you're a failure.	1	2	3	4	5	6

7.	People's worth should be judged by what they achieve.	1	2	3	4	5	6
8.	Achieving things is more important than building relationships.	1	2	3	4	5	6
9.	Doing your best is more important than getting on with others.	1	2	3	4	5	6
10.	If you've got a job to do, you should do it no matter who gets hurt.	1	2	3	4	5	6
11.	It is important to me that others like me.	1	2	3	4	5	6
12.	It is important to me to avoid doing things that others won't like.	1	2	3	4	5	6
13.	I find it hard to make a decision unless I know what other people think.	1	2	3	4	5	6
14.	My relationships with others are generally superficial.	1	2	3	4	5	6
15.	Sometimes I think I am no good at all.	1	2	3	4	5	6
16.	I find it hard to trust other people.	1	2	3	4	5	6
17.	I find it difficult to depend on others.	1	2	3	4	5	6
18.	I find that others are reluctant to get as close as I would like.	1	2	3	4	5	6
19.	I find it relatively easy to get close to other people.	1	2	3	4	5	6
20.	I find it easy to trust others.	1	2	3	4	5	6
21.	I feel comfortable depending on other people.	1	2	3	4	5	6
22.	I worry that others won't care about me as much as I care about them.	1	2	3	4	5	6
23.	I worry about people getting too close.	1	2	3	4	5	6
24.	I worry that I won't measure up to other people.	1	2	3	4	5	6
25.	I have mixed feelings about being close to others.	1	2	3	4	5	6
26.	While I want to get close to others, I feel uneasy about it.	1	2	3	4	5	6
27.	I wonder why people would want to be involved with me.	1	2	3	4	5	6
28.	It is very important to me to have a close relationship.	1	2	3	4	5	6
29.	I worry a lot about my relationships.	1	2	3	4	5	6
30.	I wonder how I would cope without someone to love me.	1	2	3	4	5	6
31.	I feel confident about relating to others.	1	2	3	4	5	6
32.	I often feel left out or alone.	1	2	3	4	5	6
33.	I often worry that I do not really fit in with other people.	1	2	3	4	5	6

34.	Other people have their own problems, so I don't bother them with mine.	1	2	3	4	5	6
35.	When I talk over my problems with others, I generally feel ashamed or foolish.	1	2	3	4	5	6
36.	I am too busy with other activities to put much time into relationships.	1	2	3	4	5	6
37.	If something is bothering me, others are generally aware and concerned.	1	2	3	4	5	6
38.	I am confident that other people will like and respect me.	1	2	3	4	5	6
39.	I get frustrated when others are not available when I need them.	1	2	3	4	5	6
40.	Other people often disappoint me.	1	2	3	4	5	6

**1.5: Edinburgh Postnatal Depression Scale (EPDS)**

As you have recently had a baby, we would like to know how you are feeling. Please **TICK** the answer which comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

1. I have been able to laugh and see the funny side of things
  - As much as I always could
  - Not quite so much
  - Definitely not so much
  - Not at all
2. I have looked forward with enjoyment to things
  - As much as I have did
  - Rather less than I used to
  - Definitely less than I used to
  - Hardly at all
3. I have blamed myself unnecessarily when things went wrong
  - Yes, most of the time
  - Yes, some of the time
  - Not very often
  - No, never
4. I have been anxious or worried for no good reason
  - No, not at all
  - Hardly ever
  - Yes, sometimes
  - Yes, very often
5. I have felt scared or panicky for no very good reason
  - Yes, quite a lot
  - Yes, some times
  - No, not much
  - No, not at all
6. Things have been getting on top of me
  - Yes, most of the time I haven't been able to cope at all
  - Yes, sometimes I haven't been coping as well as usual
  - No, most of the time I have coped quite well
  - No, I have been coping as well as ever
7. I have been so unhappy that I have had difficulty sleeping
  - Yes, most of the time
  - Yes, sometimes

- |  |                       |                          |
|--|-----------------------|--------------------------|
|  | Not very often        | <input type="checkbox"/> |
|  | No, not at all        | <input type="checkbox"/> |
| 8. I have felt sad or miserable                      | Yes, most of the time | <input type="checkbox"/> |
|  | Yes, quite often      | <input type="checkbox"/> |
|  | Not very often        | <input type="checkbox"/> |
|  | No, not at all        | <input type="checkbox"/> |
| 9. I have been so unhappy that I have been crying    | Yes, most of the time | <input type="checkbox"/> |
|  | Yes, quite often      | <input type="checkbox"/> |
|  | Only occasionally     | <input type="checkbox"/> |
|  | No, never             | <input type="checkbox"/> |
| 10. The thought of harming myself has occurred to me | Yes, quite often      | <input type="checkbox"/> |
|  | Sometimes             | <input type="checkbox"/> |
|  | Hardly ever           | <input type="checkbox"/> |
|  | Never                 | <input type="checkbox"/> |

**1.6: Narrative Interview**

Just to remind you, this study is exploring the relationship between childbirth experiences and the mother –infant relationship. In this interview you will be asked to share your childbirth story starting from the time you found out you were pregnant to the time you were discharged from Mulago hospital following birth. **There is no right or wrong response.** What is most important and of interest to me is your personal story of how you experienced pregnancy and childbirth.

**Instruction**

Please tell me your story about having this baby from the time you found out you were pregnant, through pregnancy, labour, admission at Mulago hospital, delivery and the entire time you spent in the hospital before discharge.

### Appendix 3: Data collection tools (Luganda Version)



Ennaku z'omwezi: ..... No. ....

Embeera z'okuzaala n'enkolagana wakati wa maama n'omwana mu Uganda

Nkujukiza nti okunoonyereza kuno kugenderera okwe enkolagana wakati w'ebyo maama byayitamu mu kuzaala n'e nkolagana wakati we n'omwana mu Uganda. Okunoonyereza kusuubirwa okutwala wakati w'esawa emu n'ebiri. Tujja kutandika n'akatambi ko ng'onnyumaamu n'omwana wo nga bwewandikoze bulijjo. Kino kijja kudirirwa ebibuuzo ku byewayitamu mukuzaala omwana wo n'okunoonyereza okulala ku bikukwatako n'embeera y'obulamu bwo. Ojja kuweebwa omukisa okwetaba mu kukwatibwa ku katambi k'amaloboosi ku bikwata ku byewayitamu ng'ozala. Okwetabamu kwo mu musomo guno kwa kyeyagalire era oli wa ddembe okwekyusa saawa yonna mubanga ery'emyezi ebiri nga okubuuzibwa kuwedde, awatali kuwa nsonga yonna. Okuddamu kwo eri ebibuuzo bino wamanga kujja kusiimibwa nyo. Ebitundu ebimu mu kubuuzibwa kuno bijja kubeera n'okulungamizibwa okwenjawulo.

#### 1.1 Enkolagana wakati wa maama n'omwana. Akatambi ak'ebifaanayi.

##### Ebiragiro.

Nkusaba onyumye n'omwana wo nga bwewandikoze bulijjo. Singa omwana wo yekyawa nga akatambi kakyakwatibwa, wulira eddembe okukola ekintu kyona okumuzza.

#### 1.2 Entegeera y'omuntu ku by'okuzaala

Nga.....walumwa ebisa n'ozala mu ddwaliro lye'Mulago mu woodi y'abayisiddwa obubi. Wammanga waliwo olukalala lw'ebyo ebyogerwa abantu abayiseko mu mbeera enzibu mu bulamu bwabwe. Kebera buli kimu mu lukalala luno, ng'olaga mirundi emeka ebyogerwa bino lwe byali bibadde ebituufu gyoli mu nnaku omusanvu eziyise. Singa kisangibwa nga tebikutuukangako, koloboza/kuba omusittale wansi wa "Ssi n'akamu".

	Ebyogerwa	Ssi n'akamu	Tebitera	Ebiseera ebimu	Bitera
1.	Okujjukizibwa kwonna kukomyaawo bweneewuliranga luli.				
2.	Nalina obuzibu bw'okusigala nga neebasse.				
3.	Ebintu ebirala byandeeteranga okukirowozaako				
4.	Navanga mu mbeera nensunguwala				
5.	Nneekumanga obutava mumbeera nga nkirowozezaako oba nga nzijjukizibwa				
6.	Nakirowozangako nga sigenderedde				
7.	Nawuliranga nga ekitabangawo oba ekitaliwo				
8.	Neekumiranga wala n'ebyo ebinzijjukiza				
9.	Ebifaananyi ebikikwatako byanzigiranga mu birowozo				
10.	Nalinga maguka nyo era nga neekanga				
11.	Nagezangako obutakirowozaako.				

12.	Nnali nkimanyi nti nali nkyalina engeri gyenneewulira ku kyo gyesaakolako				
13.	Enneewulira yange ku kyo yasanyalala				
14.	Neesanga nga mpulira nga bwenali mu kiseera kiri				
15.	Nafunanga obuzibu okufuna otulo				
16.	Nakiwuliranga nnyo				
17.	Nagezaako nyo okukijja mu biwoozo				
18.	Nalina obuzibu okusaayo omwoyo ku kintu				
19.	Bwenakijjukiranga kyandeeteranga okubaako byenkola				
20.	Nakirootanga				
21.	Neekengeranga nga bweneekuuma				
22.	Nagezangako nyo obutakyogerako				

### 1.3 Ebikukwatako

Juzaamu ebiddirira mu kasanduuke k'ekyo ekisinga okujja mu mbeerayo oba owandiike ku musittale

- Disitulikiti gy'obeera: Kampala  Mukono  Wakiso  Mpigi  Luweero
- Kyenkana ki okuvawano okutuuka e Mulago? 0-5KM  6-10KM  11-15KM   
16KM-20KM  21KM-25KM  26KM-30KM
- Ennaku z'omwezi omwana lwe yazaalibwa? .....
- Ekikula ky'omwana Mulenzi  Muwala
- Obuzito bw'omwana mu kilo nga yakazaalibwa .....
- Omwana wa myezi emeka kati? .....
- Olina ky'otya ng'okyeerariikirila ku mbeera y'obulamu bw'omwana wo?  
Yee  Nedda
- Maama yazaalibwa ddi? .....
- Obukulu bwa maama ekiseera weyazaalira .....
- Embeera y'obufumbo: Toli mufumbo  Namwandu  Mwayawukana   
Oli mufumbo/ Olin agw'obeera naye
- Bw'oba mufumbo oba ng'olina gwobeera naye , olina bajjabo? Yee  Nedda
- Bw'oba ozeemu wewawo mu 11 wagulu,bajjabo bali bameka?.....
- Eddiini ya maama.....
- Edaala ly'obuyigirize maama lyeyali atuuseeko.  
 Tewali  Pulayimale  Siniya 4  Siniya 6

Yunivaasite  Tendekero

15. Okola?  Yee  Nedda

16. Bw'oba ozeemu "yee" ku namba 15 wagulu, Okola mulimu ki?

17. Ensako y'ensimbi ezisinga okuwanirira ozijja muki? .....

18. Olina abaana bamekka? .....

19. Omuwendo gw'abantu b'osula nabo mu nju gwenkana ki?.....

20. Oli wa nzaalo mekka ng'ono omwana tomugasseeko? .....

21. Bw'oba wazaalako,enzaalo endala ozoogerako ki?

22. Taata w'omwana wo wa myaka emeka? .....

23. Edaala ly'obuyigirize taata w' omwana lyeyali atuuseeko .....

24. Taata w'omwana wo akola mulimu ki? .....

25. Obeera ne taata w'omwana wo?

Yee  Nedda

26. Taata w'omwana wo atera okubeerako n'omwana?

Yee  Nedda

27. Bwoba otonyezza nedda mu (26) wagulu, nnyonyola lwaki?

28. Wamala banga ki ng'olumwa omwana ono?

29. Okuzaala omwanawo kwali kutya?

Yayita wansi  Bannongoosa mu bukyala

30. Bwoba walaongoosebwa, laga oba wakyetegekera oba kyakugwako bugwi.

Nakyetekera  Kyagwawo

31. Wafunayo ekizibu kyonna ng'ozaala? Yee  Nedda

32. Bw'oba ozzeemu "yee" mu 31, kiriwa kubino kye wayitamu?

Okuvaamu omusaayi omungi  Okulwawo nga numwa

- Okunnongoosa mu buliwo  Okuyulika mu bukyala
- Natya okufa  Omwana omulwade w'omutima
- Omwana yali bukiika  Nawulira obukoowu
- Omwana okugenda mu nseke

Ebirala.....

33. Mu lunyiriri lumu okulumwa n'okuzaala kwo byali bitya?

.....

34. Wandi nnyonyodde otya kyewayitamu mu ddwalira e Mulago mu kiseera ky'okuzaala?

Kirungi nnyo  Kirungi  Bwekityo  Kibi  Kibi nnyo

35. Wandinnyonyodde otya eby'okuzaala kwo okutwaliza awamu ng'otandikira ku lunaku lwe

kizuula nti oli lubuto okutuuka ku ssaawa ey'okukusiibula mu ddwaliro ng'omaze okuzaala.

Kirungi nnyo  Kirungi  Bwekityo  Kibi  Kibi nnyo

**Laga bw'okkiriziganya n'ebiddako ng'oteeka enkulungo ku bino.**

1=Sikkiriziganya n'akatono 2=Sikiriziganya 3=Si ddala 4=Nzikiriziganya 5= Nzikiriziganya nyo  
6=Kikumi ku kikumi

1.	Okutwaliza awamu ndi muntu wa nsa	1	2	3	4	5	6
2.	Ndi mwangu okutegeera okusinga abantu abalala	1	2	3	4	5	6
3.	Ndi mugumu nti abantu abalala bagenda kumbeerawo nga mbeetaaga	1	2	3	4	5	6
4.	Nfunda n'okwesiga kyensobola okusinga abalala	1	2	3	4	5	6
5.	Nfunda n'okubeera nzekka	1	2	3	4	5	6
6.	Okusaba obuyambi kwe kukkiriza nti walemwa	1	2	3	4	5	6
7.	Omuntu byafunye bye biramula ensa muyye.	1	2	3	4	5	6
8.	Okufuna ebintu kikulu okusinga okuzimba enkolagana	1	2	3	4	5	6
9.	Okukola ky'osinga kikulu okusinga okubeera n'abalala	1	2	3	4	5	6
10.	Bw'oba olina omulimu ogw'okukola, olina okugukola ssi nsonga ani alumizibwa	1	2	3	4	5	6
11.	Abantu abalala okunjagala kikulu gyendi	1	2	3	4	5	6
12.	Kikulu gyendi okwewala okukola ebintu abalala bye batayagala	1	2	3	4	5	6
13.	Nkaluubirizibwa okusalawo okujjako nga mmanyi abalala kye balowooza	1	2	3	4	5	6
14.	Enkolagana yange n'abalala okutwaliza awamu ya bukuusa	1	2	3	4	5	6
15.	Ebiseera ebimu ndowooza nti sirinaamu kalungi n'akatono	1	2	3	4	5	6
16.	Nkaluubirizibwa okwesiga abantu balala	1	2	3	4	5	6
17.	Nkaluubirizibwa okwesigama ku balala	1	2	3	4	5	6

18	Nneesanga ng'abalala tebayanguyirwa kunsemerera nga bwe nندییادد.	1	2	3	4	5	6
19	Nkinsanga nga kyangu okubeera abantu abalala ku lusegere.	1	2	3	4	5	6
20	Nyanguyirwa okwesiga abalala	1	2	3	4	5	6
21	Mpulira bulungi nga nneesigamye ku bantu abalala	1	2	3	4	5	6
22	Nneralikirira nti abalala tebajja kunfaako nga bwe mbafaako.	1	2	3	4	5	6
23	Nneelarikirira abantu okunsemerera enyo	1	2	3	4	5	6
24	Nneralikirira nti ssijja kwenkana n'abantu abalala	1	2	3	4	5	6
25	Mpulira bulala abantu okunsemerera ennyo	1	2	3	4	5	6
26	Newankubadde njagala okusemerera abantu abalala, tekinyanguyira.	1	2	3	4	5	6
27	Nnewunya lwaki abantu bandiyagadde okukolagana nange	1	2	3	4	5	6
28	Kikulu nnyo gyendi okubeera n'enkolagana ey'okulusegere.	1	2	3	4	5	6
29	Nneeraliikirira nnyo enkolagana zange	1	2	3	4	5	6
30	Nneelariikirira bwennandibadde nga tewali muntu anjagala	1	2	3	4	5	6
31	Mpulira nga ndi mugumu ku ky'okukolagana n'abalala.	1	2	3	4	5	6
32	Ntera okuwulira ng'atafiriddwako oba ayabuliddwa.	1	2	3	4	5	6
33	Ntera okweraliikirira nti ssijja mu balala	1	2	3	4	5	6
34	Abantu abalala balina ebizibu byabwe n'olw'ekyo ssi bataataganya na byange.	1	2	3	4	5	6
35	Bwenjogera ku bizibu byange n'abalala okutwalira awamu nsonyiwala oba mbuguyala.	1	2	3	4	5	6
36	Ndi mutawaamu nnyo n'ebirala nti ssisobola kuteeka biseera bimala mu nkolagana n'abalala.	1	2	3	4	5	6
37	Bwewabaawo ekintawanya abalala bakikenga era bafaayo.	1	2	3	4	5	6
38	Ndimugumu nti abantu abalala bajja kunjagala era bampa ekitiibwa.	1	2	3	4	5	6
39	Malibwamu amaanyi bwemba ssisobola kufuna balala nga mbeetaaga.	1	2	3	4	5	6
40	Abantu abalala batera okummalamu amaanyi.	1	2	3	4	5	6

### 1.5 Ekipima okumalibwamu amaanyi oluvannyuma lw'okuzaala ekya Edinburgh (EPDS)

Nga bwe wakazaala, twandyagadde okumanya bw'owulira. Koloboza ku ky'okuddamu okutegeeza bw'obadde owulira mu naku 7 eziyise emabega, so ssi leero lwoka.

1. Nsobodde okuseka n'okulaba ebintu mu ngeri ennyuma.

Nnyo, nga era bwe nnakikolanga

Ssi nyo nnyini

Era ssi nnyo

Ssin'akatono.

2. Nneesunze okunyumirwa enyo ebintu.

Ssi nnyo nga kyennakolanga

Kitono okusenziira ku kyenamannyira

Kitono ddala okusenziira ku kyenamannyira

- Ssi naakatono
3. Nnenenyezza ekiteetagisa ng'ebintu bisobye
- Wewawo emirundi egisinga
- Wewawo emirundi egimu
- Ssi nnyo
- Nedda tekibangawo
4. Mbadde nkengeterelwa era nneeralikira awatali nsonga
- Nedda , tekibangawo
- Tekibangawo
- Wewawo emirundi egimu
- Wewawo emirundi mingi ddala
5. Mpulidde okutya oba okubuguutana awatali nsonga.
- Wewawo, emirundi mingi ddala
- Wewawo, oluusi
- Nedda, ssi nnyo
- Nedda ssi na'akamu
6. Ebintu bibadde bimpitiriddeko
- Wewawo ebiseera ebisinga mbadde nemererwa
- Wewawo ebiseera ebisinga mbadde syitamu nga bwekyandibadde
- Nedda, emirundi egisinga nkiyitamu bulungi
- Nedda , mbadde nsobolera ddala nga bulijjo
7. Mpulidde nga nnakuwala era nga nfuna obuzibu okwebaka
- Yee, ebiseera ebisinga
- Yee, oluusi
- Ssi nnyo
- Nedda, ssi naakamu
8. Mbadde munakuwavu.
- Yee, ebiseera ebisinga
- Yee, emirundi mingi ddala
- Ssi nnyo
- Nedda, ssi na'akamu
9. Mbaddenga munakuwavu nyo era mbadde nkaaba
- Yee, ebisera ebisinga
- Yee, emirundi mingi
- Lumu na lumu
- Nedda, ssi na'akamu
10. Ekirowoozo eky'okwekolako obulabe kyanzijirako

Yye, emirundi mingi

Ebiseera ebimu

Tekinzijiranga

Tekinzijirangako

#### **1.6: Okunyonyola ebibuuzibwa**

Okukujukizaako, guno omusomo gukwata ku maama byayitamu ng'azaala n'ekolagana wakati wa maama n'omwana. Mu kwebuuzakuno ojja kusabibwa okugabana byewayitamu ng'okuva lwe wa kizuula nti oli lubuto okutuusa lwewa ssibulwa okuva mu ddwaliro e Mulago nebyadirira okuzaala. Tewali kyakuddamu kituufu oba kikyamu esinga obukulu era nze kyenjagala byebyo bye wayitamu bwe walina olubuto n'okuzaala.

#### **Ekiragiro**

Nsaba ombuulire embooji ey'okufuna omwana ono, okuva lwe wazuula nti oli lubuto okuyita mu mu lubuto, okulumwa, okuweebwa ekitanda e Mulago muddwaliro, okuzaala n'ekiseera kyonna kyewamala muddwaliro nga tebannaba kusiibula.

Appendix 4: Emotional Availability Completed Form

EA Scoring Form ID: 01

Sensitivity									
Clinical Screener	Affect	Clarity of Perceptions	Timing	Flexibility	Acceptance	Amount of Interaction	Conflict	Total Score	Direct score
71-80	5	4	2	1	1	1	3	17	4
Structuring									
Guidance	Success	Amount of Structuring	Limit Setting	Firm in Pressure	(Non)verbal structuring	Peer vs. Adult	Total score	Direct score	
4	1	1	1	3	2	1	13	3	
Non-intrusiveness									
Following C leads	Ports of entry	Commands	Talking	Didactic Teaching	Interferences	Feel Intrusive	Total score	Direct score	
5	5	3	1	1	2	1	18	4	
Non-hostility									
Lack negativity	Lack ridiculing	Lack threats of separation	Loose cool	Frightening	Silence	Themes	Total score	Direct score	
6	6	3	3	3	1	3	25	6	
Child Responsiveness									
Affect	Responsiveness	Autonomy	Physical Positioning	Role-reversal	Lack of avoidance	Task oriented	Total score	Direct score	
3	1	1	2	3	2	1	13	3	
Child Involvement									
Simple Initiative	Elaborative Initiative	Use of Adult	Lack of over-involvement	Eye contact	Body positioning	Verbal involvement	Total score	Direct score	
1	1	1	3	1	2	1	10	2.5	

? Disability of baby.  
 Mother seems to be  
 inattentive but the baby is unresponsive and unresponsive to mother.

## Appendix 5: EA certificate of reliability

### EMOTIONAL AVAILABILITY (EA)<sup>®</sup> Scales CERTIFICATE OF RELIABILITY



(Level 1: BASIC)

In 2014, **SAMUEL OUMA** participated in an EA workshop (no less than 24 hours), completed the criterion/reliability cases for the 4th edition of the Emotional Availability (EA) Scales, and has achieved an acceptable level of reliability with our laboratory for a period of two years from the date below. This certificate does not give permission to train any others or to share/show any videotapes from Biringen. Re-activation of the certificate is recommended in 2 years, with the potential to move to a higher skill of use (Level 2), based on challenging cases and our viewing/scoring of a small number of your cases. The process will involve a re-test and a review of the system to ensure continued and adequate use of the assessment. This certification allows the investigator to score cases in one's own studies or projects only (or not for a fee in others' projects/studies). BASIC indicates that the training has been on the EA Scales only.

A handwritten signature in black ink, appearing to be 'Zeynep Biringen', written in a cursive style.

Zeynep Biringen, Ph.D.

Licensed Child Psychologist, State of Colorado  
<http://www.emotionalavailability.com>; [zbiringen@yahoo.com](mailto:zbiringen@yahoo.com)  
Date: September 26, 2014

## Appendix 6: Sample structural narrative analysis

### ID4: Mai (Summarised Interview)

I was away from home for one month so when I came back the natural family planning which rhymes with consistence breast feeding of the baby had stopped working. And that is how I got pregnant. I first feared because this one was still very young and I knew that pregnancy would also be demanding and even after pregnancy I knew I would have two babies that would all need my attention. But later I knew it was God's plan and I gathered myself. I knew I had to face the truth.

All was well till four months. Then at the end of four months, I (.) I hosted visitors meaning that I had to have some tiresome work in my house. So the following day I had (.) I, I saw some blood so that means that there had come a problem (.). I went to the hospital and then proceeded to my bigger sister's house where I spent the rest of the pregnancy time. But the blood did not stop. It occasionally came and I would run in and out of the hospital. I visit Mulago for all my pregnancy needs unless I am not in Kampala. So I would be in and out of the hospital quite frequently until it was time.

It was diagnosed as placenta previa so the frequent shocks led to bleeding. I lived with it. I thought it would improve because sometimes it does move back to its normal position or it leaves the canal and I could easily be able to deliver but it did not happen. I was hopeful until the very last scan. A week before my due date the waters broke at night. Then I ran immediately to the hospital. That very night I spent the night in Mulago but there was no scan at that time until morning. I went to the scan. And the attendant told me that now at that time the previa was no longer the worry but the loss of the water. So the emergency now came from the loss of the water although the previa was also still a problem. I was anxious about when the operation would be carried out because I knew I had two problems which called for a caesarean operation. I had first feared. The usual talk that when you get a caesarean operation it means you are lame, you are weaker, you can no longer do your duties as before. What if you die in theatre and the rest of those things? Those are thoughts I was having. But as time passed I got stronger and I knew that I had to face the truth. It was around 9 am. So I waited for the doctors to come on the ward. I showed them the new scan. They told me that I had to wait for the doctors who work in theatre to come. So I waited.

I saw some patients taken to theatre (...) one of them was actually badly off than I because she would die because the pain. Everywhere you would touch would feel so painful. (...) some consultant (doctor) came to check on his team on the ward, he found that one alarming. He worked on that and we didn't see him again. So I was like may be if he appears probably I can also be among those one he chooses again. But even when he did not come I was hopeful and indeed when that day passed and the night came they kept choosing until they reached me. A doctor from theatre later told me that I could eat because they were not taking me. I told him, doctor I cannot eat, they stopped me from eating since morning so I cannot eat at that time even if they would not to work on me that night probably they would work on me the following morning.

But I had some friend on (...) she works quite far but within Mulago so she came and talked to this doctor about me (...) she begged the doctor to take me, explaining how the baby had lost water since last night and it was another night so the doctor should consider me. So, I think they agreed between themselves as colleagues and this doctor agreed to take me on. And shortly the doctor told me to (...). In the meantime, my friend prepared me even before this doctor came. She had told me what I had to go with in theatre. She had fixed the cannula. She had told me whatever I needed for theatre. So I was almost ready. In minutes I was in the theatre. And good enough I would still walk by myself. I walked there myself and I waited (...).

The moment the people they were working on were done, I was asked to get on the bed as the team in theatre got ready. When they were ready I was asked to enter. Nobody bypassed me or got in or sort of

things when I had been there. They worked on me. At that time, I had no more fear of death and the rest of those things. But I don't know how the theatre operates. That theatre! They fixed for me erm erm normal saline but some of it was quite cold and I would shake from the chest upwards but not up to the neck and the head. But here {points} at the chest I would feel quite too cold and shiver then downwards I would feel too numb and too heavy. So I asked this sister, I was like, sister this water is damn cold, I am dying...as I would feel (...) in a few minutes she fixed some warm water. So it was like that because both hands are fixed. They fixed both hands (...) So I was there.

As I was still shivering I felt them fighting to pull out some stuff from the stomach. Then the sister told me that now they are pulling out your baby. Shortly after that I had the baby screaming, crying. I could no longer remember the shivers, the death, and anything. I was just so happy because the baby was screaming, crying. Then shortly after that some other sister came took me through the rituals of recognising my baby. I responded but of course with shivers. And they took him away for cleaning. Then at that time they worked to completion. I could feel the sutures but not the pain. Then I would also feel them put the plaster. Erm I had no problem there since I had known that they would cut me to get out the baby.

Now when the baby had come the journey was half covered. All I was waiting for was to get out of there. I almost asked them if I could go {laughs} as if, as if I am part of, of also those people working on myself. But I was patient enough. They moved me wherever they wanted and finally to another bed to get outside. One doctor was quite happy with everything and he was like this is a very strong boy, you call him Benjamin {laughs}. Other doctor was like this is a Muslim. The one you are telling to call him Benjamin is a Muslim {still laughing}. Probably one on the team was a Muslim. He was quick to notice that Benjamin is Bin Amin in Islam. (...) So this was quite quick to say may be he is Bin Amin but the Benjamin doesn't work with her and we were all just laughing. I was still shivering. It was quite a happy experience. I was worked on well. I didn't get any problem. Erm and even on the ward I didn't spend there much time after that.

When I got out, remember they worked me until midnight so I got out, I got out and waited for that short time. I had my sister on ward and that health practitioner friend who helped me. They were waiting for me so they slept in shifts (...). So in the morning it was just flocking visitors (...). My child was alive, I was alive. And at time there is no much pain. I slowly regained senses in my legs with support (...) if you want to lift a leg ask them where you want to put the leg. You feel the leg is as big as a house. You can't lift so they were moving me until around 10 in the morning when I would push my leg like that. Before that I didn't feel anything. I just push it there, let it fall there, let it stand there like that forcefully such that I could gain some strength.

And after that I was on the ward. Everything was moving well. I got medicine I would swallow. I didn't have any other problem. We were there many mothers with our children and we were okay. At that time, I didn't feel much pain and neither did see others in much pain, no one lost their children. (...) we were all fine. OK, each mother had her pain in her own form but at least we each had our babies. I didn't see much hurt around that place so we were there until we were discharged. I was discharged on the 15<sup>th</sup> with more medicine. And all went well.

Then from there we came home. Erm we first went to my bigger sister's house where I had been during pregnancy because first (...) I needed that care so I went to her house. They gave me that care for about four months then I went back to my house still without a maid but a week later we got a maid. The family is adjusting well to a new member.

**ID4: Mai (Interpreted Interview)**

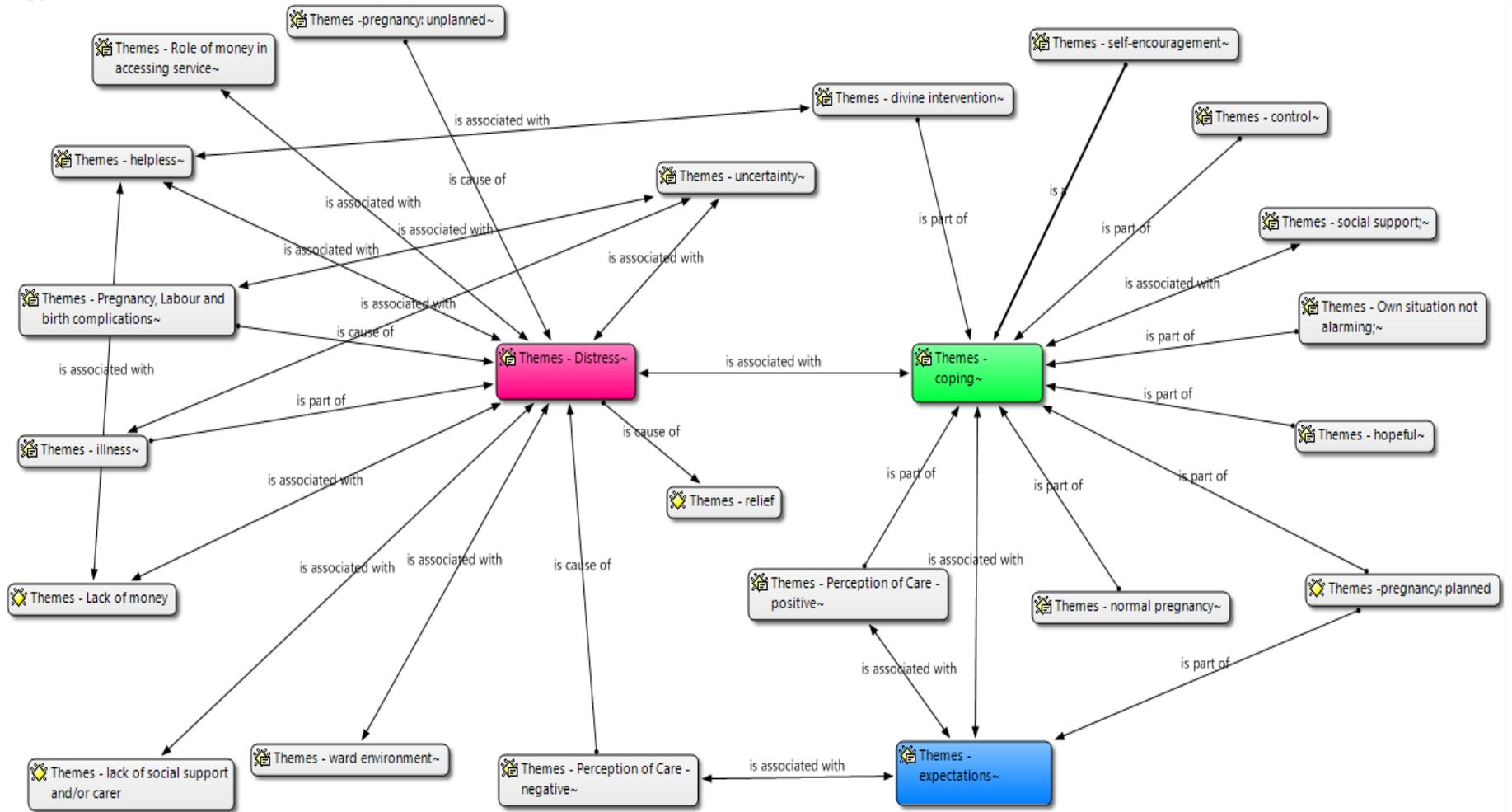
Narrative tone is the most pervasive feature of a narrative appearing in form of both content and structure. Mai's childbirth experiences can be summarised as predominantly optimistic in tone despite her initial fears. Mai's expectations possibly due to her age (35) and five previous pregnancy experiences and as a working mother heightened her fears about unplanned pregnancy and birth. But Mai's own commitment, "[...] I had to face the truth" and acceptance of pregnancy as God's plan for her helped her to cope.

Mai's pregnancy was well till she suffered distress attributed to tiresome work at four months. The spotting experienced a day after hosting visitors was the start of recurrent pregnancy problems and later culminating into labour complications. Mai's social networks especially her sister and the positive care received during her regular visits to the hospital ensured she remained hopeful. "I thought it would improve because sometimes it does move back to its normal position or it leaves the canal and I could easily be able to deliver but it did not happen. I was hopeful until the very last scan". Mai's hope in the medical interventions was at hand when her waters broke unexpectedly a week before her due date as "[...] I ran immediately to the hospital". Mai describes her helplessness and anxiety as she thought about when the operation "because I knew I had two problems which called for a caesarean operation". Whereas Mai could not prevent the thought that she could die in theatre and other cultural views about caesarean births, she had to encourage herself "as time passed and I got stronger and I knew that I had to face the truth" similar to how she had coped with unplanned pregnancy. Despite the delays in getting medical intervention, Mai's evaluation of her own situation as not alarming kept her hopeful as she waited to be taken to theatre.

As Mai's expectations for theatre were about to fade, her personal acquaintance, who also worked in the same hospital ensured that Mai's helplessness did not last as a friend soon prepared her and secured a slot for theatre. The support and care enroute theatre and during the operation enhanced her perception of care as positive and relief from fears associated with the operation. Although the fears returned during the operation, the nurse quickly intervened when Mai asked for help.

The events that followed were characterised by shared happiness experienced by Mai and attending medical staff and relief as "[...] I heard the baby screaming, crying. I could no longer remember the shivers, the death, and anything. I was just so happy because the baby was screaming, crying". In the midst of excitement and relief, Mai's expectations of what was to come were clear as "[...] the journey was half covered". The imagery of helplessness painted by "you feel the leg as big as a house" enables appreciation of impact of childbirth experiences on the mother. Mai's constant comparison of her own situation with that of other mothers made possible in part due to her education level (University) also helped her cope. "[...] each mother had her pain in her own form but at least we each had our babies. I didn't see much hurt around that place so we were there until we were discharged". The social support and medical attention received on the ward and after discharge not only helped Mai deal with her helplessness but also enhanced her perception of care as positive. " I was discharged on the 15<sup>th</sup> with more medicine. And all went well".

Appendix 7: Network of themes emerging from women's narratives of childbirth



## Appendix 8: Pilot testing measures

### **Semi-structured Interview for Piloting Translated Questionnaires**

1. Are there any particular questions/items you would have worded differently?
2. Was there anything in particular that you found difficult to answer?
3. Did you find anything confusing in the questionnaires?
4. Did you find any difficulty understanding specific items or parts of the questionnaires?
5. Are there questions/items you found upsetting/offensive?

Applicant: Samuel Ouma  
Supervisor: Katherine Froggart  
Department: DHR

11 November 2015

Dear Samuel,

**Re: Childbirth Experiences and Mother-Infant Relationships**

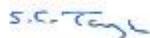
Thank you for submitting your amendment for the above project for review by the Faculty of Health and Medicine Research Ethics Committee (FHMREC). The amendment was recommended for approval by FHMREC, and on behalf of the Chair of the University Research Ethics Committee (UREC), I can confirm that approval has been granted for this amendment.

As principal investigator your responsibilities include:

- ensuring that (where applicable) all the necessary legal and regulatory requirements in order to conduct the research are met, and the necessary licenses and approvals have been obtained;
- reporting any ethics-related issues that occur during the course of the research or arising from the research to the Research Ethics Officer (e.g. unforeseen ethical issues, complaints about the conduct of the research, adverse reactions such as extreme distress);
- submitting details of proposed substantive amendments to the protocol to the Research Ethics Officer for approval.

Please contact the Research Ethics Officer, Debbie Knight (01542 592605 [ethics@lancaster.ac.uk](mailto:ethics@lancaster.ac.uk)) if you have any queries or require further information.

Yours sincerely,



Sarah Taylor  
Secretary, University Research Ethics Committee

Cc: Fiona Aiken, University Secretary, Professor Roger Pickup (Chair, FHMREC);  
Prof Stephen Decent (Chair, UREC).

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## Appendix 10: Tertiary Hospital Ethics Approval

TELEPHONE: +256-415540081  
HOSPITAL,  
FAX: +256-414-5325591  
E-mail: [admin@mulago.or.ug](mailto:admin@mulago.or.ug)  
Website: [www.mulago.or.ug](http://www.mulago.or.ug)



██████████ NATIONAL REFERRAL

P.O. Box 7051  
KAMPALA, UGANDA

IN ANY CORRESPONDENCE ON THIS  
SUBJECT PLEASE QUOTE'S NO...

THE REPUBLIC OF UGANDA

3<sup>rd</sup> Mar, 2015.

Mr. Samuel Ouma  
Principal Investigator  
Lancaster University.

Dear Ouma.

**Re: Approval of Protocol MREC: 682: Childbirth Experiences and Mother- Infant Relationships.**

The ██████████ Hospital Research and Ethics Committee reviewed your proposal referenced above and hereby grant approval for the conduct of this study for a period of (1) year from 3<sup>rd</sup> Mar, 2015 to 2<sup>nd</sup> Mar, 2016.

This approval is subjected to the following conditions:

1. That the study site may be monitored by the Mulago research and ethics committee at any time.
2. That you will be abide by the regulations governing research in the country as set by the Ugandan National Council for Science and Technology including abiding to all reporting requirements for serious adverse events, unanticipated events and protocol violations.
3. That you will submit this approved protocol and all accompanying documents for approval to UNCST before starting the study. In case of studies involving drug and medical devices, approval must be obtained from the National Drug Authority before starting the study.
4. That no changes to the protocol and study documents will be implemented until they are reviewed and approved by the Mulago Research and Ethics Committee.
5. That you provide annual progressive reports and request for renewal of approval at least 60 days before expiry of the current approval.
6. That you provide an end of study report upon completion of the study including a summary of the results and any publications.

I wish you the best in this Endeavour.

DR. NAKWAGALA, FREDERICK NELSON  
CHAIRMAN ██████████ RESEARCH & ETHICS



Vision: "To be the leading centre of Health Care Services"

## Appendix 11: UNCST Ethics Approval



### Uganda National Council for Science and Technology (Established by Act of Parliament of the Republic of Uganda)

23 March 2015

Our Ref: SS 3733

Mr. Samuel Ouma  
Makerere University  
School of Psychology  
Kampala

Re: Research Approval: **Childbirth Experiences and Mother-Infant Relationships**

I am pleased to inform you that on **09/03/2015**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **09/03/2015 to 09/03/2016**.

Your research registration number with the UNCST is **SS 3733**. Please cite this number in all your future correspondences with UNCST in respect of the above research project.

As Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the research protocol or the consent form (where applicable) must be submitted to the designated local Institutional Review Committee (IRC) or Lead Agency for re-review and approval **prior** to the activation of the changes. UNCST must be notified of the approved changes within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local IRC for review with copies to the National Drug Authority.
4. Unanticipated problems involving risks to research subjects/participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST review.
5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.
6. A progress report must be submitted electronically to UNCST within four weeks after every 12 months. Failure to do so may result in termination of the research project.

Below is a list of documents approved with this application:

	Document Title	Language	Version	Version Date
1	Research Proposal	English	N/A	N/A
2	Data Collection tool	English, Luganda	N/A	N/A
3	Participant Information Sheet & Consent Forms	English, Luganda	N/A	N/A

Yours sincerely,

  
Leah N. Omongo  
For: Executive Secretary  
**UGANDA NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY**

cc: Chair, Mulago Hospital Research Ethics Committee, Kampala

#### LOCATION/CORRESPONDENCE

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P. O. Box 6884  
KAMPALA, UGANDA

#### COMMUNICATION

TEL: (256) 414 705500  
FAX: (256) 414-234579  
EMAIL: info@uncst.go.ug  
WEBSITE: <http://www.uncst.go.ug>

### Consent Form

#### Study Title: Childbirth Experiences and Mother –Infant Relationships

We are asking if you would like to take part in a research project to explore the relationship between women’s experiences of pregnancy, labour and birth and mother –infant interactions in a sample of Ugandan women.

Before you consent to participating in the study we ask that you read the participant information sheet and check each box below if you agree. If you have any questions or queries before signing the consent form please speak to the principal investigator, **Samuel Ouma**.

	<b>Please</b>
<b>initial</b>	
<b>each statement</b>	
1. I confirm that I have read the information sheet and fully understand what is expected of me within this study	<input type="checkbox"/>
2. I confirm that I have had the opportunity to ask any questions and to have them answered.	<input type="checkbox"/>
3. I understand that there will be a video recording of me interacting with my baby	<input type="checkbox"/>
4. I understand that I will be asked to fill a number of questionnaires	<input type="checkbox"/>
5. I understand that I might be asked to an interview which will be audio recorded and then made into an anonymised written transcript.	<input type="checkbox"/>
6. I understand that my responses to the questionnaires, audio and video recordings will be kept until the research project has been examined.	<input type="checkbox"/>
7. I understand that my participation is voluntary and that I am free to withdraw at any time up to two months without giving any reason, without my medical care or legal right being affected.	<input type="checkbox"/>
8. I understand that once my data have been anonymised and incorporated into themes it might not be possible for it to be withdrawn, though every attempt will be made to extract my data, up to two months after date of interview	<input type="checkbox"/>
9. I understand that the information from my video, survey, and interview will be pooled with other participants’ responses, anonymised and may be published	<input type="checkbox"/>
10. I consent to information and quotations from my video, survey, and interview being used in reports, conferences and training events.	<input type="checkbox"/>
11. I understand that any information I give will remain strictly confidential and anonymous unless it is thought that there is a risk of harm to myself or others, in which case the principal investigator may need to share this information with a member of your Local Council (LCI).	<input type="checkbox"/>
12. I consent to Lancaster University keeping written transcriptions of the video and interview for 10 years after the study has finished.	<input type="checkbox"/>
13. I consent to take part in the above study.	<input type="checkbox"/>

**Name of Participant** \_\_\_\_\_ **Signature** \_\_\_\_\_ **Date** \_\_\_\_\_

Name of Researcher \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_  
Appendix 12: Consent Form (Luganda Version)

### Consent Form

Omulamwa gw'omusomo: Ebiyitwamu mu kuzaala n'enkolagana wakati wa maama n'omwana

Obuuzibwa obanga wandiyagadde okwetaba mu kunoonyereza ku nkolagana wakati w'embeera y'olubuto, okulumwa, n'okuzaala n'enkolagana wakati wa maama n'omwana mu bakyaala abalondemu mu Uganda.

Nga tonnakhiriza kwetaba mu musomo guno osabibwa okusoma bino wamanga era ogolole mu kabokisi singa obeera okiriziganya n'ebyo ebiri mu statimenti ewandiikibwa. Bwoba olina ekibuuzo kyonna nga tonnasaako mukono, yogerako n'omunoonyereza omukulu mu kunoonyereza kuno, Samuel Ouma.

1. Nkakasa nti nsomye ebiwandiikibwa era ntegedde bulungi ebinsuubizibwamu mu musomo guno.

2. Nkakasa nti mpeebeebwa omukisa okubuuza n'okuddamu ebibuuzo.

3. Nkitededde nti wajja kubaawo okukwatibwa ku katambi nga nyumyamu n'omwana wange.

4. Nkitededde nti nja kubuuzibwa ebibuuzo ebiwerako.

5. Nkitededde nti akatambi k'edoboozi lyange kajja kukwatibwa era nekateebwa mu buwandiike ng'amanya gasirikiddwa.

6. Nkitededde nti okuddamu kwange, akatambi k'ebifaananyi n'edoboozi bijja kuterekebwa okutuusa nga okunoonyereza kwekeneenyazeddwa.

7. Nkitegeera nti okwetabamu kwange kwa kyeyagalire era nsobola okukivaamu esaawa

yonna mu banga ery'emyezi ebiri nga siwadde nsonga yonna, era awatali ddembe lyange kulinyirirwa.

8. Nkitegeera nti singa ebinkwatako bitwalibwa, nebisirikirwa era nebiteekebwa mu miramwa egy'enjawulo kiyinza obutasoboka kubijjajo, newankubadde buli kisoboka kijja kukolebwa okubijjajo mu banga ery'emyezi ebiri egiddirira okubuuzibwa.

9. Nkitegeera nti ebikwata ku katambi kange, okuonyereza, n'okubuuzibwa bijja kugatibwa kubizuulidwa eby'abalala amanya gasirikirwe era bifulumire mu byafaayo.

10. Nzikiriza nti ebinkwatako ebiri mu butambi, okuonyereza n'okubuuzibwa bisobola okukozesebwa mu zi alipoota, enkungaana n'emisomo egyenjajawulo.

11. Nkitegeera nti ekinkwatako kyonna kijja kusigala nga kya kyaama era nga amanya gange gasirikiddwa okujjako nga waliwo obulabe eri nze oba abalala obulengeddwa.

**Kino**

bwekibaawo omuonyereza omukulu akyogerako n'abaakakiiko ak'ekyalo.

12. Nzikiriza ettendekero lya Lancaster Universite okukuuma obutambi bw'ebinkwatako okumala ebbanga lya myaka kumi ng'okuonyereza kuwedde.

13. Nzikiriza okwetaba mu kunoonyereza kuno.

Amanya g'oyo eyetabye mu musomo: .....

Ekinkumu/ Omukono: ..... Ennaku z'omwezi: .....

Anoonyereza: ..... Omukono: ..... Ennaku z'omwezi: ..

## Appendix 13: Field assistant agreement

### Field Assistant Agreement

<b>Name of Study:</b>	<b>Childbirth Experiences and Mother-Infant Relationships in Uganda</b>
<b>Study PI:</b>	<b>Samuel Ouma</b>

In accordance with the Research Ethics Committee at Lancaster University (UREC), all participants in the above-named study are expected to be treated with dignity and any information gained through data collection or your interaction with the study participants shall not be shared with any third party.

Your roles as a field assistant will include:

- As a female field assistant your presence on the field team is expected to ensure a socially acceptable environment in the participant's home during data collection.
- Answering basic questions regarding the nature of the study including the reason for the study team visiting the participant's home. Technical issues related to the study will be handled by the PI.
- Operating the audio and video equipment during data collection
- You will not be directly involved in data elicitation. In the unlikely event that any study participant expresses discomfort with your presence during data collection you will be required to leave the immediate setting where data is being collected.

The position of field assistant is voluntary and does not carry remuneration. You have been selected because of your interest in the area of this study. On the days of data collection you will be provided with money for transport by public means and lunch at a rate agreed between you and the PI at the time of your selection for the position of Field Assistant.

By signing this document, you are agreeing to abide by the above roles and conditions, and ensuring that the dignity of the participants is maintained throughout the data collection period.

Your name (block capitals) NAJJENGO SHAMIMU

Your signature 

Date 27/10/2018

## Appendix 14: Confidentiality Agreement for Transcribing Interviews



### Confidentiality Agreement for the Transcription of Qualitative Data

<b>Name of Study:</b>	<b>Childbirth Experiences and Mother –Infant Relationships</b>
<b>Study PI:</b>	<b>Samuel Ouma</b>

In accordance with the Research Ethics Committee at Lancaster University (UREC), all participants in the above-named study are anonymised. Therefore, any personal information or any of the data generated or secured through transcription will not be disclosed to any third party.

By signing this document, you are agreeing:

- not to pass on, divulge or discuss the contents of the audio material provided to you for transcription to any third parties
- to ensure that material provided for transcription is held securely and can only be accessed via password on your local PC
- to return transcribed material to the research team when completed and do so when agreed in password protected files
- to destroy any audio and electronic files held by you and relevant to the above study at the earliest time possible after transcripts have been provided to the research team, or to return said audio files.

**Your name (block capitals)**

CAROL KISAKYE

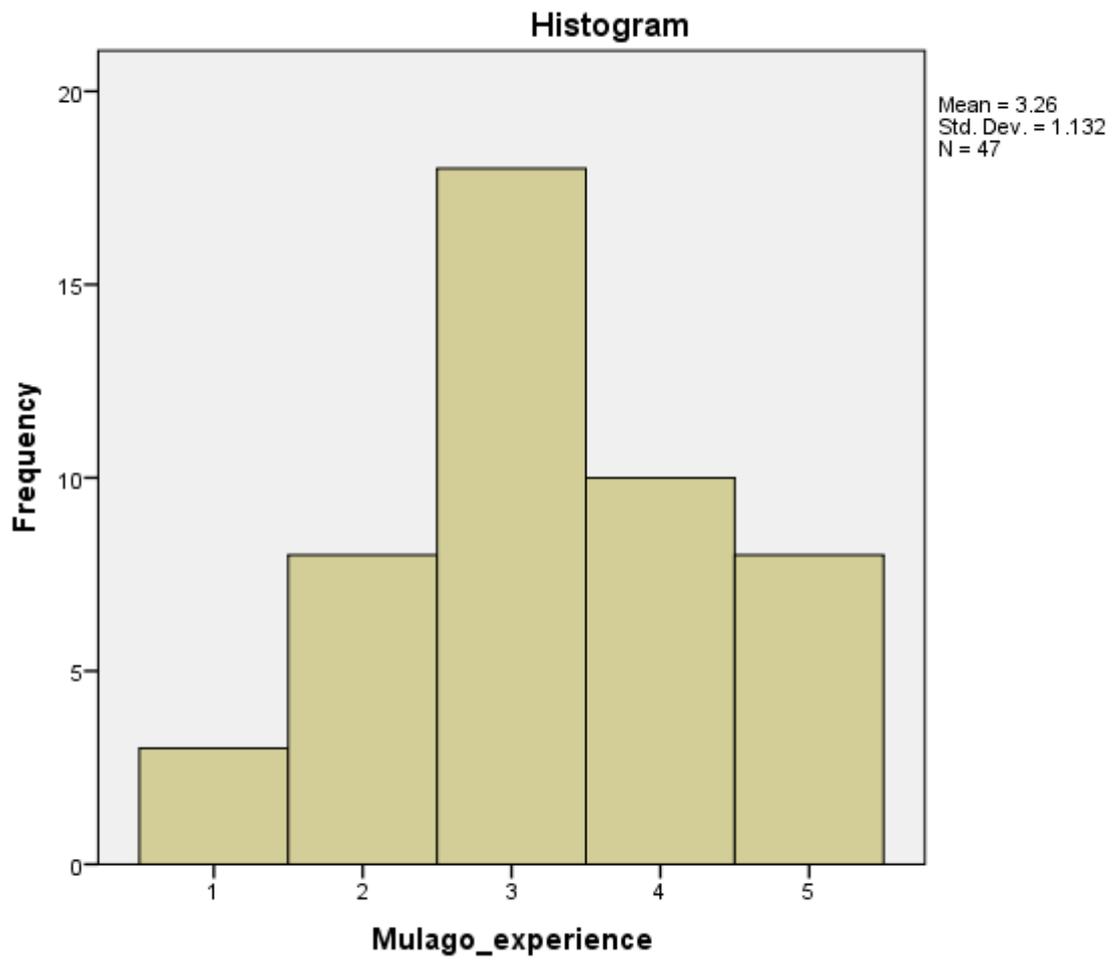
**Your signature**

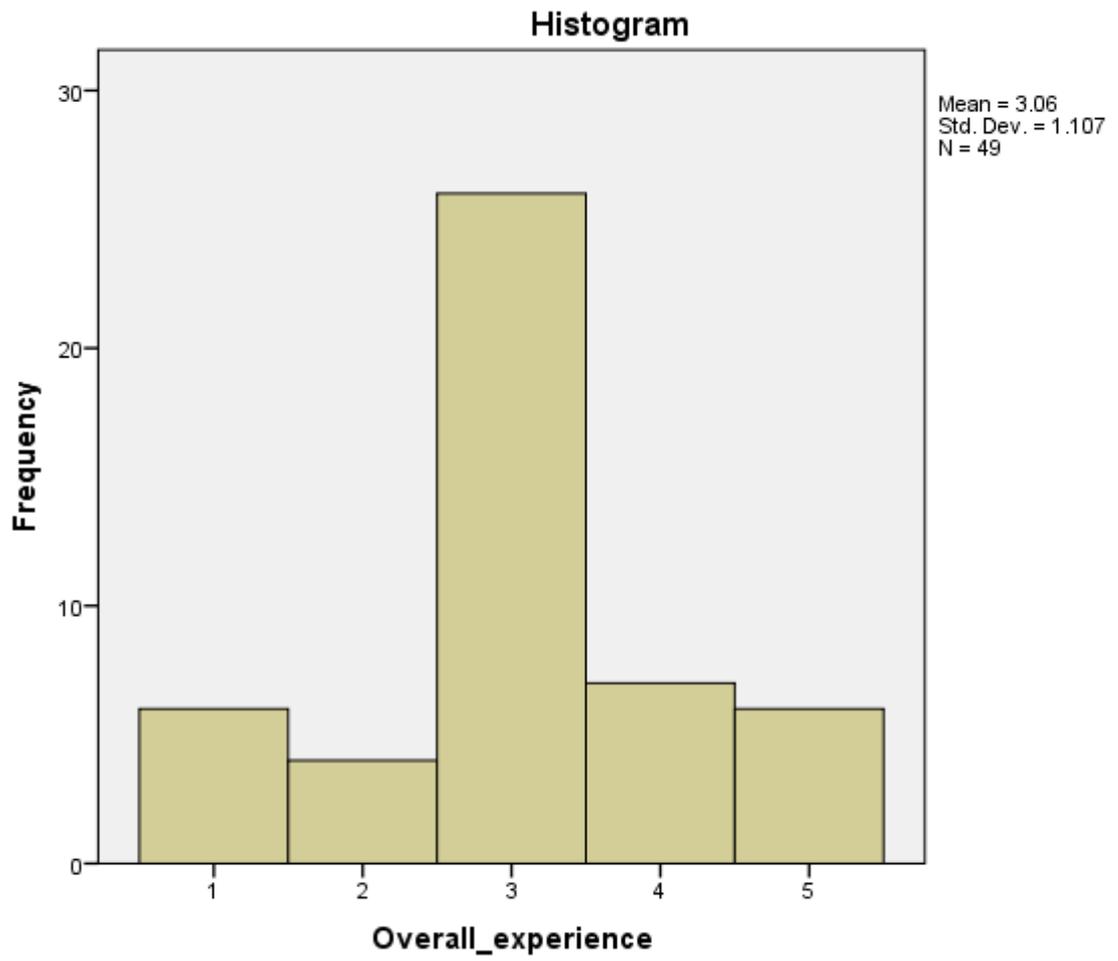
CKisakye

**Date**

15.11.2015

Appendix 15: Distribution of childbirth experiences





Appendix 16: Stem-and-leaf plots for IES-R subscales

**Hyperarousal**

Frequency	Stem & Leaf
13.00	0. 0000122333444
12.00	0. 566667788999
10.00	1. 0011122234
11.00	1. 55566667899
2.00	2. 00
1.00	2. 6

Stem width: 10.00  
Each leaf: 1 case(s)

Note: Mothers with total score above 8 = 27 (55%)

**Avoidance**

Frequency	Stem & Leaf
4.00	0. 0344
8.00	0. 66777899
14.00	1. 00111223344444
13.00	1. 5666777888999
7.00	2. 0000012
2.00	2. 58
1.00	Extremes ( $\geq 34$ )

Stem width: 10.00  
Each leaf: 1 case(s)

Note: Mothers with total score above 8 = 39 (80%)

**Intrusion**

Frequency	Stem & Leaf
.00	0.
5.00	0. 57899
4.00	1. 1334
8.00	1. 66677899
12.00	2. 000012233334
3.00	2. 579
6.00	3. 001244
6.00	3. 556679
4.00	4. 0334
1.00	4. 5

Stem width: 10.00  
Each leaf: 1 case(s)

Note: Mothers with total score above 8 = 46 (94%)

Appendix 17: Correlations between childbirth experiences, postnatal mental health symptoms and maternal attachment styles

Variable	EPDS	IES-R	ASQ conf.	ASQ disc.	ASQ need	ASQ preoc.	ASQ relat.
EPDS	1	.452**	-.219	.326*	.358*	.441**	.447**
IES-R	.452**	1	-.080	.252	.308*	.332*	.235
Overall ex.	.142	-.071	-.112	-.075	-.277	-.170	-.346*
Hospital ex.	.201	.213	-.004	-.290*	-.102	-.214	-.103

\*p < .05, \*\*p < .01. Overall ex. = Overall childbirth experiences, Hospital ex. = Hospital experiences of childbirth