Doctoral Thesis

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Doctorate in Clinical Psychology

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Psychological Safety: Exploring NHS organisational factors and the experiences of operating theatre teams.

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Statement of total word count for text

Section	Main Text	Appendices (including tables, figures, references	Total
Thesis Abstract	273	-	273
Literature Review	6,770	3,732	10,502
Research Paper	7,998	2,047	10,045
Critical Appraisal	3,473	-	3,473
Ethics Proposal	5,493	7,493	12,986
Total	24,007	13,272	37,279

Thesis Abstract

This thesis comprises three papers: a systematic literature review with thematic synthesis, a research study, and a critical appraisal of the research.

In section one, the literature review, 18 research papers are analysed through thematic synthesis to examine the organisational factors within the NHS which impact psychological safety. NHS policies recommend having psychologically safe workplaces as they improve patient safety. The effects of organisational factors on psychological safety are unclear and understanding their impact can influence the effectiveness of future policies and interventions aiming to improve psychological safety. Four key themes were identified 1) organisational environment; 2) organisational structure; 3) organisational resource; and 4) organisational attitude which impact psychological safety. The clear identification of organisational factors in staffs' experience of psychological safety must be considered in future NHS policy.

In section two, the empirical paper, 11 semi-structured interviews with NHS operating theatre staff were conducted in line with grounded theory methodology and a model of understanding how psychological safety within NHS operating theatres was formed. The findings outline interacting factors at the individual, team, and organisational level which consider the impact of hierarchy, learning and relationships on the team being perceived as good. In addition, it offers an understanding of how patient safety and governance impact psychological safety within the operating theatre. The study suggests a need for NHS policy to consider the processes involved in improving psychological safety of staff.

In section three, the critical appraisal, a summary of the research findings is presented along with personal reflections on the research process. This section

includes consideration of the research findings within the wider context and offers

recommendations for future research.

Declaration

This thesis comprises of research submitted in October 2023 as a partial fulfilment of

the requirements for the Doctorate in Clinical Psychology Programme at the Division

of Health Research, Lancaster University.

The work presented here is the author's own, except where due reference is made.

This work has not been submitted elsewhere for the award of any higher degree.

Name: Katie Knott

Date: 9th October 2023

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To my wonderful family and friends. I am extremely grateful for your love, proudness, and belief in me. Thank you for always asking about my thesis and how I am, you'll be pleased to know it is finished!

To Kristian, for always being there.

Table of Contents

Section 1: Systematic Literature Review

How do NHS organisational factors influence psychological safety:

A systematic review.

Word count (excluding references, tables, and appendices): 6,770

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See Section 5 for submission guidelines.

Abstract

Purpose: NHS policy recommends psychologically safe environments. There is an emerging body of qualitative research exploring factors within the NHS which impact psychological safety. Of these, organisational factors are pertinent to effecting change across workplaces. This review aims to identify, synthesise, and consider the existing research exploring how NHS organisational factors influence psychological safety with a view to informing NHS policies and procedures relating to psychological safety in the workplace.

Methods: A systematic search of Medline Complete, APA PsycINFO, CINAHL, Scopus, and Business Complete databases was completed. This led to 18 qualitative studies being included. These were analysed using a thematic synthesis methodology.

Results: Thematic synthesis of these studies resulted in formation of four themes: 1) organisational environment; 2) organisational structure; 3) organisational resource; and 4) organisational attitude which impact psychological safety. These themes exert their impact at the individual, team, and organisational level.

Conclusions: Key themes which contribute to understanding how NHS organisational factors impact psychological safety have been elicited. The four themes will prove helpful for further understanding and study. Given the importance of organisational factors in staffs' experience of psychological safety, future NHS policy would benefit from reflecting these findings.

MESH: State Medicine, Psychological Safety, Qualitative Research

Introduction

Psychological safety

Psychological safety is a concept defined as an individual's perception of taking an interpersonal risk in a particular context, without it negatively impacting their sense of worth (1). When in a group, an individual experiencing psychological safety believes they will not be punished or humiliated by others for speaking up with ideas, questions, concerns, or mistakes. This in turn supports their perception that the team context is safe for interpersonal risk taking (1). Work environments characterised by candour, a descriptor of psychological safety, benefit from improved engagement, performance, and innovation (2).

Conceptualisation of psychological safety

Psychological safety originates from organisational change theories which considered how organisations can transition from one state to another, often in line with a desire to be different in the future (3). Within this literature base, Lewin (4) proposed a theory of organisational change through a three-stage process of organisations unfreezing, changing, and refreezing. Psychological safety was understood as a required contextual element in the unfreezing stage, as it enabled organisations to identify if individuals would be receptive to learning and therefore change (5).

Within a work context, individuals experiencing anxiety of taking interpersonal risks act as a barrier to learning, whereas a psychologically safe environment offered a way of overcoming individual's anxiety (6). A reduction in individuals being defensive, in order to protect themselves, facilitated organisational change through achieving goals and solving problems (5, 6).

Rogers used the term psychological safety to describe a psychological understanding of human creativity (7). The three key conditions for psychological safety of providing unconditional worth, a judgement-free environment, and empathetic understanding, were described as fostering creativity due to the individual being able to be their true self and be accepted by others.

Kahn (8) considered psychological safety in the context of organisational behaviour, exploring antecedents to psychological safety which influenced engagement by individuals. The study identified themes of interpersonal relationships, group and intergroup dynamics, management style and process, and organisational norms as factors impacting psychological safety (8). It was recognised that people's engagement at work was impacted by intersecting factors on the individual, interpersonal, group, intergroup, and organisational level (8). Psychological safety has been understood to enable engagement in work rather than disengagement for self-protection (8).

The literature base on psychological safety has been expanded since, with a significant increase in empirical papers over the past twenty-five years. This follows Edmondson's study into hospital medication errors, where it was found that better teams reported more errors due to having an environment now conceptualised as psychologically safe (1). Edmondson has continued to be a prominent researcher in the area, conceptualising psychological safety as a team-level shared belief.

Psychological safety in organisations

Psychological safety applies in different settings, including work environments, where organisations working towards a goal require individuals to collaborate together (9). Psychological safety has come to occupy a central place in organisational functioning and development. Individuals are encouraged to support their organisation's development through speaking up, therefore creating psychological safety within the workplace is valued by organisations.

Reviews of the literature have explored conceptualisation, antecedents, and outcomes of psychological safety (9-12). Psychological safety has been found as a factor in enabling performance and understanding learning, at the individual, group, and organisational level (9, 12). This is done by creating conditions which facilitate speaking up and sharing ideas (10). Psychological safety facilitates members of the team to speak candidly about improvements and has been found to promote learning through knowledge sharing, overcoming problems, and increased confidence (2, 10). However, psychological safety is not always present. Research highlights that there is limited insight as to how psychological safety develops and reduces, it has been suggested the concept should be viewed dynamically as it is likely to change over time (9).

Psychological safety in healthcare

Psychological safety research has been conducted across various industries and organisations, including healthcare settings across the world. Within healthcare settings, psychologically safe environments have been found to enable concerns and errors to be raised by staff. This is particularly important due to the healthcare environment being one where the safety of patients and staff is paramount,

psychological safety has been found to improve this (13). It is therefore unsurprising that research has explored the factors for enabling psychological safety within healthcare organisations.

O'Donovan and McAuliffe (14) conducted a systematic review of thirty-six studies exploring enablers of psychological safety in healthcare worldwide. They concluded that patient safety, a learning environment, organisational support, familiarity amongst staff and individuals' status, along with individual differences, are all enabling factors to the creation of psychological safety in healthcare. Recent UK National Health Service (NHS) policy recommends the presence of psychological safety. Therefore, understanding the existing literature base associated with the factors impacting psychological safety within the unique healthcare system of the NHS will support the implementation of policy. However, as yet, there is no systematic review that synthesises the NHS organisational factors affecting psychological safety.

The UK healthcare service

The NHS is the government funded medical and healthcare service which offers care, free at the point of delivery, to UK residents. It is the UK's largest employer with over 1.2 million staff across 350 different roles, both clinical and non-clinical (15, 16). The NHS constitution pledges to promote an open culture amongst staff, encouraging the freedom and confidence to act in line with best care and empower all staff to share ideas and raise concerns to deliver better services (17). Accordingly, encouragement to instil psychological safety in the NHS has begun to be included in publications regarding safety culture (18, 19) and leadership training (20). NHS publications explain how the goal is not psychological safety per se, but

by creating psychological safety NHS organisations are better enabled to achieve their goals (21).

In addition to psychological safety supporting the shared goal of improving patient care, there are reported benefits to improving staff wellbeing and reducing burnout (22). This is a vitally important consideration within the current climate, with poor NHS staff recruitment and retention alongside a significant proportion of the NHS workforce experiencing poor wellbeing (23-26) and striking for better conditions (27). In addition, the current climate of the NHS has been significantly impacted by the coronavirus pandemic experienced through inadequate funding, staffing shortages, and capacity constraints (26, 28, 29).

Understanding how psychological safety is created within the NHS, may offer strategies for implementing policy which could lead to significant improvements to staff wellbeing and the healthcare services offered to patients.

The current review

In summary, there is an emerging body of qualitative research exploring factors within the NHS which impact psychological safety. This research would benefit from being synthesised to understand how NHS organisational factors impact psychological safety. This would support organisational leaders within the NHS to understand the actions required to instil and manage psychological safety. Therefore, the purpose of this review is to identify, evaluate, and summarise the existing research exploring how NHS organisational factors influence psychological safety with a view to informing NHS policies and procedures relating to psychological safety in the workplace.

Method

Protocol

The systematic review was conducted in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (30). The protocol was registered with the International Prospective Register of Systematic Reviews (PROSPERO) in March 2023 (reference: CRD42023404901).

Eligibility criteria

The PICOS (Population, Intervention, Comparator, Outcome, Study Design) framework (31) was used to inform the inclusion and exclusion criteria, which is outlined in Appendix 1-A. The systematic review focused on peer reviewed qualitative studies conducted within the NHS that explored organisational factors that impact psychological safety of staff.

Information sources

Five electronic databases (Medline Complete, APA PsycINFO, CINAHL, Scopus, Business Complete) were searched to identify studies. These databases were chosen with support from a Lancaster University information specialist to cover a wide range of both healthcare and organisational publications. The searches took place in April 2023.

Search strategy

The search strategy was discussed with a Lancaster University information specialist and preliminary searches were conducted to pilot the strategy. The search strategy was adapted based on the requirements of each database (see Appendix

1-B for full search strategy). Searches included Boolean operators and database specific subject headings.

Selection process

Duplicates of studies were removed using Endnote following methodology as set out by Bramer (32). The first author independently screened titles and abstracts against the eligibility criteria using Rayyan for documentation. Where it was unclear from the abstract if the population met the inclusion criteria for being NHS, the method sections of papers were also accessed at this stage. Following this, the first author independently screened the full text versions of potentially relevant articles against the eligibility criteria. Queries were discussed and settled with the wider research team. Backwards and forwards searches of references and citations were conducted to identify any further relevant articles. Appendix 1-C provides a summary of the process undertaken to select the papers.

Data collection process

The information extracted from the studies that met the inclusion criteria included author(s), publication date, study design, study methodology, study outcomes. The data was collected independently by the first author and the extracted data is summarised in Appendix 1-D.

Quality appraisal

The quality of the literature was assessed using the Critical Appraisal Skills Programme (33) (CASP) Qualitative Checklist. The CASP was chosen as within health-related qualitative synthesis, it is the most commonly used tool (34). Articles were rated according to the research's aims, methodology, design, recruitment, data

collection, researcher-participant relationship, ethical issues, data analysis, findings, and contributions. The quality assessment of each study was conducted by the first author and a sample were rated by an independent researcher. Percentage agreement ratings were 86% with a Kappa score of 0.672 (substantial). Differences were predominantly around the application, assessment, and approach of using the CASP. Disagreements were resolved through further discussion. One paper (35) was removed following CASP quality assessment due to no evidence within the paper of the CASP key factors which resulted in 'can't tell' ratings. A summary of CASP ratings for each paper is presented in Appendix 1-E and discussed further in the results.

Data synthesis

Thematic synthesis was used to summarise and analyse the data from the identified studies. This was carried out by using line-by-line coding of text, development of descriptive themes, followed by generation of analytical themes (36). This commonly used approach was chosen due to its process enabling an interpretation of the findings beyond that of the original data and these outcomes having the potential to be used within recommendations and policy (37), in line with the review area of NHS organisational factors. A thematic synthesis of the data was undertaken independently by the first author and discussed with the wider team, to identify different NHS organisational factors and their association with psychological safety. This is summarised in Appendix 1-F.

Results

Of the eighteen qualitative papers systematically selected and included in the review, twelve predominantly used semi-structured interviews to explore the experiences of NHS healthcare staff, two papers used surveys, two emancipatory action research, one participant observation, and one auto-ethnography. The papers were primarily set within NHS England (thirteen), with a further two from Northern Ireland, two from Scotland, and one from Wales. The studies all explored the experiences of NHS healthcare staff, covering a spectrum of roles and seniority. The studies also considered perspectives of different settings which included NHS trusts, wards, teams, and individuals across both hospital and community settings. The papers were published across the past two decades (2008-2023), with twelve published in the last five years.

The CASP critical appraisal tool identified a range of strengths across the different papers. Overall, the papers were strong in describing their recruitment strategy and data collection, with the majority of papers doing these in line with their research aims and making their process transparent. However, the papers on the whole did not overtly contain a descriptive analysis of the results or provide broad contributions to the knowledge base. In particular, the majority of papers lacked acknowledgement and critical reflection of the researcher's own role and potential influence.

Thematic synthesis of the results and discussion sections for the eighteen papers was conducted. This resulted in the finding that four key themes exist in the literature relating NHS organisational factors to psychological safety. These themes were: organisational environment, organisational structure, organisational resource, and organisational attitude. Although all themes are influenced by organisational

policies and procedures, the impact on psychological safety is experienced at the individual, team, and organisational level. This is in keeping with the understanding within the current literature on psychological safety synthesis (9, 12). A visual conceptualisation of the findings is presented in Figure 1.

Figure 1. Systematic review visual conceptualisation

Level psychological safety is experienced at

	Individual	Team	Organisational
Environment	Physical and Psychosocial →		
Structure	Organisations having clear job role expectations improves psychological safety	Hierarchy amongst teams negatively impacts psychological safety	Encouragement for staff to speak up, with clear and varied processes for organisational action, enables psychological safety
Resources		Small, consistent, and preferred teams improves psychological safety	
Attitudes		Friendly and supportive leadership style, compared to authoritarian, promotes psychological safety. Leaders experiencing low psychological safety struggle to speak up about what is raised to them.	Staff prefer organisations who encourage psychological safety

Key themes relating organisational factors to psychological safety

Theme 1: Environmental

The initial overarching theme, found in more than half of the studies, relates to the environment in which NHS organisations operate. This theme traverses all three levels of individual, team, and organisational. Environments can be considered from the perspective of both the physical constituents and the psychosocial inter-dynamics. It was found a supportive and accepting environment which physically had the required resources and time, positively impacted psychological safety.

The papers within this theme were particularly strong at providing clear findings and all papers, excluding those by Brown (38, 39), described their recruitment strategies to a good standard. The CASP tool supported the identification that only one paper explicitly researched environment as part of their research design and aims, with the remaining papers incidentally reporting on the impact of environment. Therefore, this theme may have been strengthened if the papers had further considered it within their research aims or future research.

Subtheme 1.1 Physical

Physical environment was found to impact psychological safety, with paramedic participants noting how the hospital environment compared to a rural location improved their feeling of safety (40). This was exacerbated by the immediate workplace infrastructure and staff skills which impacted psychological safety. Paramedics were more likely to seek a place of psychological safety when they were unable to make a decision due to lack of medical resources in the community or feeling under skilled in the training they had (40). Therefore, resources provided by the organisation impact the need for psychologically safe spaces.

A pressure of staff having no time was a predominant barrier to psychological safety (41-43). Time was also named as a barrier in relation to attending psychologically safe reflective groups, due to minimal advanced notice and inconvenient scheduling (44). However, "extreme clinical demands" which contribute to time pressure were found to empower speaking up (42). In addition, the reciprocal relationship was also found with participants noting how having psychological safety, and therefore speaking up, negatively impacted their available time (43). It appears that a reciprocal relationship between time and psychological safety exists, with staff feeling time pressure can enable, prevent, and reinforce speaking up, which in turn leads to increased time pressure.

Despite staff feeling psychologically safe to innovate and change within the NHS, a barrier to this occurring was a lack of NHS trusts providing staff with the required infrastructure such as "support and time and facilities and resources" to enable the change (45). This may show how psychologically safe teams can experience system-wide barriers, which prevent the benefits that could occur from speaking up.

In meetings that encouraged staff to speak up, psychological safety was reduced when they occurred in a large space with many people, which resulted in not being heard (42, 43). It could be that the size of a meeting space, influences the experience of psychological safety. Following their results, three studies discussed the need for "creating an accessible, confidential learning environment" (46), "to help change the context in which practitioners work" (39) which was offered at an "appropriate time" (42). These environments are suggested to be confidential and contained to facilitate psychological safety (46, 47). A paper summarised that, "the essence of psychological safety is to create the conditions that allow the

consideration of needed change without feeling a loss of integrity or identity" (45). It seems to be that the way in which a learning environment is organised and facilitated contributes to how psychologically safe that environment feels.

Subtheme 1.2 Psychosocial

Organisational factors were found to influence attitudes held by and between individuals, which in turn impacted psychological safety. Within spaces for reflection and learning (39, 46-48), the make-up of individuals who participate in the group influence psychological safety. Groups containing staff of similar experience positively improves psychological safety through establishing group cohesion (46, 48, 49). Whereas staff of different years of experience contribute to individuals fearing others may have a critical perspective of them, therefore reducing the willingness to speak up as described by a pharmacist participant: "you might think there's some stigma attached. They won't think you're confident to do the job. Whereas if you have a network of newly qualifieds, everyone's in the same boat." (46).

Benefits to delivering learning spaces in multi-profession groups were found (47), demonstrating a psychologically safe environment can be created when different disciplines perceive each other as partners when brought together. This expands to interpersonal dynamics across teams within an NHS organisation, highlighting how "increased collaboration across directorates had the effect of enhancing group psychological safety" (43). However, it was hypothesised that supportive silos of professionals may emerge because of teams needing to rely on each other due to lack of psychological safety, rather than as a precipitating factor

(50). Therefore, it is unclear whether psychological safety is facilitated by collaboration or a consequence of lack of collaboration.

Considering the facilitation of a group space for reflection and learning, the relationship with the facilitator positively impacted psychological safety when the facilitator was "experienced" and "independent of their employing organisation" (46). Beyond organised spaces, perceptions of others in general workplace environments impact psychological safety. Feeling supported by colleagues encouraged the team to offer guidance, improve communication, and ask for help (39). However, interpersonal dynamics can be negatively impacted when speaking up between colleagues occurs at an inappropriate time devaluing patients and colleagues (39). Within interpersonal dynamics, it appears psychological safety is positively impacted when relationships are respectful and supportive.

A supportive and accepting environment was important to empower staff to bring about change (39). This was particularly noted during the coronavirus pandemic where "covid created a more accepting environment in which participants felt they could raise concerns" (41). It appears that the organisational uncertainty of managing and working in healthcare during the pandemic, led to a more open environment which offered staff improved psychological safety to speak up.

Theme 2: Structure

Another core theme related to how the structural mechanisms present in NHS organisations impact psychological safety. This includes the clarity of individuals' roles, the hierarchy within the group, and the organisational processes involved.

Critical appraisal of the papers highlighted that the structure theme contained the only five papers that did not provide justification of why their methodology was chosen however, the methods did not appear to be problematic in relation to the research aims. In addition, the CASP assessment of the analysis of data was weakened by papers in this theme due to poorer use of contradictory analysis and critical reflection of researcher bias.

Subtheme 2.1: Organisations having clear job role expectations improves psychological safety.

Psychological safety is impacted by the organisational expectations and views of the individual's job role (40). When job expectations are clarified (42) and appreciated by colleagues (51), a positive impact on psychological safety was found. However, psychological safety was negatively impacted when undermining language was used in the context of a job roles expectations (39, 49). It appears psychological safety is positively impacted when job roles are defined, clarified, and appreciated by colleagues and the organisation.

Considering leadership, psychological safety is negatively impacted when the organisational expectations of good leadership are not adequately understood and met. For example, participants "did not know how important their leadership role was in setting the culture in their unit" (39). Therefore, clear understanding within individuals' job plans of psychological safety being a group level phenomenon would improve psychological safety in the NHS. When organisations do not provide sufficient regard to the role individuals play in enabling psychological safety, staff feel they are "failing in their provision of psychological safety" (45). This suggests that staff need their role responsibilities relating to psychological safety to be valued and

acknowledged by their NHS trust in order for them to provide a psychologically safe environment for other staff. However, when an organisation demands accountability, this can act as a barrier to psychological safety and places staff into a zone of anxiety which negatively impacts their wellbeing (49). This indicates how the organisation communicates with its staff about their job roles can influence the success in achieving a psychologically safe environment, which in turn can impact other factors such as staff wellbeing.

Subtheme 2.2: Steep hierarchy amongst teams negatively impacts psychological safety.

The presence of a hierarchy was found to negatively impact psychological safety (42) due to feelings of inferiority (50), intimidation (49), and a defensive culture (52) amongst staff of different hierarchical ranks. This was clearly stated by a participant sharing "staff at the apex of the organisation were less open to hearing and responding to concerns from staff lower down the hierarchy" (49).

Discussion identified that those in a lower hierarchical position perceive others in more senior positions as holding more relevant information, knowledge, and ability to speak up (50) i.e. greater psychological safety. However, those more senior in the NHS were found to have lower personal psychological safety, "perhaps reflecting the seniority of those to whom they were required to raise concerns to within the organisation" (43). It is apparent that a hierarchy negatively impacts psychological safety of all staff, across all seniority. This may indicate that a flatter hierarchy would be more beneficial for psychological safety. Within a smaller team intervention, a flatter hierarchy encouraged psychological safety, shown in the participant example;

"it allows all members of the team to see each other as equals despite the differences in bands and be able to share experiences and ideas" (51).

Subtheme 2.3: Encouragement for staff to speak up, with clear and varied processes for organisational action, enables psychological safety.

At the organisational level within the structure of the NHS, processes within the system such as organisational policies and procedures acted as both facilitators and barriers to psychological safety. These processes included if the organisation encouraged speaking up, how they responded to concerns raised, and if the organisation acted on what had been shared. These barriers to psychological safety were mitigated through the organisation providing different methods and routes to enable staff to speak up, this was particularly enhanced when they were clearly signposted as it was found to reduce the risk of senior members of staff being overwhelmed by questions (42, 43). Unfortunately, specific examples of these alternative methods within NHS organisations were not explained in the papers. A challenge associated with the use of different methods occurred when there were no clear processes clarifying how the ideas or concerns were to be acted upon and described as having "the potential to cause confusion and error" (42). The policies and procedures with NHS organisational processes seem to act as facilitators to psychological safety but could also prevent future speaking up due to lack of action.

Theme 3: Resources

The literature discussed different types of resources which can impact psychological safety and broadly fall into either physical or personnel-based resource.

The papers within this theme showed good consideration of ethical issues when evaluated using the CASP, and a clear strength of describing data saturation. On the whole, this theme had strong papers in line with CASP appraisal.

Subtheme 3.1: Small, consistent, and preferred teams improve psychological safety.

The size, consistency, and identity of staff teams within NHS organisations were found to impact psychological safety. Small teams positively impact psychological safety through a "cohesive identity" (53) and staff feeling "comfortable and confident in voicing their opinions" (50). Regular "changes in the team" (41), particularly relating to the covid pandemic, were named as a barrier to psychological safety. In addition, participants described having an "A-Team" preference of staff who due to their team orientation provided a sense of security and was hypothesised as facilitating increased psychological safety (54). It is apparent that staff are more likely to speak up in a team they prefer.

Theme 4: Attitudes

Organisation-wide values and their influence on both interpersonal dynamics and leadership behaviour was a dominant theme with fourteen papers contributing. The attitudes held within local systems of the NHS were also shown to have an impact on psychological safety, present at the individual, team, and organisational level.

Due to this theme containing the majority of papers within the systematic review, its overarching appraisal in relation to the CASP is similar to that of the papers as a whole. Of note, this theme does not contain the papers which were most

positively appraised through the CASP and therefore it may indicate a weaker theme overall. In particular, the papers within this theme did not describe the reflexivity of the researcher and this may weaken the theme due to the integration of the researcher with participants in many of the studies.

Subtheme 4.1: Friendly and supportive leadership style, compared to authoritarian, promotes psychological safety. Leaders experiencing low psychological safety struggle to speak up about what is raised to them.

The personal qualities of leaders were found to be critical at a team level in NHS organisations, consequently, 'leadership' emerged as a prominent subtheme of 'organisational attitude'. Five papers (39, 43, 44, 50, 51) discussed styles of NHS leaders which influence psychological safety.

The synthesis identified "leaders exhibiting a friendly attitude, acting in a supportive manner and inviting participation of members" (50) positively enabled psychological safety, whereas "authoritarian leadership hindered psychological safety" (50). The style of leadership impacted the psychological safety of staff in their team.

NHS organisations can implement interventions to develop leadership styles, for example facilitated reflection was used to enable a leader to reflect on their "directive and blunt" ineffective style and adopt a more "facilitative and supportive" approach through reflection, better meeting the needs of the team and improving psychological safety (39). This indicates psychological safety can be positively improved, as preferred leadership styles can be developed.

A paradox was presented in the research, with leaders describing how they "felt good at fostering an environment of psychological safety" (43), but had low psychological safety themselves in their roles. An example of this is seen with leaders being "unable to take the next step" (39) in not actioning what is raised to them. Due to this, leaders throughout the system need to be supported further with feeling psychologically safe to act on what is raised to them by their team.

Subtheme 4.2: Staff prefer organisations who encourage psychological safety

Values and attitudes operating at an organisation level, described through staff perceptions, enabled or inhibited psychological safety in seven papers (40, 42-45, 52, 55).

It is important for speaking up to be encouraged across the whole organisation, as well as within individual teams (42). An example of how this could be done, is through staff having "a strategic presence in trusts or a voice at board level" (45) when implementing changes. The corollary was also found with NHS organisations being perceived negatively by staff due to displaying a lack of psychological safety. This is experienced through punitive and blaming attitudes with a lack of trust and fear of repercussions if something goes wrong (39, 40, 43). It is apparent the organisational attitudes towards speaking up are paramount in facilitating psychologically safe environments.

Interestingly, negative consequences of the presence of psychological safety were elicited from the synthesis. Psychological safety was "not always regarded as beneficial to the organisation" (42) to the extent "some participants described

organisational cultures that discouraged speaking up" (43). However, no paper

described why organisations may not want psychologically safe environments.

Discussion

The aim of this systematic review was to synthesise qualitative literature to explore how NHS organisational factors impact psychological safety of staff. Following a systematic search, eighteen studies were included in the review and through thematic synthesis four themes were identified: 1) Environmental, 2) Structure, 3) Resources, 4) Attitude. The themes represent conceptual elements within the interconnected system of the NHS and therefore a visual conceptualisation of the findings was presented in Figure 1.

Environmental factors within NHS organisations impacted psychological safety. Creating a supportive, accepting, and accessible environment positively influenced psychological safety. In addition, the physical environments organisations provided staff (such as hospitals, meeting rooms, wards), contributed to how psychologically safe staff felt. Staff appeared more able to speak up in less isolated places, environments with more resources, and settings in which they were able to be heard and not spoken over.

Within the structure of NHS organisations, power contributes to psychological safety. Staff and service users noted how power imbalances amongst professions can contribute to lack of voice and increased silence. When understanding speaking up within NHS structures, a barrier was identified between staff raising a concern and their concern being acted upon. A concern not being acted on appeared to prevent future speaking up. Therefore, exploration of how the ideas and concerns noted through speaking up transfers through the organisation has been identified as important and how this transcends into organisational policies and procedures. When considering psychological safety, organisations who provided alternative methods and routes to speak up demonstrated this was beneficial. However, caution

for this to be effective and not confusing for staff was raised, therefore clarity is advised within NHS policies and procedures. The review identified offering different routes to speak up as a factor impacting psychological safety. However, NHS organisations may contain 'first-order learning behaviour' where leaders value staff who problem solve independently (56) and therefore would present as a barrier to the offering of routes to speak up. Although this behaviour enables work to continue effectively, it prevents learning at a team or organisational level as this requires communication to support identification and action. Therefore, organisational learning and innovation is more likely to occur if leaders encourage speaking up through psychological safety policies and procedures by offering alternative routes.

The clarity of staff roles within NHS organisational structures impacted psychological safety. This was found on the individual level of how staff viewed their own role, on the group level with how others perceive and value team roles, and on the organisational level with how roles are valued within service pressures. This is explicitly seen in the use of undermining language within an NHS organisation. Consideration of underlying mechanisms noted how role clarity may promote psychological safety but may also be present by a lack of psychological safety leading to increased silos in roles. The clarity of roles and leadership style were identified as contributing to psychological safety but also identified as a barrier due to staff experiencing anxiety, preventing them from taking action. This could be associated with early psychological safety work of Schein (6) who recognised how staff overcame the anxiety zone through having psychological safety. In addition, international data in healthcare teams has shown how role-based status contributed to psychological safety which positively impacted learning and development (57).

Within NHS organisations, hierarchies exist and impact psychological safety. A steep hierarchy was a barrier to psychological safety, with staff experiences of inferiority and intimidation to those in higher power contributing to the understanding of how this negatively impacts psychological safety. However, caution was again raised in recognising the need for leadership and potential risk of confusion due to ideas and concerns raised not being acted on. Much like structural processes, hierarchy needs careful consideration not to foster inferiority and yet must exist in a form to avoid confusion especially in the context of clinical plans. A misconception exists, that those in lower roles in the hierarchy believed those in senior roles within the hierarchy had better psychological safety, whereas increased seniority between upper hierarchy levels was a barrier to psychological safety. It is evident that the hierarchy of an organisation affects psychological safety and must be considered by an NHS organisation when aiming to improve speaking up. Hierarchy within human social groups is rapidly formed and frequently present. Considering an evolutionary perspective in line with Compassion Focussed Therapy (58), social motivation including hierarchy and groups is part of the 'drive system' required for survival. Humans also experience a sense of 'threat' which results in a fight/flight/freeze response. Recognising all humans have this response when experiencing threat, such as speaking up to those in the hierarchy, may provide a theoretical understanding of barriers to psychological safety.

Psychological safety is impacted by the organisational factors of time, demands, equipment and training. It is important for organisations to allocate time and staff cover to enable individuals to join reflective spaces in which psychological safety is enabled. Disparities may impact psychological safety with the staff who

attend groups feeling privileged, but the staff unable to attend due to staffing resources feeling un-represented and undervalued.

The dynamics of the team including team size and changes in the team members were identified as barriers to psychological safety. Organisational demands on staff contribute to a sense of being overwhelmed, adversely impacting psychological safety. Within NHS organisations, the make-up of a team was found to affect psychological safety with the concept of an A-team of preferred staff offering increased psychological safety. Current resourcing demands at an individual level, has negative impacts on psychological safety. However, when these are shared across a team, the lack of resources fosters a camaraderie which improves speaking up.

NHS organisational factors relating to attitudes at the individual, leader, and system-wide level impact psychological safety. Organisations have been found to create specific spaces for learning, but to enable psychological safety within these, interpersonal factors including similarity of experience, multidisciplinary stigma and relationship with the facilitator need to be considered. Organisational factors which affect the interdisciplinary dynamics within staff's daily interactions are also important, with an example being the negative impact interruptions had compared to the positive impact colleague support had on psychological safety. The style and attitude of the person an organisation places in a leadership role impacts psychological safety, with a friendly style encouraging and an authoritarian style hindering. Leadership style impacts the leader's own psychological safety and therefore the importance of organisations providing support to leaders is crucial. It is clear that leadership traits should be examined within organisations and that encouraging certain traits would improve psychological safety.

The organisational values, held across NHS organisations, is an element found to impact psychological safety through strategic presence, lack of trust, and punitive attitudes. In addition, the desire for psychological safety is not always present which can impact the organisational culture and create significant differences between NHS trusts. Therefore, although psychological safety has great reward, due consideration must be given to how the existing organisational stakeholders within the NHS will perceive the change as this alone may create a barrier. Culture has been described as 'the way we do things around here' (59). Within NHS organisations there may be many cultures within different contexts. Policies have focussed on changing organisational cultures to improve psychological safety however, consideration of the complexities of culture and other influences are important in regards to NHS policies and procedures (60). Current NHS England policy provides a guide for managers to introduce a 'Just Culture' as a means of enabling staff to feel able to speak up when errors occur rather than experience the fear of blame (19).

Strengths and Limitations

The systematic review used the definition of psychological safety by Edmondson (1) and although this relies on other authors using the same terminology, it ensured all included studies were considering the same concept which proved beneficial for synthesising the literature. This enables the review to be read alongside current NHS policy recommending the enablement of staff experiencing psychological safety. In line with the methodology (36), the qualitative systematic review intended to develop understanding. However, it is of note, the inclusion criteria required the author to be aware of the concept of psychological

safety for the study to be retrieved and therefore other studies considering facilitators or barriers may have not been retrieved.

This systematic review focused on the NHS and therefore it's transferability to international healthcare systems is unclear. However, findings could be considered as starting points for colleagues to reflect on clinical, policy, and research within their local settings.

Reviewing qualitative studies enabled insight into NHS staff's experiences and perspectives of psychological safety, a core element of the concept, which has contributed to an in-depth understanding of how NHS organisational factors affect psychological safety. The studies included in this review were distributed across the four nations, across different professions and across different settings revealing different perspectives on the NHS. However, unlike in other international studies (61), there is limited information within this review about whether different individual identity characteristics influence psychological safety.

Some of the included studies described themselves as service evaluations rather than research studies. This means that formal ethical approval was not required and local policies for safeguarding participants used instead. Through use of the CASP process, it emerged many of the service evaluation studies had poor reflexivity, which may have led to an increased risk of bias towards the desired outcomes. These studies were often integrated into the workplace setting and therefore may offer generation of data about local experience however, awareness of their transferability should be considered.

Further research

Through systematic synthesis of the literature, it is apparent further research to consider the complexities across all elements of the NHS would be beneficial. Many papers included in the review noted being the first study to explore the area, therefore further studies would develop commonality whilst accounting for the changing landscape of the NHS. In particular, as the NHS is devolved to local organisations further research exploring similarities and differences would strengthen the evidence base guiding current NHS policy. Psychological safety at a group level has been found to vary within one organisation (9), therefore further research exploring variability amongst groups such as individual differences would develop the evidence base underpinning healthcare policy.

This review identified a significant contribution from research conducted during the coronavirus pandemic. Considering why this may have occurred, international uncertainty required staff to intensely adapt, learn, and innovate to provide care and safety. Therefore, there was a clear need for psychological safety within the NHS organisations. This literature should be acknowledged for taking place during a worldwide pandemic and the context of unprecedented demands on the NHS and the impact on staff wellbeing should be considered. Despite increase in funding streams during the pandemic, it would be beneficial for future research to explore how factors within the NHS impact psychological safety recognising significant contribution relating to continuous societal and political change.

Conclusion

This thematic synthesis has elicited four key themes which contribute to understanding how NHS organisational factors impact the psychological safety of

staff within the interconnected system of the NHS. The themes have provided

specific areas of the NHS organisation which can be used for further understanding

and study. It is clear, that organisational factors hold a crucial role in staffs'

experience of psychological safety, and this must be considered in future NHS

policy. There is an acceptance that staff speaking up in the NHS has benefits to both

the organisation and patient. Future policies written with a psychological safety

consideration will help to foster this further.

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Appendices

Appendix 1-A

A table to show the systematic search eligibility criteria using PICOS

	Inclusion	Exclusion
P – Population	All settings / environments / employees of the National Health Service (NHS).	Non-NHS-funded healthcare settings / environments / employees e.g., international healthcare, private healthcare.
I – Intervention	Organisational factors such as the operational attributes, processes or conditions that occur at an organisation level within the setting. Examples include; vision, values, goals, learning, leadership.	Group level factors, individual level factors.
C – Comparator	Not applicable.	Not applicable.
O – Outcome	Outcome: This review seeks to identify how NHS organisational factors affect psychological safety. Definition: Psychological safety is defined as the ability for an individual to express themselves without fear of negative consequence (Edmondson, 1999). Measurement: Psychological safety is a perceived sense of the setting being safe to take an interpersonal risk. Examples include; discussion of problems, criticism post admission of error, help seeking, discussing innovation ideas, learning from mistakes, raising of concerns. No specific quantitative measurement of psychological safety will be used in this review of qualitative papers.	Psychological safety not aligned with Edmondson (1999) conceptualisation.
S – Study Design	Qualitative studies, Peer reviewed, English.	Unpublished papers, Conference papers, Dissertations, Theses, Systematic reviews, Meta-synthesis, Books.

Appendix 1-B

Search Strategy Examples

MEDLINE

SEARCH 1

ALL –

MH "Health Care Facilities, Manpower, and Services+" OR MH "Hospitals+" OR MH "Hospital Units+" OR MH "Ambulatory Care Facilities+" OR MH "Health Occupations+" OR MH "Health Facilities+" OR MH "Community Health Centers+" OR MH "Community Mental Health Centers+" OR MH "Secondary Care" OR MH "Tertiary Healthcare" OR MH "Health Services+" OR MH "Hospital Departments+" OR MH "Health Personnel+" OR MH "Primary Health Care" OR MH "Delivery of Health Care+" OR MH "Patient Care+"

OR TITLE OR ABSTRACT OR SUBJECT –

"Health Care Facilities, Manpower, and Services" OR "Hospitals" OR "Hospital Units" OR "Ambulatory Care Facilities" OR "Health Occupations" OR "Health Facilities" OR "Community Health Centers" OR "Community Mental Health Centers" OR "Secondary Care" OR "Tertiary Healthcare" OR "Health Services" OR "Hospital Departments" OR "Health Personnel" OR "Primary Health Care" OR "Delivery of Health Care" OR "Patient Care" OR "national health service" OR NHS OR healthcare OR "health care services" OR "health services" OR health OR hospital OR community OR "general practice" OR GP OR "public health" OR medic* OR (health OR primary OR secondary OR tertiary) n3 (care)

AND

SEARCH 2

ALL –

MH "Social Structure+" OR MH "Social Control, Informal" OR MH "Behavior and Behavior Mechanisms+" OR MH "Health Services Administration+" OR MH "Sociological Factors+" OR MH "Learning+" OR MH "Organizational Policy"

OR TITLE OR ABSTRACT OR SUBJECT –

"Social Structure" OR "Social Control, Informal" OR "Behavior and Behavior Mechanisms" OR "Health Services Administration" OR "Sociological Factors" OR "Learning" OR "Organizational Policy" OR "organi*ation* N3 factor*" OR environment* OR structur* OR proce* OR context* OR vision* OR value* OR goal* OR learn* OR innovat* OR team* OR lead* OR communicat* OR polic* OR manage* OR hierach* OR behav*

AND

SEARCH 3

TITLE OR ABSTRACT OR SUBJECT –

"psychological* safe*" OR "psychological* N3 safe*"

S1 AND S2 AND S3

SCOPUS

SEARCH 1

TITLE OR ABSTRACT OR KEYWORD –

"national health service" OR NHS OR healthcare OR "health care services" OR "health services" OR health OR hospital OR community OR "general practice" OR GP OR "public health" OR medic* OR health W/3 care OR primary W/3 care OR secondary W/3 care OR tertiary W/3 care

AND

SEARCH 2

TITLE OR ABSTRACT OR KEYWORD –

"organi*ation* W/3 factor*" OR environment* OR structur* OR process* OR context* OR vision* OR value* OR goal* OR learn* OR innovat* OR team* OR lead* OR communicat* OR polic* OR manage* OR hierach* OR behav*

AND

SEARCH 3

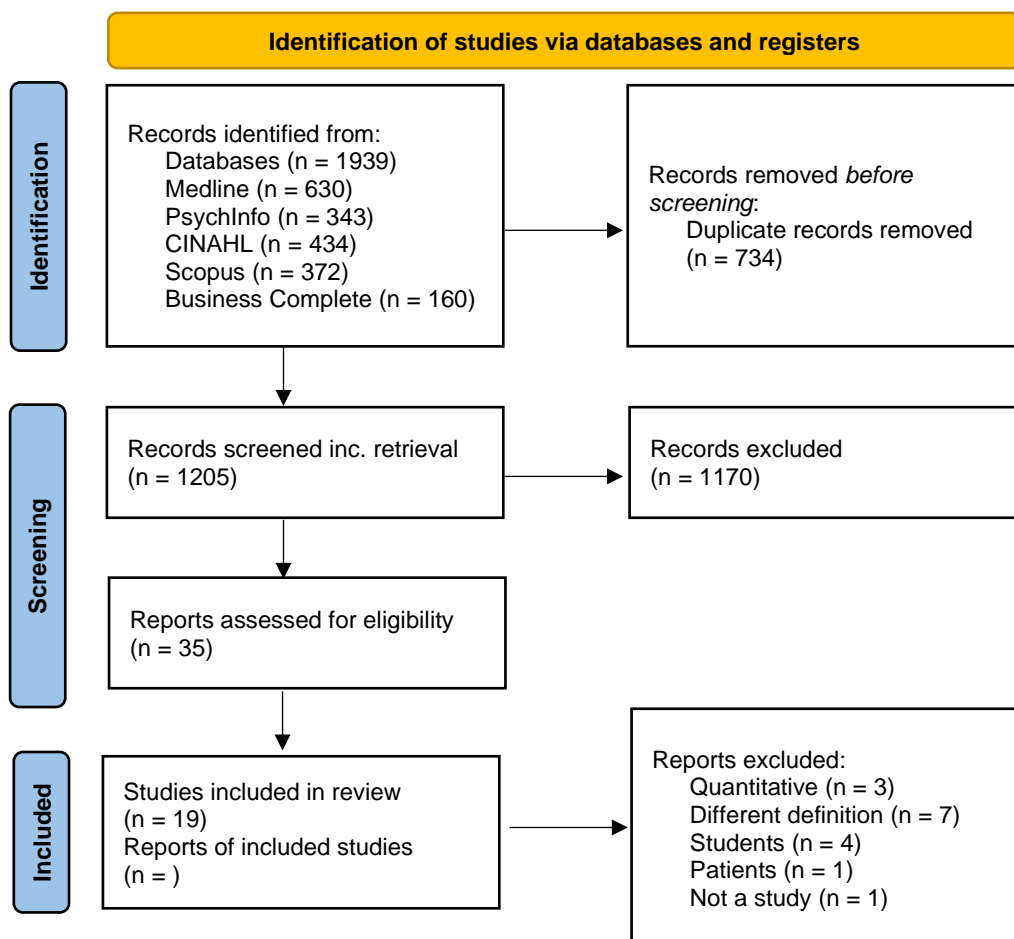TITLE OR ABSTRACT OR KEYWORD –

"psychological* safe*" OR "psychological* W/3 safe*"

S1 AND S2 AND S3 = 853

Appendix 1-C

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

Identification of studies via databases and registers

Identification

Records identified from:
  Databases (n = 1939)
  Medline (n = 630)
  PsychInfo (n = 343)
  CINAHL (n = 434)
  Scopus (n = 372)
  Business Complete (n = 160)

→ Records removed *before screening*:
  Duplicate records removed (n = 734)

Screening

Records screened inc. retrieval (n = 1205)

→ Records excluded (n = 1170)

Reports assessed for eligibility (n = 35)

Included

Studies included in review (n = 19)
Reports of included studies (n =)

→ Reports excluded:
  Quantitative (n = 3)
  Different definition (n = 7)
  Students (n = 4)
  Patients (n = 1)
  Not a study (n = 1)

Appendix 1-D

A data extraction table to show the characteristics of papers included in the review

Author (Year)	Research Question/Aim	Study Design	Study Methodology	Study Outcomes (relating to organisational factors)
Agius et al. (2008)	To analyse hospital consultants' perceptions of the modernization process and its impact on their role as primary educators of Senior House Officers (SHOs), using Schein's extended model to explain their stage in the process of change.	Setting: Participants: 28 Consultants (12 tutors, 12 supervisors, 4 medical directors).	Semi-structured interviews.	Strategic presence Resources Other organisational influence.
Barron et al. (2021)	To explore shared benefits, value and impact for HSC professionals from using IoRN2 as a method of generating improved interprofessional conversations within an integrated intermediate care service.	Setting: Participants: 8 Healthcare professionals (2 nurses, 2 occupational therapists, 2 occupational therapist assistants, 1 social work care coordinator, 1 quality lead manager).	Semi-structured interviews.	Shared language.
Brown and McCormack (2011)	To implement and evaluate a programme of development that enabled the team to critically analyse practice and put existing research into practice (evidence).	Setting: Abdominal surgical unit Participants: 53 healthcare staff (1 lead nurse, 2 ward managers, 2 deputy ward managers, 48 nursing staff).	Emancipatory Action Research (Focus groups, Facilitated reflective spaces, Adhoc reflective spaces, Consolidation workshops).	Environment.

Brown and McCormack (2016)	To develop effective teamworking to enhance pain management practices with older people (facilitation). To develop an understanding of factors that inhibit or enhance pain management (context). To explore holistic facilitation as an approach to enable the healthcare team to critically analyse practice and enhance patient care.	Setting: Abdominal surgical unit Participants: 53 healthcare staff (1 lead nurse, 2 ward managers, 2 deputy ward managers, 48 nursing staff).	Emancipatory Action Research Facilitated critical reflection Reflexive journal.	Support Behaviour Leadership Culture.
D'Lima et al. (2018)	To examine individual professionals' perceptions of staffing risks and safe staffing in intensive care. Identify and examine the cognitive processes that underlie these perceptions.	Setting: Intensive care Participants: 44 healthcare staff (27 nurses, 13 physicians, 4 physiotherapists).	Semi-structured interviews.	Team make up.
Grailey, Leon-Villapalos, et al. (2021)	To quantify the presence of psychological safety in critical care staff, exploring the ways in which this manifested.	Setting: Critical care Participants: 30 critical care professionals (11 nurses, 3 physiotherapists, 16 doctors).	Semi-structured interviews.	Personality Culture Context Resources Motivation Alternative methods Hierarchy Roles Capacity.
Grailey, Lound, et al. (2021	To investigate the presence of perceived stressors, psychological safety and teamwork in healthcare	Setting: Emergency and critical care in one trust Participants: 58 staff (10 emergency, 39 critical care).	Semi-structured interviews.	Empowerment Barriers.

	professionals. (inc. impact of pandemic on these factors)		
Grailey et al. (2022)	To investigate how hospital managers perceive their role within the working environment. To explore how psychological safety manifests. To explore and quantify the presence of individual resilience in our sample of hospital managers. To explore the stresses faces by hospital managers within their workplace and any contributory factors.	Setting: 1 NHS trust (included 3 hospitals) Participants: 22 general managers.	Semi-structured interviews.	Futility Negatives Lack of opportunity Open door policy Experience.
Havsteen-Franklin et al. (2023)	Experience of a manualized arts therapy approach to team development	Setting: 3 mental health teams, 1 midwifery team Participants: 90.	Qualitative open text survey.	Facilitator style.
Hesselgreaves and MacVicar (2012)	To explore GP speciality trainees (GPST) perspectives of the impact of practice-based small group learning (PBSGL) on curriculum needs, preparation for independent practice, and facilitator learning.	Setting: Scotland GPSTs Participants: 16 GPSTs.	Semi-structured interviews.	Commonality Group make up.
Humphrey et al. (2016)	Draw attention to commissioning and service structures enabling implementation of evidence-based cost-effective care.	Setting: Child and adolescent mental health service.	Participant observer.	Staffing Team size.
Ingram et al. (2019)	To explore perceptions of paramedics in a rural setting	Setting: Welsh Ambulance Services NHS Trust	Semi-structured interviews.	Trust Attitude.

		Participants: 17 paramedics working in rural areas.		Training Resources Identity Environment.
Kelly et al. (2022)	To explore how knowledge/evidence is acquired, shared, and applied in the Critical Care environment for staff and patients/family members.	Setting: Critical care Participants: 46 critical care workers.	Semi-structured interviews Focus groups.	Hierarchy Accountability Identity.
Magola et al. (2022)	To develop an intervention to provide psychosocial support and support the development of professional behaviours and skills of foundation pharmacists in community pharmacy. To conduct an evaluation of the feasibility and acceptability of delivering this intervention.	Participants: 12 newly-registered novice community pharmacists.	Semi-structured interviews Facilitator log.	Leader affiliation Environment Stigma Learning.
Mannion et al. (2023)	To compare and contrast the core organisational processes across high and low performing mental health providers in the English National Health Service.	Participants: 60 staff (3 trust chief executives, 4 medical/clinical directors, 3 directors of nursing, 12 other board directors, 24 service managers, 4 consultant psychiatrists, 6 senior managers from local clinical commissioning groups, 4 patient representatives)	Qualitative case study Interviews.	Culture Hierarchy.
Mannion et al. (2023)	To understand how frontline reports of day-to-day care	Setting: Medical ward	Auto-ethnography	Partnership Boundaries.

	failing might be better translated into improvement.	Participants: 15 staff (3 junior doctors, 8 senior ward nurses, 4 non-clinical managers).	Semi-structured focus groups.	
Remtulla et al. (2021)	To identify the specific barriers and facilitators of psychological safety in primary care teams.	Setting: 4 primary care teams Participants: 20.	Semi-structured interviews.	Hierarchy Leadership Identity.
Woolgar and Archibald (2021)	To understand staff experiences of staff support groups. Explore which aspects of the groups were most helpful. Identify recommendations for future group improvements.	Setting: Neonatal Intensive Care Unit Participants: 33 staff (15 nurses, 8 medical, 5 pre-qual, 5 allied health professionals).	Survey.	Culture Logistics Leader Power.

Appendix 1-E

A table to show the critical appraisal results using the CASP checklist for qualitative research

	1. Was there a clear statement of the aims of the research?	2. Is a qualitative methodology appropriate?	3. Was the research design appropriate to address the aims of the research?	4. Was the recruitment strategy appropriate to the aims of the research?	5. Was the data collected in a way that addressed the research issue?	6. Has the relationship between researcher and participants been adequately considered?	7. Have ethical issues been taken into consideration?	8. Was the data analysis sufficiently rigorous?	9. Is there a clear statement of findings?	10. How valuable is the research?
Agius (2008)	Y	Y	CT	Y	Y	CT	Y	CT	CT	Y
Barron (2021)	Y	Y	Y	Y	CT	CT	CT	CT	CT	CT
Brown (2011)	Y	Y	Y	CT	Y	Y	CT	Y	Y	CT
Brown (2016)	Y	Y	CT	CT	CT	Y	Y	Y	Y	CT

D'Lima (2018)	Y	Y	Y	Y	Y	CT	Y	Y	Y	Y
Grailey (2021a)	Y	Y	Y	Y	Y	CT	Y	Y	Y	CT
Grailey (2021b)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Grailey (2022)	Y	Y	CT	Y	Y	Y	Y	Y	Y	Y
Havsteen-Franklin (2023)	Y	Y	Y	Y	Y	CT	CT	CT	CT	CT
Hesselgreaves (2012)	Y	Y	Y	Y	Y	CT	Y	Y	CT	CT
Humphrey (2016)	Y	Y	Y	Y	CT	CT	CT	CT	Y	Y
Ingram (2019)	Y	Y	Y	Y	Y	CT	Y	CT	Y	CT
Kelly (2021)	Y	Y	CT	Y	Y	Y	Y	CT	Y	Y
Magola (2022)	Y	Y	Y	Y	CT	CT	CT	Y	Y	Y
Mannion (2023)	Y	Y	Y	Y	Y	CT	CT	CT	Y	CT
Pannick (2017)	Y	Y	Y	Y	Y	Y	CT	CT	Y	CT

Remtulla (2021)	Y	Y	Y	CT	Y	Y	Y	CT	Y	CT
Woolgar (2021)	Y	Y	CT	CT	Y	CT	CT	CT	CT	Y

Appendix 1-F

A table to show the matrix of included studies and identified themes

	Attitude		Structure			Resources	Environmental
	Leadership	System Wide	Processes	Hierarchy	Job role expectations	Team composition	Physical and psychosocial
Agius (2008)	-	R	D	-	RD	-	RD
Barron (2021)	-	D	-	R	-	-	-
Brown (2011)	-	-	-	-	-	-	R
Brown (2016)	R D	-	-	-	RD	-	RD
D'Lima (2018)	-	-	-	-	-	D	-
Grailey (2021a)	-	R	R D	R D	R D	-	R D

Grailey (2021b)	-	-	-	R	-	R	R
Grailey (2022)	R	R D	R	R D	R	-	R
Havsteen-Franklin (2023)	R	-	D	R	R	-	R
Hesselgreaves (2012)	-	-	-	-	-	D	R
Humphrey (2016)	-	-	-	-	-	R D	-
Ingram (2019)	-	R	-	-	R	-	R
Kelly (2021)	-	-	-	R	R D	-	D
Magola (2022)	-	-	-	-	-	-	R D
Mannion (2023)	-	R D	-	R D	-	-	-
Pannick (2017)	-	-	-	-	-	-	R
Remtulla (2021)	R D	-	-	R D	D	R	-
Woolgar (2021)	R	R	-	-	D	-	D

Appendix 1-G

Examples of thematic synthesis process
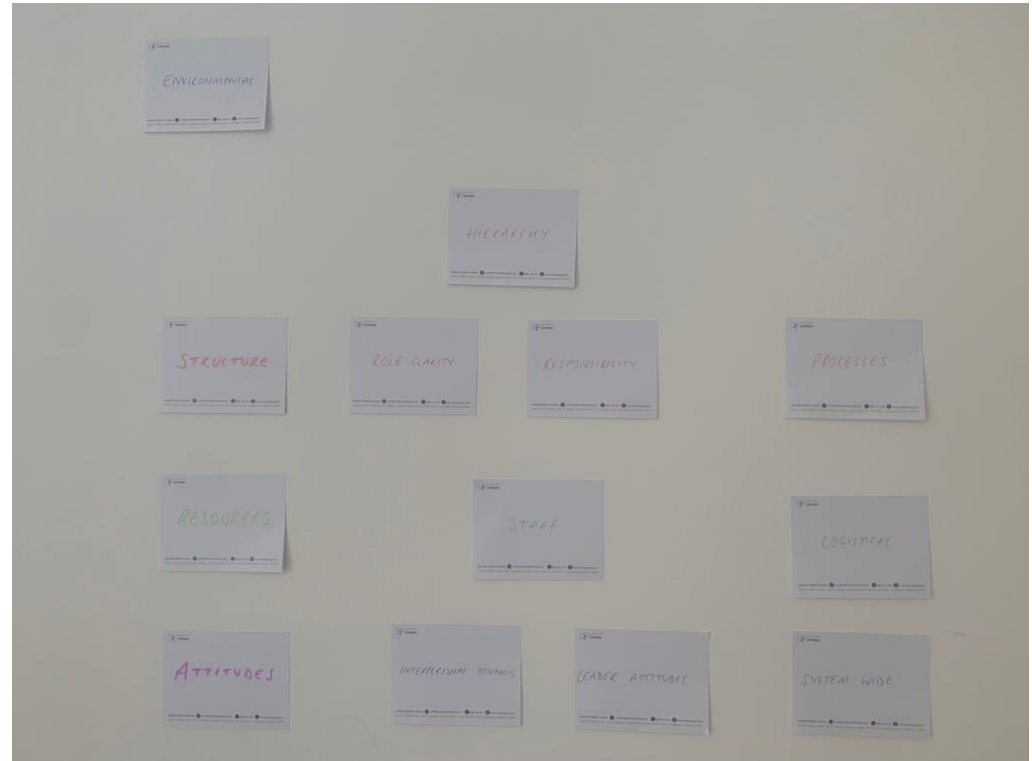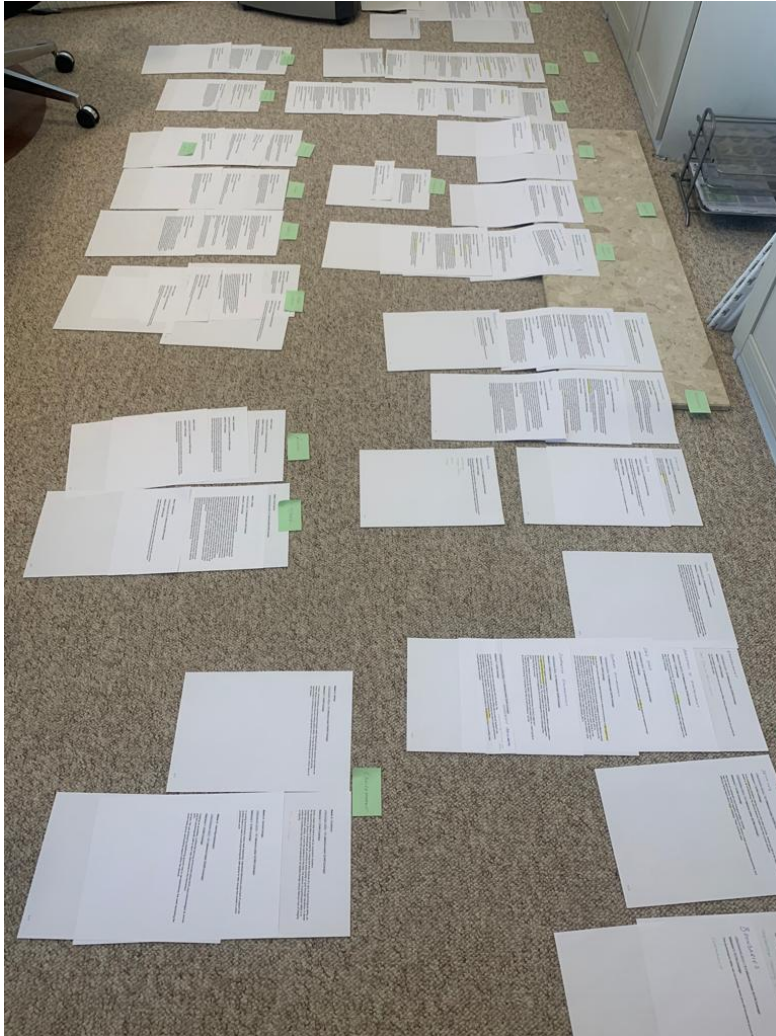
Section 2: Research Paper

Exploring psychological safety in NHS operating theatre teams: A grounded theory study.

Word count (excluding references, tables, and appendices): 7,998

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Prepared for submission to BMJ Open

See Section 5 for submission guidelines.

Abstract

Background

NHS operating theatres require teamwork and communication in high-risk environments. Policy encourages speaking up in operating theatres to improve patient care. Despite this, staff report a fear of raising concerns in various circumstances for different reasons. Psychological safety is a desired concept where individuals feel able to take interpersonal risks and speak up within a team. Healthcare policies about speaking up, predominantly aim to improve patient safety. The way psychological safety works in NHS operating theatres has not been studied previously.

Purpose

This purpose of this study is to describe how psychological safety works in NHS operating theatres, by exploring the experiences of operating theatre staff.

Method

Eleven NHS operating theatre staff participated in semi-structured interviews. Data was analysed using grounded theory methodology.

Findings

The research found whether staff felt their team was 'good' or 'not good' influenced the presence of psychological safety. Factors relating to hierarchy, learning, or relationships fed into this staff perception. Patient safety was viewed as an important area of speaking up that occurred despite poor psychological safety. NHS governance reinforced the team perception.

Discussion

Through increased understanding of psychological safety within NHS operating theatres a wide range of future research areas and current clinical implications with benefits for staff wellbeing and learning have been identified. The study highlights key factors promoting psychological safety, recognises the use of communication tools and has identified NHS governance as a reinforcer of psychological safety. These findings may support the implementation of NHS policy within operating theatre teams.

MESH: Patient Safety, Grounded Theory, Psychological Safety, State Medicine, Health Policy, Communication, Patient Care

Introduction

The NHS and operating theatres

The National Health Service (NHS) is the healthcare service funded by the UK government, that provides care to UK residents which is free at the point of delivery. The NHS consists of multiple organisations that provide a range of services through a variety of specialities. Within operating theatres, surgical procedures are performed to treat an individual's illness, injury, or functioning. The multi-disciplinary environment includes surgeons, anaesthetists, nurses, operating department practitioners, healthcare assistants, porters, students, and other allied healthcare professionals (1). These staff work together towards a shared goal by combining their specialist skills in an improvised manner (2-4). Surgical interventions intend to save and improve life however, unsafe surgical care can cause harm. Due to unsafe care, patients experience adverse events including death and disability, which are often avoidable (5-7). More than half of those happening in the operating theatre are described as preventable (8). Therefore, investment to improve patient care through reducing preventable adverse errors can lead to better patient outcomes (9, 10). The World Health Organization (WHO) (8) identifies communication as a critical factor within operating theatre teams for patient safety. A global initiative to address surgical safety is the implementation of the WHO Surgical Safety Checklist (8, 11). This tool was enhanced by the introduction of the Five Steps to Safer Surgery in the NHS (12). These processes aim to enhance patient safety through improving communication within the operating theatre.

NHS policies relating to speaking up

The NHS aims to improve patient care through insight, involvement, and improvement (13). The NHS requires individuals, teams, and organisations to acknowledge errors can occur and raise concerns to enable the continuous improvement of patient care. However, the Freedom to Speak Up review (14) reported on challenges to this due to the bad treatment of people who speak up and their associated distress.

Adverse events can occur due to multiple errors across a system (15). The Swiss cheese model of errors acknowledges how systems have defensive layers to mitigate the risk of human error. However, the layers have changing "holes" that appear due to errors associated either with unsafe acts by a person (active failures) or residual problems arising from strategic decisions within the system (latent conditions). When these holes align momentarily, they permit an opportunity for an adverse event, which can therefore lead to organisational learning. From this understanding (15), the paper considers the importance of trust within the reporting culture and highlights how the existence of a 'just culture' creates a system-based learning culture rather than individual blame.

Current NHS policy encourages a 'just culture' to enable staff to feel confident in speaking up rather than fearing blame (16). Governmental reports recommend the NHS moves away from a blame culture towards a learning culture (14, 16, 17). This is due to individuals being punished for errors and fearing consequences, leading to individuals not speaking up about concerns (14). Creating and prioritising learning from events has been found to improve patient care (18).

The NHS People's Plan (19) aims to improve the experience of working in the NHS. The plan includes the People's Promise (20) outlining expected behaviours and actions, this includes a promise that 'we each have a voice that counts' through feeling safe and confident to speak up. The 2022 NHS staff survey identified only 61.5% of staff felt safe to speak up about concerns and 58.1% of staff said their organisation treated staff involved in an error fairly (21). The survey response rate was 46% of NHS staff, questioning the associated factors that enabled or prevented staff to speak up through the survey (21).

Therefore, despite policy advocating staff to speak up to protect and improve patient care, there continues to be barriers and associated risks for the individual which include fearing consequences and poor staff wellbeing. The NHS Patient Safety Strategy identifies the concept of psychological safety as a fundamental element of enabling staff to speak up (13).

Psychological safety

Psychological safety is a concept defined by Edmondson as "a shared belief held by members of a team that the team is safe for interpersonal risk taking" (22) pg. 350. Psychological safety within a work environment, represents how an individual perceives their colleagues responses to their interpersonal risk-taking behaviour (23) such as speaking up, raising concerns, and discussing differences with colleagues (22). It describes an individual's perception that the team will not respond negatively to them by embarssing, rejecting, or punishing them. This enables the individual to express themselves without fear of negative consequences (22, 24).

A positive relationship between psychological safety and factors associated with learning behaviour and performance have been found in organisational behaviour research (25, 26). Reviews have also found psychological safety positively impacts communication and voice behaviours, innovation and creativity, along with employee attitudes (22, 25-27). Psychological theory explains in a psychologically safe environment, the potential threat of others responding with retaliation, rejection, or guilt is reduced and therefore the risk to the individual's self-image, status, or career is lowered (24, 28). Therefore, individuals are more likely to speak up, learn, and develop in a psychological safe environment.

Within work settings, reviews have found individual and team differences, positive leadership relations and behaviours, along with supportive organisational practices enable psychological safety (26, 29). Psychological learning theory offers understanding of relationships between these factors and psychological safety in organisational contexts. Social learning theory (30) may explain the relationship through the impact of leaders modelling to their team that it is safe to take risks and communicate. Social exchange theory (31) could support the understanding by people reciprocating supportive behaviours to their colleagues. Social identity theory (32) has been proposed to understand the relationship through employees identifying with their team. Status characteristic theory (33) has been used to explore how the higher individual and/or team perceived status positively influences psychological safety.

Psychological safety in healthcare

Edmondson discovered the importance of psychological safety to teamworking in healthcare settings, finding better teams reported more mistakes

(34). NHS policy encourages staff to speak up, therefore creating a psychologically safe climate is encouraged by healthcare leaders (13, 34-36).

Focussing on healthcare teams, facilitators and barriers of psychological safety have been found at the individual, team, and organisation level. A systematic review identified enablers of psychological safety to be; patient safety, learning, support, and familiarity with colleagues and the hierarchy (37). In NHS primary care teams, barriers to psychological safety were identified as hierarchy, lack of knowledge, authoritarian leadership, and personality (38). This raises the question of, how does psychological safety work in a system which is inherent of the identified barriers.

Psychological Safety in NHS Operating Theatres

Hierarchy has been found as a barrier to psychological safety, with a flatter hierarchy encouraging speaking up (27). Within NHS operating theatre teams, a hierarchy is present intra- and inter-professionally. This often corresponds to those in senior positions holding more power, due to increased skill and/or responsibility. The operating theatre is viewed as a learning environment by medical training systems, with lower status staff observing senior colleagues for career development. Individuals receive supervision and teaching, with their skill competencies being approved by senior colleagues. Therefore, those more senior in the hierarchy may hold power over others' careers which could contribute to a lack of psychological safety.

Edmondson described how psychological safety develops in a team overtime and is implicitly perceived by individuals without discussion (22). There is mixed evidence on whether a relationship between psychological safety and time exists, is

linear, or a u-shape curvilinear relationship (39). Psychological safety differs across teams within the same organisation and between different organisations (40). The staffing of an NHS operating theatre contains some people who work consistently together and others who change frequently, often due to training needs and resourcing.

Current research and policy within the NHS, focuses on psychological safety impacting patient safety (13, 36, 41). Psychological safety encapsulates the ability to speak up without fear, however it is also associated with performance, learning, and innovation which could benefit operating theatre teams and the wider organisation.

Study rationale

NHS operating theatres offer significant beneficial patient outcomes but come with inherent life changing risks. Surgery requires teams of individuals with highly specialist roles to work together to fulfil potential benefits, whilst the patient is often unable to speak up due to anaesthesia and therefore trusts the team will protect them in their healthcare journey. Whilst errors can be catastrophic to patient safety, team communication has been identified as a leading contributing and protecting factor that must be encouraged and improved. The NHS has implemented policy to address this, but significant proportions of the workforce feel their communication is stifled (21). Psychological safety has been identified as crucial for teams to communicate, innovate, learn, and perform. These are critical attributes for operating theatre teams, if positive patient outcomes are to be achieved.

Currently there is limited research of how psychological safety operates in the context of the NHS specifically, and it is unclear whether it differs from the more researched international healthcare settings and non-healthcare related industries.

There is a current gap in the evidence base for research considering how psychological safety works within NHS operating theatre teams explicitly, therefore the identification of factors and associated processes would be useful. In addition, much psychological safety research (e.g., hierarchies and team make up) appears to contradict the factors present in NHS operating theatre teams. Finally, studies of psychological safety in healthcare have predominantly explored patient safety outcomes with limited consideration of additional potential benefits to learning, innovation, and staff wellbeing. It is not understood how psychological safety within the NHS, and specifically operating theatres, may impact potential outcomes, and be implemented in patient safety policy.

This study aims to form a theoretical understanding and model of the way psychological safety currently exists in NHS operating theatres. Due to limited theoretical research in this specific area, this study aims to use a grounded theory approach to generate theory with explanatory power of how psychological safety works in NHS operating theatres.

Method

The aim of this research was to understand how NHS operating theatre staff experience psychological safety. To achieve this, the objectives were to (a) understand operating theatre staff's experiences of psychological safety, (b) explore the enablers and barriers to speaking up within an operating theatre and (c) explore how this impacts outcomes such as patient safety, learning, and innovation. Eleven semi-structured interviews of NHS operating theatre staff were conducted, and a grounded theory methodology was utilised for analysis.

Methodology

Grounded theory methodology was used as it supports the aims of qualitative research to generate theory that explains a phenomenon the participants experience (42, 43). A constructivist grounded theory approach was deemed most appropriate as this explores how participants construct their experiences, through the generation and integration of theoretical codes and categories (43). A constructionist epistemological stance places emphasis on the interactions between people and how their explanations construct reality, whilst accounting for the interaction of the researcher in constructing the theory emerging from the participant's data. The researcher's position, privileges, and perspectives impact the interactions with the participants and their data and are therefore seen as an unavoidable influence, inherent in the research process (43). This is different to the view of there being an objective reality, as suggested by positivist grounded theory (43, 44).

Ethics

Ethical approval was obtained from the Lancaster University Faculty of Health and Medicine Research Ethics Committee (FHMREC) (approval reference: FHM-2022-0737-RECR-2). Prior to interview, all participants provided written informed consent. Debriefing and relevant signposting to sources of support was conducted following all interviews. No ethical issues requiring breach of confidentiality were disclosed. Identifiable information was redacted from interview transcripts. Pseudonyms have been used to provide anonymity.

Participants

Eligible participants were recruited through dissemination of a social media post advertising the study (Appendix 4C in ethics). Participants were eligible if they were over 18 years old and worked in an NHS operating theatre for more than six months. Seventeen potential participants expressed their interest by emailing the lead researcher, they were provided with the information sheet and consent form (Appendix 4E and 4F in ethics) prior to interviews being arranged. Eleven participants were recruited to interviews, their demographic information is presented in Table 1.

Table 1: Participant demographics

Participant number and Pseudonym	Gender	Age	Ethnicity	Job Role	Time working in NHS theatre
1 Tara	Female	61	White Canadian	Anaesthetic Nurse	32 years
2 Dominic	Male	48	White British	Senior Operating Department Practitioner	23 years
3 Anthony	Male	53	White British	Consultant Orthopaedic surgeon	33 years
4 Alex	Male	36	White British	Operating Department Practitioner	15 Years
5 Ryan	Male	32	White British	Plastic Surgery Registrar	7 years
6 Harriet	Female	40	White British	General Surgery Registrar	17 years
7 Hannah	Female	47	White British	Consultant Orthopaedic Surgeon	20 years
8 Ronnie	Male	59	White British	Operating Department Practitioner	30 years
9 Greg	Male	31	White British	General Surgical Registrar	5 years
10 Clara	Female	36	White British	Operating Department Practitioner	17 years
11 Charlie	Male	29	White British	Anaesthetic Registrar	3 years

Data Collection

Semi-structured interviews were used to enable the interviewer to follow the optimal route through the participant interview, whilst coordinating the conversation in line with developing theory (42). Interviews were conducted and recorded using Microsoft Teams, arranged at the participant's preferential time and date. Interviews were conducted between March and July 2023, they ranged between 44 and 89 minutes in duration. An initial topic guide was developed (Appendix 4-G) and in line with grounded theory, it was adapted between interviews guided by emerging themes and concepts (42, 43). This enabled data collection and analysis to occur concurrently (42-44). Theoretical sampling was used towards the end of the interviews (Appendix 2-A), to refine the emerging categories by identifying participants from particular specialties (43).

Data Analysis

The analysis of the data was conducted in line with constructivist grounded theory (43). The transcriptions of the interviews were read line-by-line and initial codes formed (Appendix 2-B). Memos (Appendix 2-C) were used by the researcher to document reflections on the emerging theoretical understanding, these enabled an iterative process which provided insight into areas for exploration in future interviews. Data was collected and analysed until theoretical sufficiency (45) was reached, this is where categories have enough data to generate the theory (Appendix 2-D) and new data does not lead to adjustments.

Reflexivity

Aligning with a constructivist grounded theory approach, the researcher's influence was considered throughout. The lead researcher had no prior professional experience of working in an operating theatre but had personal experience of being a patient and a relative of an operating theatre staff member. The lead researcher engaged in frequent supervision with two research supervisors of different professions and experiences, to reflect on their own position in relation to the study. This awareness supported the research to remain grounded in the data.

Results

The principal concerns operating theatre staff described as impacting psychological safety are shown along with their interactions in Figure 2. The factors relate to organisation, leadership, teamwork, learning, and patient safety. Factors occur at system, group, and individual levels, culminating in staff members considering whether the team they are working in is a 'good' team or not. Improved perception of a team increased the likelihood of staff speaking up. A strong factor, described as always facilitating participants to speak up, was patient safety. When in a team perceived as 'not good', staff described using communication tools to enable speaking up. Organisational governance is both a positive and negative reinforcing factor.

Figure 2 Grounded theory model
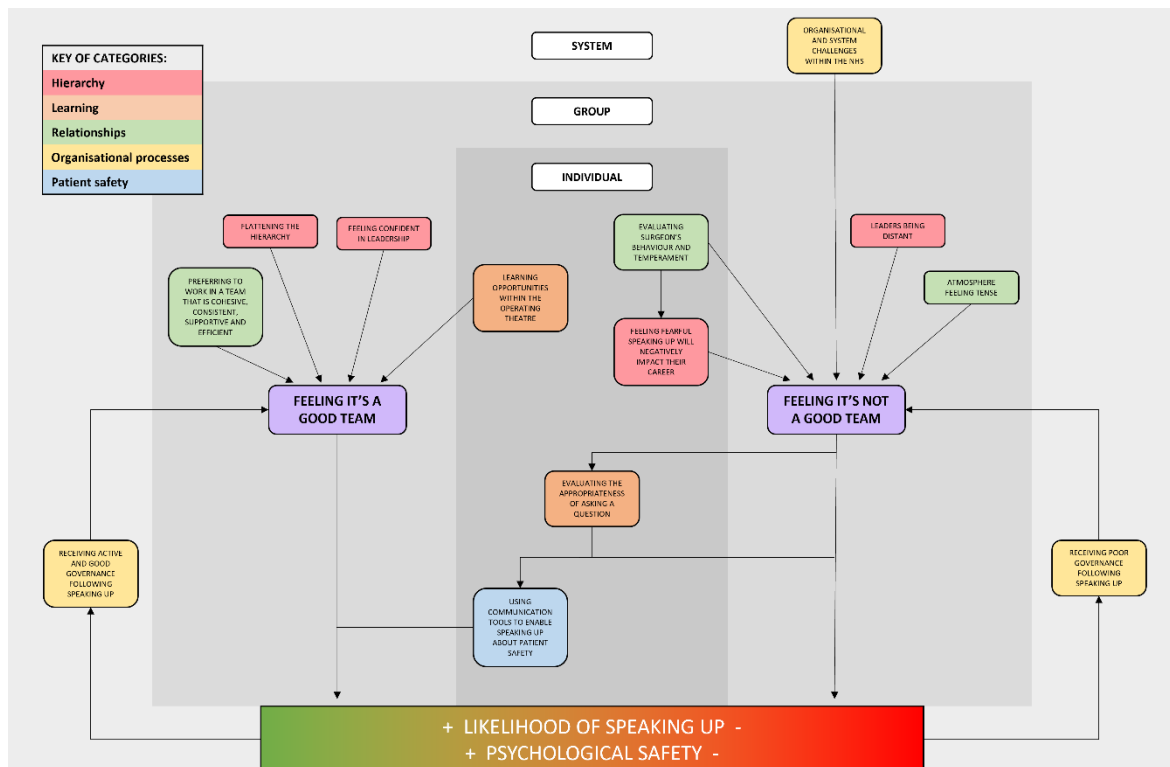
For a landscape version see Appendix 2-E

Theme 1: Feeling it's a good team improves psychological safety

The data demonstrated value in teams having positive relationships with each other. Staff preferred working in certain teams explaining this improved their psychological safety, efficiency, and enjoyment in work. Four main sub-categories impacted the perception of a 'good' team; preferential team, hierarchy, confidence in leadership, and learning opportunities.

Subtheme 1.1: Working in a cohesive, consistent, supportive and efficient team benefits psychological safety

Positive relationships with colleagues impacted psychological safety, conversations with people who are *"nice and [aren't] going to bat away your opinions"* led to feeling *"much more likely to speak up"* (*Ryan, Surgeon).* For psychological safety, individuals need to feel safe in the interpersonal relationship and not anticipate a critical or invalidating response from colleagues.

Specific roles within theatre, such as anaesthetists, were named as having positive attributes associated with being *"relaxed" (Anthony, Surgeon)* and *"laidback" (Charlie, Anaesthetist).* This facilitated the communication between different professions and enabled it to feel like a good team; *"consultant anaesthetists are pretty good about supporting staff." (Tara, Anaesthetic Nurse).* It appears knowing a colleague is supportive and approachable increased the likelihood of psychological safety, particularly within that relationship.

Staff preferred working in a consistent or known team, due to their working styles being accommodated for, which enabled speaking up; *"where it [communication] goes well is normally with people I get on with" (Ryan, Surgeon).*

Although operating theatre teams frequently change, psychological safety was improved when the team was known to each other.

Colleagues being supportive was an attribute that was revered by many, particularly in relation to mental health;

"Have we looked after our colleagues properly? Have we actually given them the crash mat to fall on? Or are we pulling the chair from underneath them?" (Alex, ODP)

Theatre staff recognised wellbeing can impact ability, and they seem to have an increased likelihood of speaking up about their mental health needs when colleagues are aware and curious.

Subtheme 1.2: Hierarchy can encourage or restrict the ability for different people to speak up

Some participants reported their efforts of *"trying to level the hierarchy and create a flat hierarchy [which encouraged the] ability and freedom to actually speak up" (Alex, ODP)*. This could increase psychological safety of less senior staff and improved communication amongst staff at different NHS pay scales.

However, *"flattening the hierarchy doesn't benefit some people the same as others" (Harriet, Surgeon)*. Hierarchical cultural differences in UK healthcare were noted as potentially conflicting and confusing experience for staff *"from another country where there's a different sort of culture, […] they find it really difficult to speak up actually, even when directly empowered to do so" (Charlie, Anaesthetist).*

It was unclear if a flat or steep hierarchy provided improved psychological safety compared to the other, as benefits and challenges of both were raised by participants.

Subtheme 1.3: Feeling confident in leadership improves speaking up

Leaders able to adapt and lead with compassion supported speaking up from staff; *"we are all human" (Alex, ODP)*. Participants experience of their leaders was important; *"It's [being] kind, it's treating people as individuals and as human beings" (Harriet, Surgeon)*. Leadership attributes which fostered psychologically safe team cultures, included those who had *"the knowledge and the insight to sign post" (Alex, ODP)* to mental health resources and had awareness of mental wellbeing.

Staff described increased psychological safety when they valued the leader, this was associated with senior leaders who *"had been able to do the job very well in the past" (Greg, Surgeon)* but less with leaders early in their development *"a band 6 makes you a leader, but you may only have one- or two-years experience." (Tara, Anaesthetic Nurse)*. It appears psychological safety is greater when leaders have clinical experience and maintain clinical connections.

Notably, senior leaders inside the operating theatre, such as consultant surgeons, described themselves as in charge of situations; *"I lead it because I'm in charge" (Anthony, Surgeon)*. These leaders assumed they could provide the team with a psychologically safe environment and only individual factors such as *"ignorance"* and *"not knowing which channels to use" (Anthony, Surgeon)* were considered as preventing others speaking up. Whereas theatre practitioners suggested it was staff in lower hierarchical positions that enabled them to speak up; *"there's people there who actually maybe better leaders in the time of crisis"*

(Dominic, ODP). There could be a disparity where leaders feel they are providing the psychological safety, but the team is seeking it out from others.

Subtheme 1.4: Prioritising learning opportunities supports psychological safety

Participants discussed the operating theatre as an environment where learning can and should occur. Participants appreciated teams where *"open discussion" (Dominic, ODP)* occurred as this could lead to learning and may foster a psychologically safe environment.

Staff were more comfortable to speak up and ask questions in relationships where mentoring was present and appreciated, which in turn benefited learning.

> *"It stimulates learning because they're asking questions […] you can show them you can guide them." (Ronnie, ODP)*

In contrast, lack of prioritisation of learning negatively affected staff likelihood of speaking up. It was acknowledged that not everyone wants to teach in a formalised style and *"forcing people to be mentors is not the way forward" (Ronnie, ODP).* It seems important for the psychological safety of those learning, that mentors want to be in a teaching role.

Practitioners used time in the *"coffee room"* to support conversations, learning, and debriefs particularly with juniors; *"They [juniors] certainly in the coffee room would speak up more" (Dominic, ODP).* Surgeons acknowledged speaking up *"outside it [operating theatre] or before an operating list" (Ryan, Surgeon)*, identifying these locations as more predictable and appropriate locations for conversations about innovation. A consensus exists across participants of what is appropriate to speak up about within theatre, predominantly patient safety concerns, compared to

outside the operating theatre. This may be due to the staffs' focus on the patient and their operation, compared to a more relaxed environment within the coffee room which offers increased psychological safety.

Theme 2: Feeling it's not a good team negatively impacts psychological safety

The second key category considers the contrasting experience, how working in a team participants perceived as 'not good', contributed to being less likely to feel psychologically safe.

> *"some shifts where you know who's going to be on and you feel like you're on a war footing from the off" (Greg, Surgeon)*

There were five overarching sub-categories that influenced the team being 'not good': surgeon's temperament, fear of impacting career, organisational challenges, distant leaders, and tense atmosphere.

Subtheme 2.1: Evaluating surgeon's behaviour and temperament before speaking up

Participants experiences with surgeons in operating theatres highlighted a delineation between the traditional and modern surgeons. The traditional surgeon was described as having power and authority preventing colleagues speaking up, compared to the desired modern surgeon who encouraged and enabled teamwork.

> *"it's rare to find the newest surgeons being very insistent on a hierarchy" (Charlie, Anaesthetist)*

The traditional surgeon's behaviour can directly change the atmosphere and negatively influence staff readiness to speak up.

Positive change over time was acknowledged however, all participants discussed the threat and occurrence of a surgeon being volatile. Volatile behaviour was described as "anger" and "shouting" which resulted in staff "retreating" and negatively impacting psychological safety; *"the more you [surgeon] shout and scream at them [staff], the less they're gonna communicate with you." (Tara, Anaesthetic Nurse).* It appears the likelihood of operating theatre staff experiencing psychological safety is significantly reduced when a surgeon's temperament is volatile.

Surgeons acknowledged the change and impact of their behaviour and spoke of patient safety as a rationale.

"I don't shout at them very often, but every now and then, they've got to understand the severity of the situation." (Anthony, Surgeon)

This rationale suggests surgeons may prioritise the immediate patient safety need over longer-term impact on psychological safety. Staff seem to then hold a negative narrative about that surgeon and lack psychological safety in their presence.

Surgeon's temperament was associated with their *"task focused"* and *"tunnel vision"*, which when combined, contributed to a 'not good' team and reduced psychological safety due to "*communication [going] really poorly" (Dominic, ODP).* Surgeons appreciated staff speaking up at these times.

"[staff] can ask brilliant questions and point out things that maybe we haven't seen because we get tunnel vision" (Hannah, Surgeon)

It was suggested that offering an intervention to evaluate the surgeon's wellbeing prior to the day starting, would enable mitigation of it feeling like a 'not good' team and improve psychological safety.

"every morning we should talk about that sort of thing, […] it would be nice to say has the surgeon had a bad day the previous day" (Dominic, ODP)

There seems to be a privilege given uniquely to surgeon's wellbeing, due to its negative impact on the psychological safety of the wider team. The power a surgeon holds within the team may strongly influence team dynamics.

Subtheme 2.2: Feeling fearful speaking up will negatively impact career

Surgical trainees fear senior surgeons impacting their career progression due to speaking up, which acts as a barrier to psychological safety. A surgeon not in training reflected on their own experience compared to their perception of the current process and described how they believed this fearful practice has stopped in modern training.

"That doesn't happen now because everything is going to be above board, […] I suspect in the past people didn't want to be seen to be troublemaker." *(Anthony, Surgeon)*

However, multiple trainee surgeons highlighted this fear as an ongoing powerful demotivator to speaking up.

"So to get through our training is like an active survival. Can I speak up and survive that? So as a trainee, do you know will I be trained ever again? Will I ever get to operate again?" (Harriet, Surgeon)

This seems to indicate surgical trainees evaluate the risks and choose not to speak up to protect their careers, despite others believing this is no longer a barrier.

In addition, other professions feared speaking up could impact their career, due to being *"easily replaced in comparison to them [doctors]"* (Clara, ODP).

Highlighting some staff consider their risk of redundancy to be higher than others. All team members may fear speaking up due to potential impacts on their career.

Subtheme 2.3: Organisational and system challenges within the NHS as a barrier to psychological safety

The way in which organisations offer support, provide resources, and validate the needs of operating theatre teams impacts the psychological safety felt by staff. A lack of organisational support reduced staff's sense of psychological safety.

Participants described the operating theatre as a "community within a community", explaining they are a boundaried system that works differently to the wider NHS. The *"privilege" (Dominic, ODP)*, yet disparity to the rest of the hospital, of having a team of people to care for one patient was acknowledged. This reduced the likelihood of speaking up greatest when handing-over and debriefing.

During patient handover from ward staff to operating theatre staff, participants described the *"frustration of the wards not knowing what to do"* and *"sending the most junior staff" (Tara, Anaesthetic Nurse)*. This appears to be perceived as a lack of respect for the gravitas of theatre in the patient's journey and acted as a barrier to psychological safety.

Organisational pressures, including waiting lists and staff shortages, contributed to teams feeling busier and 'not good', particularly reflecting on pre-pandemic times.

> *"I feel as though we're nowhere near what we were doing pre-covid so like patients won't turn up like patients get cancelled […]. I think you just massively feel inefficiency, the whole time." (Harriet, Surgeon)*

The pandemic appears to have caused a lasting impact on the staff and processes, predominantly associated with inefficiency. One participant noted the operating theatre community was treated differently during the coronavirus pandemic, expected to "*return back to normal activity and increased activity due to government pressures and wait list pressures" (Dominic, ODP)*. A lack of support and feeling unseen by organisation leaders resulted in theatre staff not speaking up about their wellbeing needs.

These, alongside staff wanting to finish their shift on time, led to debriefs *"not always happening" (Dominic, ODP)*, *"paid lip service" (Ronnie, ODP)* or happening *'at home' (Clara, ODP)*. Debriefs are used to identify learning, barriers to efficiency, and potential errors, alongside positive feedback about the operating theatre team. Debriefs happening quickly, remotely, and potentially ineffectively, could act as a barrier to psychological safety.

Subtheme 2.4: Leaders being distant reduced speaking up

The lack of theatre managers presence in the operating theatre negatively impacted psychological safety. Distant leaders were described as not commanding respect and confidence compared to the leaders, sometimes of less seniority, who were present in the clinical space.

> *"they're [theatre managers] pulling the strings within the clinical sphere, but they tend to be outside and so that integration might not always be there, […], do they know what effect it's having on the team inside" (Ronnie, ODP)*

When led from afar, participants appear to have less respect and confidence for the managers outside the theatre which reduced psychological safety. This in turn contributed to the team feeling 'not good'.

Subtheme 2.5: Tense atmosphere acts as a barrier to psychological safety

Participants noted how *"tension in the room" (Dominic, ODP)* contributed to perception of working in a 'not good' team. Participants described theatre managers as holding power over the theatre atmosphere, creating a barrier to feeling psychologically safe.

> *"management can make a bad team, they might favour one particular group of people, one particular team, as opposed to another" (Ronnie, ODP)*

It is apparent that different roles could have significant control over the atmosphere within theatre, impacting psychological safety.

Responsibility to speak up about the atmosphere was considered by participants. Senior theatre practitioners often felt and were expected to speak up about these problems.

> *"we always have a list lead who is either a senior ODP or nurse and they're the people who should be the ones who are picking up on the atmosphere, directly addressing the surgeon." (Dominic, ODP)*

However, despite speaking up, it was described as not being acted on by leaders reducing psychological safety.

All participants described finishing shifts on time as impacting theatre atmosphere. Finishing late due to lists overrunning and poor leadership, contributed to feeling it was a 'not good' team. With a lack of psychological safety, but high importance of finishing on time, staff covertly communicate concerns which could irritate surgeons who are still operating.

"you get the feeling that there is a topic of conversation within the room being like, are we gonna finish on time?" (Ryan, Surgeon)

Additionally, staff communicate the importance of finishing on time by finding workarounds instead of raising the issue.

"people are fed up with the NHS, […] they hate the fact that they don't get out on time. So if they slow the list down so that it becomes impossible to send for the last patient, that means that you will finish a little bit earlier […] then they get out on time." (Hannah, Surgeon)

It is clear that staff meet their needs through alternative strategies to voicing their needs when the environment is not psychologically safe.

Surgeons reported this behaviour made them feel they were working in a 'not good' team due to patients not being prioritised. This created a tense atmosphere where surgeons described their responsibility for informing patients of cancelled operations, going against their values.

"if we don't manage to get to the end of the list, so someone gets cancelled and that's the worst thing personally for me, going up to a patient and having to apologize, that we've not managed to do their operation" (Anthony, Surgeon)

The disagreements to the workaround of not having psychological safety could be due to the distance of the operating theatre staff who delayed the list, from the patient facing conversation of the surgeon. However, both professionals are working in line with their values yet disagreeing due to a lack of psychological safety.

Theme 3: Speaking up despite feeling it is not a good team

Despite team perception that speaking up is improved in 'good teams', participants explained how both 'good' and 'not good' teams are able to exhibit speaking up behaviour. However, key to psychologically safe teams is the ability to speak up without fear of consequence or other persuasive factors. Participants explained how other factors such as appropriateness of asking a question and concerns about patient safety are more powerful than the fear of consequence to themselves. Therefore, this indicates the action of speaking up does not confirm the presence of psychological safety.

Subtheme 3.1: Evaluating the appropriateness of asking a question

Participants experienced helpful and unhelpful responses to questions they asked in theatre which enabled or prevented a psychologically safe space in the future.

"if you're shot down for asking a question, you're unlikely to ask another one. If your questions well received […], then you're more likely to ask another one and therefore learn from it." (Ryan, Surgeon)

Further complexity around the responses given related to the perceived appropriateness of questions.

"There's like three types of question […] The first question is essentially a stupid question like, if you don't say anything, you'll find out the answer just by watching. […] the second type is asking a question that you know the answer to and you're trying to show off. […] the third type is actually a genuine question you're asking because it's relevant […] So that slightly changes then how you respond" (Ryan, Surgeon)

It appears this questioning style is learnt by theatre staff through experience of asking and responding to questions at inappropriate times. Despite potential psychological safety, staff become aware of when the recipient is not available to answer in a positive style that reinforces the ability to speak up.

> *"I see people ask a question which the question's fine, but it's just the wrong time that they're asking it. […] you might get a short response because they're trying to concentrate on something." (Ryan, Surgeon)*

This insight and response happened more in teams that did 'not feel good'. The identified associated factors of a poor team may increase the risk of questions being deemed inappropriate, which in turn may decrease psychological safety.

Subtheme 3.2: Using communication tools to enable speaking up about patient safety

All participants described protecting patient safety as a factor which strongly encouraged speaking up; *"If it was a patient safety issue, no, I would always speak up." (Ronnie, ODP).* This occurred despite potential negative consequences to elements such as their self-worth, image, or career; *"obviously if it's something that is gonna affect the patient then you would say it and the consequences are just the consequences." (Ryan, Surgeon).* This ability to speak up about patient safety was explained by participants as facilitated by it being part of their job; *"For me, it's like I'm doing my job, so you need to stop, […] think, […] you need to listen to your nurse." (Tara, Anaesthetic Nurse).* The importance of patient safety seems to override personal risk when speaking up. This may be due to the presence of hospital policies and procedures that prioritise and encourage speaking up about patient safety.

Speaking up about patient safety when working in a team perceived as 'not good' required additional processes. Participants explained how using communication tools enabled speaking up about patient safety.

"even if you weren't assertive, there was a certain way you could ask questions to make people stop and think a little bit in a discrete way" (Ronnie, ODP)

The tools appear to be actively used and successful in overcoming the lack of psychological safety.

Speaking up about patient safety was a priority however, participants highlighted other areas as more challenging; *"speaking up in an emergency is one thing, speaking up to better the actual organisation is another." (Harriet, Surgeon)*. This may highlight operating theatre staff take the interpersonal risk for patient safety, but not for elements such as learning or innovation. Therefore, this could suggest some benefits of psychological safety are not being reaped.

Theme 4: Reinforcing factor of receiving governance following speaking up

Operating theatre staff described how speaking up can indicate a governance process is happening however, they identified the lack of action and feedback from the organisation erodes the governance process and contributes to a feeling of a 'not good' team.

Participants explained how active governance following speaking up led to them feeling the team and organisation were 'good', which enabled future speaking up.

"We're in the philosophy now if something has happened, we need to report and see why it happened. The department has very good governance and policy, a very good governance lead who supports incidents." (Dominic, ODP)

However, experiencing lack of governance after speaking up reinforced the sense it was a 'not good' team. Consultant surgeons described speaking up about suggestions to seniors outside of the operating theatres but feeling unheard. Organisational strategies to provide a formalised method of staff speaking up is used instead. This included employing *"transformation teams"* whose role was to analyse feedback and offer improvement, but despite their purpose it was felt they *"don't actually tell us anything" (Hannah, Surgeon).*

Additionally, suggestions of innovative strategies were found to be underappreciated and not maintained due to organisational factors. The lack of positive reinforcement acted as a barrier to future speaking up and appeared to be embedded in common phrases within the operating theatre; *"that's the way we've always done it" (Clara, ODP).* It was felt that *"the ability to change things is quite difficult, that seems to be like a consistent theme within the NHS" (Clara, ODP).* It appears that if operating theatre staff felt heard and valued when speaking up, the organisation would benefit from improvements along with a long-term reinforcing cycle of staff continuing to feel psychologically safe.

Discussion

Summary of results

This study aimed to qualitatively explore and understand the processes involved in psychological safety within NHS operating theatres, using a grounded theory methodology. The study found psychological safety was influenced by whether staff felt their team was 'good' or 'not good'. Interacting factors related to hierarchy, learning, or relationships. Patient safety had a separate function, perceived as a more important topic that should always be spoken about. When in a 'not good' team, staff overcame barriers to psychological safety by evaluating the appropriateness of their actions and using structured communication tools to enable speaking up. The governance received can positively or negatively reinforce whether the team is 'good' or not. This predominantly related to NHS organisations' policies and procedures, which reinforced how the team was perceived. This understanding of psychological safety within NHS operating theatres will be discussed in line with theoretical and clinical implications, along with limitations and recommendations for future research.

Theoretical implications

Hierarchy and leadership

Hierarchies have been associated with less psychologically safe teams (38, 46). However, while flat hierarchies increase psychological safety, they have been criticised for allowing too many voices to speak up causing confusion (46). This study found a flatter hierarchy amongst operating theatre staff contributed to the perception of a 'good' team, which in turn increased the likelihood of speaking up. In operating theatres where confusion from too many voices could cause error, a

balance appears to be needed of having a flat hierarchy to promote psychological safety but additional training and/or speaking up pathways to avoid confusion.

In line with the evidence base (3, 22, 34), this study identified that leadership influenced psychological safety. Active and engaged leaders positively influences learning and quality improvement. Nembhard and Edmondson (47) suggested that leaders need to invite and appreciate comments from staff to improve safety culture. This study highlights further beneficial practices for leaders, by noting the negative impact on psychological safety when leaders are not present in the clinical setting. However, organisational pressures on leaders to be present may act as a barrier (48).

This study identified operating theatre staff's fear that speaking up may impact their career, this was particularly seen amongst surgery trainees who needed learning opportunities and seen amongst theatre practitioners who felt replaceable. This is a longstanding barrier to operating theatre staff feeling psychologically safe to speak up (49).

Relationships

Good communication positively impacts healthcare professionals' wellbeing, with bad communication increasing the risks of depression, anxiety, and stress (50-53). Healthcare professionals have an increased risk of burnout with surgeons amongst the highest (54, 55). Poor staff wellbeing is associated with decreased patient safety (53). This study aligns with these findings with many participants describing staff wellbeing, in particular surgeons', having a direct effect on psychological safety. Therefore, it is important to patients, the wellbeing of operating

theatre staff, and the long-term human resourcing of the NHS, to improve psychological safety.

Literature describes that the presence of psychological safety is more likely in teams who consistently work together (34, 39) and this study found operating theatre staff also demonstrate this. However, theatre staff recognised their teams frequently need to change due to training needs and resourcing. When this happens, theatre staff described increased psychological safety when working in a team identified as cohesive and supportive, regardless of consistent time spent in that team. Interestingly, it may be the case in operating theatres, that rather than the consistency of a team being critical for psychological safety, it is the cohesiveness. Within NHS operating theatres, team cohesiveness appears to be possible with limited time together and therefore further understanding of associated factors would be useful.

Learning

The operating theatre was identified as a key area where education could and should take place. Consistent with Hardie's review (56), this study found that teams with increased learning opportunities were perceived as a 'good team' which increased psychological safety. In turn, increased psychological safety has been found to improve learning, collaboration, and patient care (56).

Patient safety

The study reports that even when working in a team that has factors associated with poor psychological safety, staff described how they would always speak up about patient safety. This study proposes that speaking up about patient

safety issues could be independently easier, potentially due to increased presence in NHS policies (14, 57), greater fear of retribution from the organisation or professional body if not done (58, 59), or the values of healthcare professionals to 'do no harm' (60). This grounded theory model provides a process for how staff speak up in less psychologically safe teams by using communication tools. Through need, staff and systems have adapted to poor psychological safety by creating these tools (12, 61). Reframing why these tools are helpful, in the context of psychological safety literature, may contribute to further understanding of their use and benefits. Indeed, this method of navigating through poor psychological safety could be implemented in other areas of speaking up to affect change and improve organisational speaking up.

Reinforcement

The study found when staff spoke up, the response they received was a reinforcing factor of teams feeling 'good' or 'not good'. This in turn increased or decreased the likelihood of feeling psychologically safe in the future. Staff appreciated feeling heard and their voices acted upon. This is in line with the recent NHS guidance on "listening well" (62). Staff stated in this study, that when they received a negative response to speaking up, they became silent. Silence has been found to have an interacting and shaping effect on speaking up, it relates to both potential powerlessness but can also be a strategic use of power (Gardezi et al., 2009). Therefore, silence could reinforce the experience of it being a 'not good' team which in turn extinguishes psychological safety. However, further understanding of the power of silence within operating theatres would be beneficial.

Clinical implications

A number of clinical implications could be derived from this research. These can apply to NHS operating theatres, other clinical teams outside theatre, and more widely to organisational level policy changes.

Hierarchy

The research demonstrated that hierarchy plays a significant role in psychological safety. Clinical teams can use this to evaluate their own hierarchical structures, and organisations would benefit from better understanding the experience of different staff grades along with cultural differences and perceptions that exist within NHS hierarchies.

Learning

It has been shown that the response provided to speaking up is a significant positive or negative reinforcing factor of psychological safety. Responses to questions raised in theatre could be more consistently positive through staff awareness training and a better understanding of the implications of their response. A policy change in theatre could be for an agreed 'time out' for learning. Similar to the safety 'stop' moment at times of increased concern, a regular learning time could be held at periods of lower clinical demand. Similarly, an alternative pathway for learners to raise concerns about barriers to learning could be developed.

Relationships

Rota coordinators may consider team allocations considering how a perceived 'good' team can improve psychological safety. Teams could be rostered to have their non-clinical time together enabling increased team interaction and team building.

Increasing staff feeling supported and listened to through wellbeing check ins and signposting could be developed. Management would benefit from making staff know they are aware of the priority to leave on time and work with staff to make this consistent.

Patient safety

Current policies which encourage speaking up about patient safety concerns would benefit from expansion into including speaking up about learning and innovation, to maximise the potential of psychological safety.

Reinforcement

To ensure staff feel heard and listened to via positive responses, policy change could implement speaking up response requirements from management which would in turn improve leadership confidence.

Limitations and future research

The research may have been impacted by participation bias, ironically due to concept of psychologically safety. This may have occurred due to recruiting staff who anticipated feeling psychologically safe within the interview context, therefore participants may have been people who are more likely to speak up in work. This questions how the voices of people who fear speaking up in a research setting are missing from the analysis. One potential participant did not contribute due to fear of potential consequences through speaking out in the research interview. Future research could use alternative research methodologies, such as observations, to identify and understand a broader range of perspectives. This may be enhanced by the researcher being immersed in the environment to build psychological safety

within the researcher-staff relationship, alongside exploring operating theatre staff's experiences.

The research sample was biased towards male, white, and medically trained participants. These identity characteristics are likely to have increased power and privilege, therefore increased psychological safety. The study may have recruited individuals who felt more able to speak up and did not hear the experiences of those with identify characteristics associated with less psychological safety.

The research identified the experience of the operating theatre being discrete from other staff members and departments in the wider hospital. Further understanding of how psychological safety works across these boundaries and the wider system would be useful. This could be achieved by hearing the experiences of both NHS ward staff interacting with theatre and NHS leaders managing theatre. In addition, the operating theatre is frequently visited by students and their experiences could be useful to understand the integration of permanent and transient members of the operating theatre team.

Conclusion

The study highlights how team relationships and the antecedent factors impact psychological safety, it recognises communication tools are used to overcome lack of psychological safety in relation to patient safety, and notes that NHS governance acts as a positive or negative reinforcer. Clinical implications could have wider impact on staff wellbeing and learning. Future research to explore similarities and differences within individuals and teams in NHS operating theatres would support successful policy implementation.

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Appendices

Appendix 2-A

Purposive sampling

Order	Role	Participation	Decisions
1	Surgeon	P5	Decision to advertise on social media
2	Surgeon	P6	
3	Surgeon	-	
4	Surgeon	-	
5	Surgeon	P3	Decision to seek theatre practitioners
6	Surgeon	P7	
7	Nurse	P1	
8	ODP	P2	
9	ODP	P8	
10	Surgeon	P10	
11	ODP	-	
12	Surgeon	P4	
13	Not known	-	
14	Surgeon	-	
15	Surgeon	P9	Decision to seek anaesthetist
16	Surgeon	-	
17	Anaesthetist	P11	

Appendix 2-B

Examples of coding

Participant1_Research Interview

Click to edit

0:0:24.370 --> 0:0:35.300
Knott, Katie (Postgraduate Researcher)
OK. So the first question I've got is, would you be able to think about a time when communication in the operating theatre has gone well?

0:0:37.350 --> 0:0:39.660
Knott, Katie (Postgraduate Researcher)
And what do you feel contributed to this?

0:0:40.740 --> 0:0:42.500
Participant1
OK.

0:1:3.870 --> 0:1:4.210
Knott, Katie (Postgraduate Researcher)
Umm.

0:0:45.170 --> 0:1:15.580
Participant1
OK, I work. I work nights for several years at London. We worked really well together, so we would we used to do a lot of C sections at that time so someone would call from midwif the midwife would call. We would all basically just get up and go do what we had to do there. To be honest, we didn't have to speak because we would work so often together that some would say I'll scrub right, I'll go get this. I'll go get this. I'll go get this. And they knew what they were doing. We all knew what we were doing and we all just did it without having. To actually. Talk to people except came down with experience. We had a good leader mentor. She was brilliant. I still hang out with her every now and then. She knew so much. She knows so much and the other ones that I worked with, there's only three of those, usually on nights. So we just had to have that. That kind of talking. You don't want to be dragging someone out of the T bar to say, could you go do this? Could you go do this? Could you go do this? And that's probably the best time I ever worked in the theatre is where. Someone calls Boom, we're done. Because we used to get loads of pretty serious emergencies and we just get on with it and we all just sort of took a role without having anyone, hasn't happened a lot since that.

0:2:0.610 --> 0:2:1.60
Knott, Katie (Postgraduate Researcher)
OK.

0:2:0.810 --> 0:2:1.170
Participant1
Because. I think. They took bands they put, took senior nurses out of theatres. I can't even remember when they took them out. It must have been in the last. 15 to 20 years. So they're not there to supervise and teach. So they're experience has been taken out of the theatres. So people coming through may not have tons of experience, but because. The grading system to be about 6 that makes you a leader of a theatre, but you may only have one or two years experience. So being able to lead a team and having that team mentality I think is quite difficult for some of these these juniors. Because they're still learning. You know, as soon as you qualify, it doesn't mean you know everything and certainly not now that they're at university. Most of the time I trained on the wards and the people I worked with for most of the time trained on the wards, the ones coming through now. The nurses haven't. So they haven't worked side by side with senior people that. That's so much, except I mean the nurses that I work with are so amazing because they were so on top of everything when it came to managing and leading the nurses and teaching junior doctors back then. And I can't honestly see them doing that now and I find it quite frustrating when someone doesn't take a lead in the theatre because I, I mean, I was a leader, I ran my own theatres. I did. I ran several theatres. I was, you know, but as it now I'm back to Band 5 because I semi retired and I'm working only two days because I like clinical work. Which I wasn't getting enough as a band 7 hence that was that was my thing. Is like I'm not getting enough clinical on the band 7. I should be in teaching I should be showing and I think it's really made a big difference to the I would say the quality of stuff but the the level of which everyone works, there's no real leader. I did work in an orthopaedic theatre as a band six with another band 7, her me and a health care support worker. We're we're doing knees and hips all day right so we would get. Five knees and hips done in a day or three or

Code At   Enter node name (CTRL+Q)

100%

Participants10_Research Intervi

Click to edit

Knott, Katie (Postgraduate Researcher)
We're just asking people to think about a time where your ability to communicate in the operating theatres gone well and what do you think contributes to that?

0:1:16.700 --> 0:1:16.980
Participant10
I think.

0:1:18.440 --> 0:1:24.980
Participant10
One I saw it was I came in when the WHO and everything started.

0:1:25.50 --> 0:1:31.240
Participant10
So I remember like building confidence with that caused like I was an HCA when I first started in theatres.

0:1:31.610 --> 0:1:38.940
Participant10
She used to give that to everybody and to make sure everybody could do it, cause obviously that was a big issue with like hierarchy and stuff.

0:1:39.610 --> 0:1:45.600
Participant10
erm but over the last over the last year or so, I've become a band six.

0:1:56.690 --> 0:1:56.980
Knott, Katie (Postgraduate Researcher)
Umm.

0:1:45.610 --> 0:2:6.50
Participant10
Since when I was on maternity leave with my son and then I had a pretty traumatic case when I was on my secondment as a band six, and I think that's probably one of the the times that I sort of really felt like my communication, like I was able to like.

0:2:8.830 --> 0:2:22.190
Participant10
I I remember it's just sort of saying at one point to all the doctors and everything like we need to think about this situation and actually getting this patient back to their to their mum now or bringing their mum to us because it was evident they were dying.

0:2:23.140 --> 0:2:28.740
Participant10
And but that was one of the times when I felt like I was pretty junior as a band.

0:2:28.750 --> 0:2:37.840
Participant10
Six, but I managed to sort of stand up and say like we need to really think about what's best for this patient now, yes.

0:2:37.180 --> 0:2:40.120
Knott, Katie (Postgraduate Researcher)
What do you think contributed to that to being able to do it?

0:2:40.700 --> 0:2:46.920
Participant10
I think like lots of years of kind of being in theatre because there's quite a comfortable environment for me.

0:2:46.930 --> 0:2:47.460
Participant10
Like I'm not.

Coding Density

Being shouted at, case cancelled, identify characteristics smaller pregnant
Not saying anything at the time about rudeness to protect the patient, speaking up after
Go to clinical coordinator if doctors aren't being nice
Money constraints and that's the way it's done response to innovation and learning
Nothing done because of the power they hold
Short staffing and managing patient safety
Deferring on zoom, too many people, not speak up
Get frustrated and cry rather than speak up
Say something after rather than during to protect the patient
Being a wingman, good relationship
Questioning my competence
Men allowed to communicate differently to females
Not speaking up due to lack of awareness or confidence
Backed up by seniors
Old style goes against five steps to safer surgery
Reasons to stay late or not
Person known for being rude and nothing done
Communicating through the anaesthetist
Cultural differences, speaking up quieter
Why doctors are sets the tone of the room
Surgeon atmosphere impact on staff more tense
Right to raise but feel like done something wrong
Developing confidence as the patient advocate
Defending and trust pushing trauma counsellors
All on one person
Plucking up courage
QUOTE
Reasons for surgeons behaviour
Working in a good team
Debriefing out of work
Impact on morale
Best thing for the patient
Grumpy standoff response

Lower bands developing confidence by doing the WHO checklist

Being able to speak up when junior thinking about patient's family

Comfortable environment

Code At   Enter node name (CTRL+Q)

100%
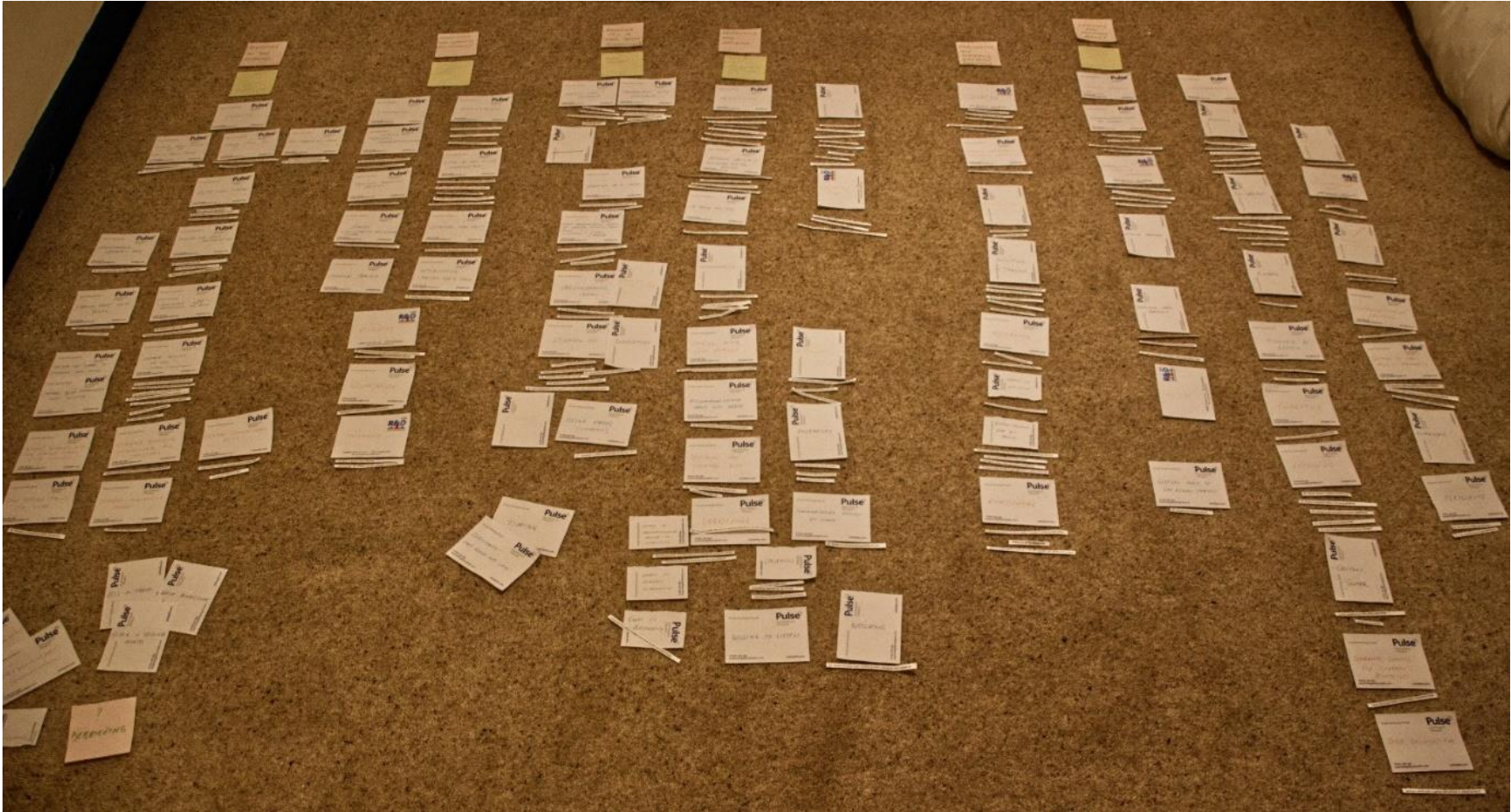
Appendix 2-C

Examples of memos

Pre-interviews:

I'm feeling a bit apprehensive about starting interviews. I think this is because I'm unsure who may participate and what their stories may be. I'm mindful other colleagues have had difficulty with recruiting and due to the delays I've encountered I can sense my hopefulness that the advertising and recruitment is good enough. I'm wondering how these interviews will be different from therapeutic settings and professional meetings I've been in.

During interviews:

WOW! I found that interview very different to the previous ones. I think it feels different because there was a sense that the participant believed there weren't any times or any problems in theatre where there was a lack of psychological safety. This has given a different perspective to the current understanding. I found it personally challenging to maintain the conversation as I noticed the answers were more closed. It feels unsurprising this has been the shortest interview so far! It's making me wonder what it must be like to work in a high-pressured operating theatre with different personalities, I don't feel like I would necessarily find it easy to speak up in all circumstances.

During analysis:

I've used NVIVO for my initial coding but I'm now feeling very overwhelmed as there are so many initial codes! I've decided to step away from using NVIVO for the synthesis of categories and I'm going to print the codes out and move them around the floor to get more distance between them. I've re-read the textbook section to gain a better understanding, I need to identify properties within the categories that define and gives meaning to the summary word.

I'm now finding it much easier to identify where quotes from later participants fit amongst the categories. However, they continue to feel quite discrete. Need to speak to supervisors about the model, feeling unsure how this all comes together.

Appendix 2-D

Examples of theory development

1
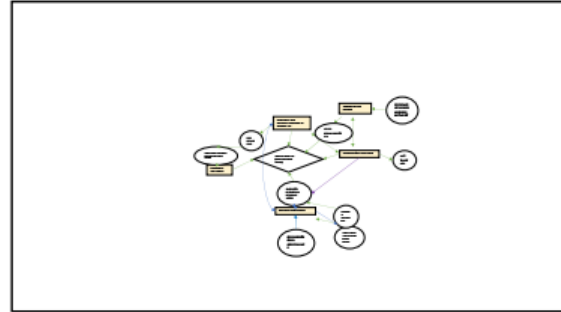
2
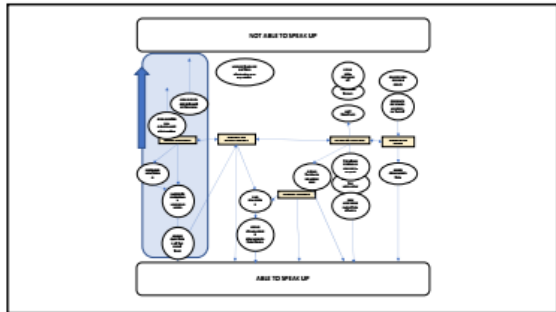
3
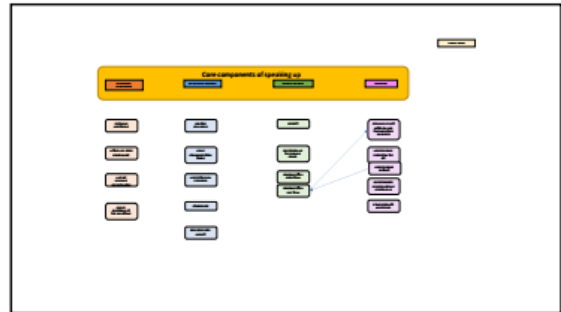
4
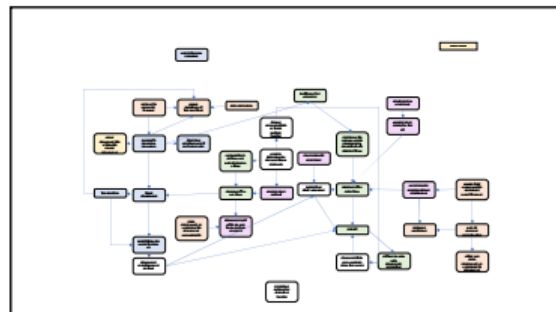
5
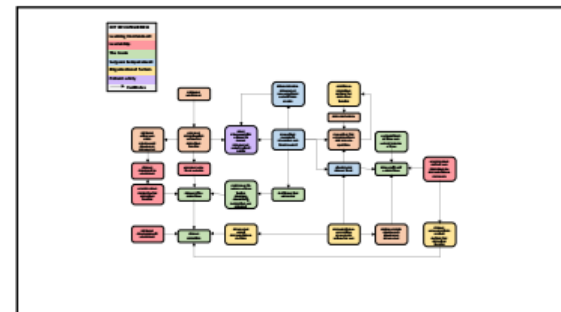
6
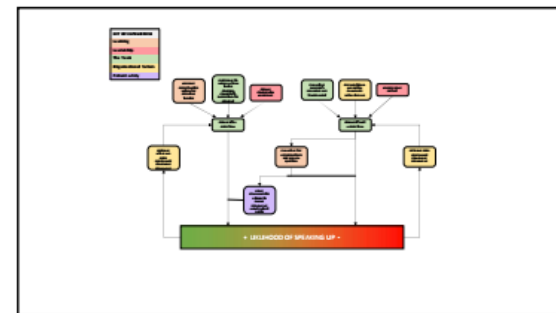
7
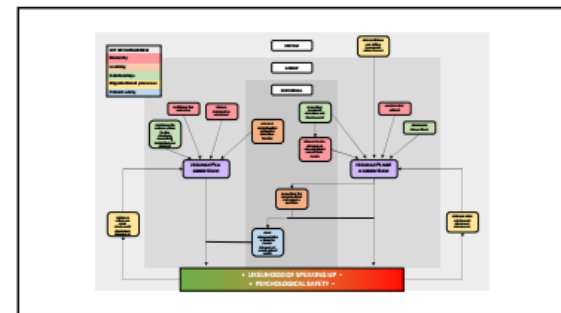
8

Appendix 2-E
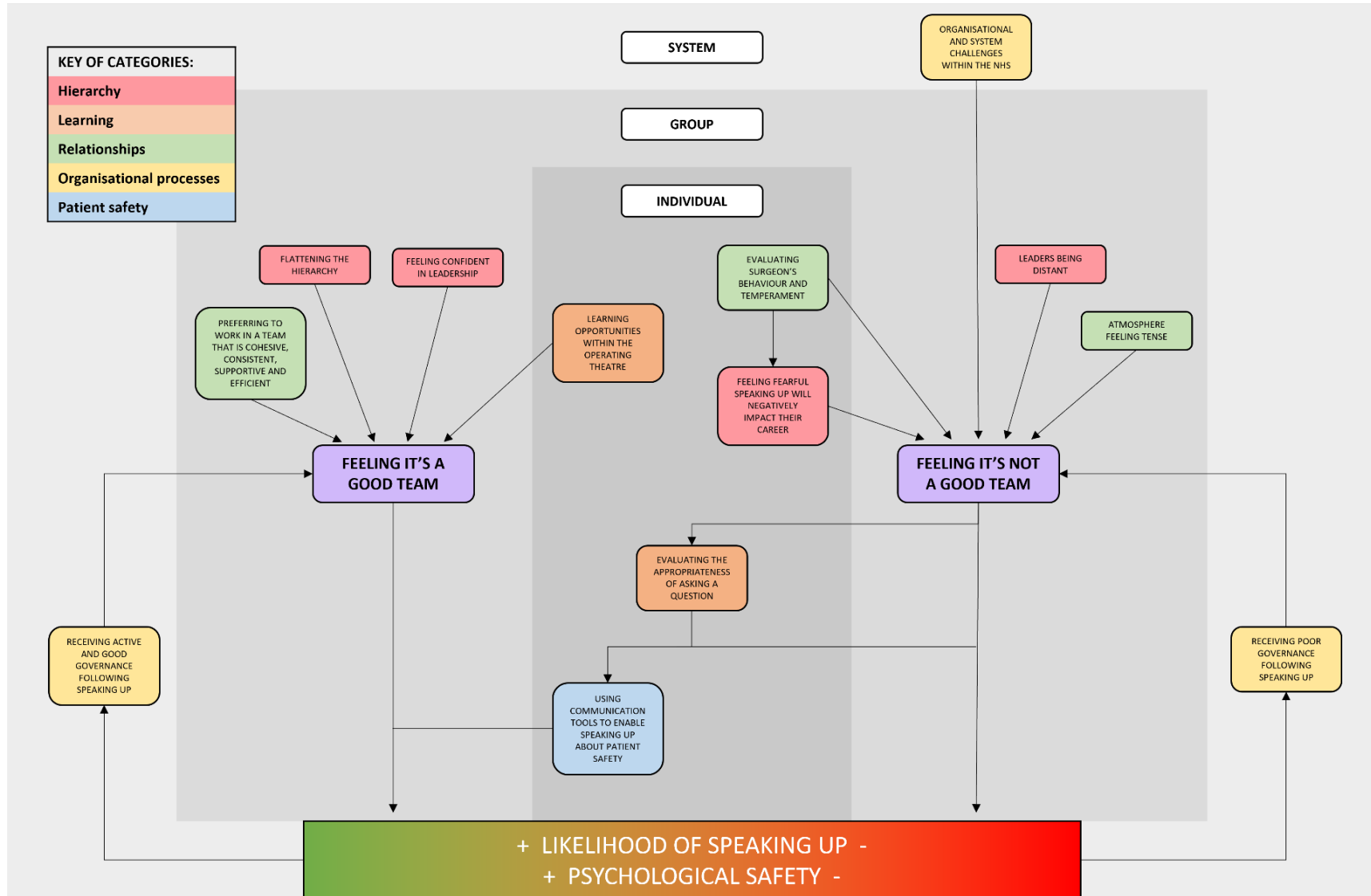
Section 3: Critical Appraisal

Psychological Safety: Exploring NHS organisational factors and the experiences of operating theatre teams.

Word count (excluding references, tables, and appendices): 3,473

Katie Knott

Doctorate in Clinical Psychology

Division of Health Research, Lancaster University

Prepared for submission to BMJ Open

See Section 5 for submission guidelines.

Critical Appraisal

Introduction

The critical appraisal aims to summarise the research findings from the systematic literature review and the empirical paper within this thesis. I will then reflexively explore the process and experience of conducting the research, along with considering strengths and limitations of the empirical research. Finally, I will discuss the wider context including potential implications and future research.

Recap of results

The systematic literature review explored how NHS organisational factors impacted psychological safety. The review searched five electronic databases (Medline Complete, APA PsycINFO, CINAHL, Scopus, Business Complete) and identified eighteen relevant papers. Thematic synthesis (1) was used to review the eighteen relevant papers and four themes emerged, these were: organisational environment, organisational structure, organisational resource, and organisational attitude. Subthemes were identified, exploring how each theme impacted different levels of the organisation. The themes were found to exert their impact across the individual, team, and organisational levels. Supportive environments, leaders' attitude and encouraging speaking up were found to positively influence psychological safety. Whereas power imbalances amongst professions and steep hierarchies, could inhibit psychological safety. Role clarity, perceived organisational values, and organisational resources such as demands and training, could result in positive or negative impacts on psychological safety dependent on context.

The empirical research explored how psychological safety works within NHS operating theatres. A grounded theory (2, 3) methodology was used to inform data

collection and analysis, resulting in a theoretical model that offered understanding of the processes involved. Semi-structured interviews were used to explore the experiences of eleven NHS operating theatre staff. The findings suggest that the team's perception of being 'good' or 'not good' contributes to the likelihood of psychological safety. The model illustrates how this perception was influenced by factors associated with hierarchy, learning, and relationships. Speaking up about patient safety was understood as a distinct topic within the model, as staff reported the need to always do this and described using strategies to navigate through poor psychological safety. The positive or negative response following speaking up, acted as an enabler or barrier to future speaking up because it reinforced the perception of the team being 'good' or 'not good'.

Similar themes were found within the systematic review and empirical paper. Across both papers, factors were explained as existing within the socio-ecological context of the individual, team/group, and organisational/system levels. This aligns with other research on psychological safety (4, 5). The interpersonal relationships and dynamics between staff were an important factor found in both papers. In the literature review, organisational factors such as organised reflective spaces and the designated leader, were described as impacting the interpersonal dynamic. The staff experience of their relationships with colleagues being positive or not, and what influenced that, contributed to the understanding within the research paper of how important staff relationships are in relation to psychological safety. Hierarchy was a significant factor and both papers identified it as influencing psychological safety within the NHS. The leadership role and its impact on staffs' psychological safety was a factor found in both the literature review and the empirical paper. However, the papers viewed these factors from different perspectives with the literature review

considering the role from the organisation and the empirical paper providing a staff member understanding. The organisational level processes, such as NHS policies and governance, acted to provide contextual understanding of psychological safety within both papers.

Across the systematic literature review and the empirical paper, some differences were also highlighted. Organisational decisions on leadership were found to impact psychological safety within the systematic literature review however, this understanding was furthered in the empirical paper by recognising the need for feedback, alongside leaders being present and engaged, which reinforced speaking up, learning and innovation. In addition, the papers within the systematic literature review predominantly considered how psychological safety influences learning as an outcome. Whereas the empirical research paper noted how speaking up about patient safety was considered a more important topic, which in turn found an alternative pathway, than innovation or learning.

Reflections on the process and experience of conducting the research

Systematic literature review

Considering the available topic areas to study for the thesis, I was drawn to the concept of psychological safety and intrigued by the theoretical understanding of how it works and the practical experience of its presence. Through my time on the doctorate course, I have noticed and reflected on my strong interest and leaning towards systemic understanding. This interest aligned with how psychological safety is understood at an organisational, group, and individual level. My initial scoping reviews of the literature base identified many papers discussing the concepts associated with psychological safety (4, 6, 7), along with recent NHS policy advising

the importance of it (8-12). However, I was struck by the lack of information within these policies to guide NHS leaders and organisations on the concepts and strategies that could be used to improve psychological safety of their workforce. Therefore, the systematic literature review topic of synthesising the literature base of organisational factors influencing psychological safety was identified.

An important consideration when conducting the systematic literature review was thinking through the search strategy to increase the likelihood of including all relevant papers (13, 14). I used supervision to consider the definition of organisational factors and I chose to use a common publication forum that considers the NHS and its organisational components (15). I found the support from the information specialist at the library particularly helpful for choosing appropriate databases and adapting the search strategy to each effectively, which has been found to improve the quality of systematic reviews (16, 17). The decision was made to not filter within the search strategy to location, which could have filtered out non-NHS papers. This was because location within databases is not always reliable and therefore could have led to papers being missed (18, 19). This resulted in a significant number of international studies being identified and filtered out during the initial screening process. At times during this process, I felt concerned there may not be many papers, other than those I had found as gold standard papers, but was pleased with the final result of eighteen relevant papers.

Empirical research area and design

When deciding on the research area for the empirical paper, I used supervision to reflect on how psychological safety is experienced within the NHS. Psychological safety had been highlighted as important within high-risk

environments, such as aviation (6). I was aware of the associated case of Elaine Bromly who died within an operating theatre environment and whose husband, an airline pilot, has advocated since on the importance of speaking up in healthcare (20). Considering speaking up within the context of psychological safety, I became aware that many of the enablers researched in business settings appeared to not be present within the high risk setting of operating theatres e.g., flat hierarchy and consistent teams. However, policy appeared to both require staff to speak up but recognised barriers to this. Therefore, I wondered how the concept of psychological safety works within operating theatres and the processes involved as it appeared to be a different setting to previously researched areas.

During the planning and design stages of the thesis, my supervisor was changed due to unforeseen circumstances. Although at the time this felt manageable, on reflection, it led to significant delays and required time to reorientate the research in line with the new research team. The most challenging part has been being out of sync with fellow trainees and teaching. However, I feel this has developed my research skills as I have been required to think more independently.

Due to supervisor changes and delays, the decision was made to change the ethical application process from IRAS to FHMREC. The only required difference was recruitment, which changed from using NHS communication methods within local hospitals to recruiting on social media. In hindsight, I feel this has positively impacted the research as it enabled recruitment across the UK and the twitter impact alone reached 11,600 people. This feels like a significantly larger reach than possible through email advertising and the research poster appeared to benefit from snowballing as it was re-shared on social media.

There was limited expert by experience involvement in the design of the study, enhanced by both losing contact with field supervisors and time constraints of the thesis due to supervisor changes. However, the study advertisement and interview protocol were reviewed and agreed by NHS operating theatre staff. Further involvement would have strengthened the study and could have been used in the development, advertising, analysis and dissemination as suggested by NIHR guidance (21).

Empirical methods

I decided to use grounded theory methodology (2) for the empirical research due to there being limited understanding about psychological safety within NHS operating theatres (3). I had not previously used grounded theory before and felt slightly apprehensive of learning and using a new methodology however, I found I aligned with a critical realist epistemology which encourages both a critical and reflective approach to researching reality that continues to change according to language, meaning making and social context (3) and appreciated researchers offering approachable guides to understanding (3).

During data collection, I noticed many staff thank me for studying the area they work in. They spoke of appreciating the research due to them often feeling like a forgotten part of the hospital workforce, which they described as being heightened during the pandemic and impacting their wellbeing. These reflections were a particular element of the interview process that personally impacted and I felt empathetic towards their experiences, frustrated this wonderful group of people felt undervalued, and driven to use this research to enable their voices to be heard.

The study recruited staff working in NHS operating theatres, aiming to gain an understanding of how psychological safety works within this context. This was particularly important as much previous research was conducted internationally. However, the recruitment of participants only attracted staff working within England. Therefore this may have impacted the results, particularly the consideration of how NHS policies and procedures amongst the different NHS national bodies are understood within the model. The NHS is a diverse organisation (22) however, the participants recruited to this study all identified as ethnically white. Ethnic minority staff have an increased negative experience and therefore consideration of how workplace disparity impacts psychological safety within the NHS was not explored explicitly within the data.

Empirical analysis

This study identified flatter hierarchies increased the likelihood of psychological safety. However, participants also considered how flatter hierarchies may not support psychological safety within all staff groups, such as those with cultural backgrounds different to the UK. This highlights a concern related to workplace disparity, where staff with different backgrounds and/or characteristics are treated differently. The NHS workforce is currently more diverse than ever before however, ethnic minority groups continue to experience disproportionately higher incidence of discrimination compared to their white colleagues (22, 23). There is also a reduced confidence in speaking up, including about patient safety, within this group of staff (24). Whilst efforts to lessen the hierarchy can be aimed at increasing psychological safety amongst staff, ethnic minority staff may be disadvantaged from hierarchical changes and therefore organisations need to consider a tailored approach in order to affect change in psychological safety in diverse organisations.

This raises further qualitative questions of what the experience is of psychological safety for an international operating theatre staff member.

Patient safety was discussed by all participants. Interestingly, it was found to be the only topic where poor psychological safety could be navigated through and overcome facilitating speaking up. However, this research did not explicitly uncover the direct way teams perceived as 'good', with associated improved psychological safety, impacted patient safety. On reflection participants could have been asked whether feeling it is a 'good' team results in improved outcomes for patients. This is therefore something which further quantitative research could elicit, particularly considering non morbidity and mortality related health outcomes. Of note, this would further Edmondson's early study (25) finding that better healthcare teams openly report more errors allowing improved organisational learning to occur.

Interestingly, nearly all participants apologised at the end of their interview for sharing negative experiences of a job they described as loving. Despite balanced questions within the interview topic guide and all participants sharing positive and negative experiences, there was a general sense of many barriers to psychological safety in the operating theatre and staff wanting to overcome these. This is in line with previous consolidation of the research which identified a key theme is the desire to overcome barriers to enhance teamwork (7). With this enthusiasm, and the collective understanding of psychological safety within NHS operating theatres, this research may offer staff some insight into how to achieve their hopes of having a psychologically safe environment. Reflecting on this experience as the interviewer, it could be that participants were also sharing insight into the moral injury they experience as healthcare staff. Moral injury occurs when someone experiences circumstance that conflicts with their values, which can lead to increased risk of

psychological difficulties. There is a rising prevalence amongst healthcare workers, with vulnerability related to the coronavirus pandemic (26-28). Participants shared the conflict they experience due to system pressures between expectations to prioritise the patient journey and their own wellbeing. The 2022 NHS staff survey found 44.8% of staff felt unwell as a result of work-related stress (29). Poor staff wellbeing and burnout were found in a systematic review to negatively impact patient safety (30). Therefore, participant's recognition that the environments they work in may not always be psychologically safe and could have potentially negative consequences to themselves, their colleagues, and their patients may provide understanding to why participants apologised at the end of the interviews.

Considering the theoretical model conceptualised through this study, I found exploring the weighting and interactions of the factors influencing if the team is perceived as 'good' or 'not good' to be an area that would benefit from further understanding. Re-considering the literature base with this reflection in mind, a meta-analysis (31) found similar factors (learning, leadership, peer support) enabling psychological safety to be statistically significantly with considerable magnitude. Future quantitative research identifying the strength and interactions of factors within the NHS and within operating theatres would provide additional clarity for policy makers.

Reflexivity

During the research process I used a research dairy, memos, and supervision to increase my self-awareness and reflect on my personal influence within the research. This was particularly important because of my personal connection to the operating theatre, with my husband being an anaesthetist within the NHS. I was

aware his experiences had heightened my interest in this setting but was careful to ensure I reflected on this influence throughout the research process. I also noted, in line with grounded theory, my understanding of the potential themes was steadily strengthened by each interview, and I was able to notice when a participant was sharing experiences that aligned with the ongoing conceptualisation. I found myself able to develop skills in asking further questions to support the gathering of information that explored the boundaries of a theme. I particularly noticed my own emotional empathetic response when participants discussed their experiences of how a lack of psychological safety impacted their wellbeing.

I experienced strong emotional responses to participant's experiences which I navigated during both the interviews and the analysis. This was particularly related to staff feeling unheard, frustrated, and disappointed in the system due to a lack of psychological safety. I was able to do this through use of my research diary, which facilitated reflections of how I felt at the time of the interview and ensured my analysis was not biased by these emotions. In addition, I used supervision throughout the process to discuss, reflect on and check the analysis which ensured it was grounded in the data and not influenced by my feelings.

Overall, I personally felt theatre staff considered themselves to be misunderstood, undervalued, and ignored by the rest of the hospital and yet together as a team they work incredibly hard to do the best for their patients, but they require wider systems and structures to support them in caring for themselves and patients.

Wider context

The 2022 NHS staff survey (29) was cited in the systematic literature review and empirical research, providing context for the current conditions. There continues

to be high staff sickness and attrition which suggests a negative impact of ongoing elevated pressures staff are under. These pressures have been publicised through the media during the course of this research project. The ongoing pressures and impact on staff is evidenced by the continued strike actions from many healthcare professionals (32), who feel undervalued and dissatisfied with their pay and conditions (29). It is likely these challenges are impacting staff within operating theatres, and participants spoke of operating list pressures, staff shortages, and poor staff wellbeing within their experience. Exploring how these factors impact staff could provide context to their current experience and research could offer a survey to operating theatre staff to explore these challenges on a larger scale than this qualitative paper.

Staff wellbeing is being increasingly prioritised by NHS organisations (33). Due to the scope of this thesis, the research did not evaluate outcomes of psychological safety such as the impact on staff wellbeing however it was identified within the themes as a contributing factor to psychological safety. Future research considering the influence of wellbeing on psychological safety both as an antecedent and as an outcome would be useful. This research may provide NHS trusts with further incentive to improve psychological safety, if the underlying mechanism of staff wellbeing is further understood. These relationships could be studied through pre- and post- measures of both wellbeing and psychological safety, but consideration for confounding variables would be needed. In particular, the findings from this study, would suggest acknowledging the roles of hierarchy, leadership, relationships, and governance.

In the wake of the Lucy Letby conviction (34), reports suggest increasing scrutiny and accountability of NHS organisations for scenarios when staff try to

speak up but do not receive a positive response (35). This research has shown the important effect governance has on staffs' perception of being in a 'good' team and how poor responses from leaders in the organisation to speaking up can create silence. If the NHS faces a corporate manslaughter prosecution precedence in response to this case (36), it is assumed that widespread policy and procedure will need to be developed in this area and using good psychological safety as an organisational aim would help instil organisational reform that could potentially prevent a similar scenario arising in the future.

The recent testimonies and large surgical survey highlighted the under publicly recognised issue of sexual harassment in the operating theatre (37, 38). This study did not directly question participants on this area however, it was found that fear of repercussions regarding career progression still exist within the surgical profession and participants spoke of this disabling them from speaking up. Furthermore, the lack of insight to this from some more senior surgical participants suggest reform is needed within the profession to educate those in positions of power and protect staff working in operating theatres to enable speaking up.

Future research

Through this thesis, many future research areas have been identified as useful to further the understanding of psychological safety in NHS operating theatres. During the systematic review it was clear that a majority of existing psychological safety research does not pertain specifically to the NHS. Further NHS focussed research is required to understand how psychological safety relates to the organisation's specific factors and challenges.

The study recruited all white individuals with a majority of respondents being male. Further studies aimed at examining how different characteristics of individuals may affect their experience of psychological safety and speaking up is needed. In addition, research to consider the potential impact of a minority number of staff having contributing factors which privilege or discriminate against their likelihood of speaking up would be useful in relation to workplace disparity research.

As discussed regarding the empirical analysis, this study has not quantified the weight carried by each identified factor that contributes to the feeling of a 'good' or 'not good' team. In depth study of each factor with quantitative analysis controlling for variables would be benefit organisations aiming to implement changes in the most efficient and effective ways possible.

Future research examining how improving psychological safety in a team impacts patient outcomes ranging from mortality and morbidity through to patient satisfaction and long-term success of surgical procedures will help understand the reach psychological safety has into patient safety and providing quality healthcare.

Conclusions

Overall, I have found the thesis topic to be intriguing throughout. I have developed my awareness, understanding and appreciation of the importance of healthcare staff feeling psychologically safe. I look forward to utilising my developed knowledge within future clinical and research roles.

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Section 4: Ethical Proposal

Psychological Safety: Exploring NHS organisational factors and the experiences of operating theatre teams.

Word count (excluding references, tables, and appendices): 5,493

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Doctorate in Clinical Psychology

Division of Health Research, Lancaster University

Ethics Form

Research Ethics Application Form v1.7.3

Research Ethics Application Form v1.9.4   RECR

Exploring psychological safety in NHS operating theatre teams - Approved

Information Regarding this Research Project

Are you conducting a research project?

(for more information on research projects please see our ethics pages)

◉ Yes   ○ No

Does your research only involve animals?

○ Yes   ◉ No

Are you undertaking this research as/are you filling this form out as:

○ Academic/Research Staff
○ Non Academic Staff
○ Staff Undertaking a Programme of Study
◉ PhD or DClinPsy student
○ Undergraduate, Masters, Master by Research, MPhil or other taught postgraduate programme

Which Faculty are you in?

Faculty of Health and Medicine

Which department are you in?

Health Research

Will your project require NHS REC approval? (If you are not sure please read the guidance in the information button)

○ Yes   ● No

Do you need Health Research Authority (HRA) approval? (Please read the guidance in the information button)

○ Yes   ● No

Have you already obtained, or will you be applying for ethical approval, from another institution outside of Lancaster University? (For example, an external institution such as: another University's Research Ethics Committee, the NHS or an institution abroad (eg an IRB in the USA)? Please select one of the following:

● No, I do not need ethical approval from an external institution.

○ Yes, I have already received ethical approval from an external institution.

○ Yes, I will be applying for ethical approval from an external institution after I have received confirmation of ethical approval from my Faculty Research Ethics Committee (FREC) at Lancaster University, if the FREC grants approval.

Is this an amendment to a project previously approved by Lancaster University?

○ Yes   ● No

Will your research involve any of the following? (Multiple selections are possible, please see i icon for details)

☑ Human Participants
☐ Data relating to humans (Secondary/Pre-existing data only)
☐ Data collection from online sources such as social media platforms, discussion forums, online chat-rooms
☐ Human Tissue
☐ None of the above

Project Information

Please confirm/amend the title of this project.

Exploring psychological safety in NHS operating theatre teams

Estimated Project Start Date   18/01/2023

Estimated End Date

10/03/2023

Is this a funded Project?

○ Yes ● No

Research Site(s) Information

Will you be recruiting participants from research sites outside of Lancaster University? *(E.g. Schools, workplaces, etc; please read the guidance in the information button for more information)*

○ Yes ● No

Applicant Details

Are you the named Principal Investigator at Lancaster University?

● Yes ○ No

Please check your contact details are correct. You can update these fields via the personal details section located in the top right of the screen. Click on your name and email address in the top right to access "Personal details". For more details on how to do this, please read the guidance in the information button.

First Name

Katie

Surname

Knott

Department

Division of Health Research

9 October 2023

Faculty

Faculty of Health and Medicine

Email

k.knott1@lancaster.ac.uk

Principal Investigator

You have stated that you are the Principal Investigator for this project.

First Name

Katie

Surname

Knott

Department

Division of Health Research

Email

k.knott1@lancaster.ac.uk

Supervisor Details

Search for your supervisor's name. *If you cannot find your supervisor in the system please contact rso-systems@lancaster.ac.uk to have them added.*

First Name

Dawn

Surname

Goodwin

Department

Lancaster Medical School

Faculty

Faculty of Health and Medicine

Email

d.s.goodwin@lancaster.ac.uk

Do you need to add a second supervisor to sign off on this project?

☉ Yes   ○ No

Search for your secondary supervisor's name. *If you cannot find your supervisor in the system please contact rso-systems@lancaster.ac.uk to have them added.*

First Name

Nargis

Surname

Islam

Department

Psychology

Faculty

FST

Email

n.n.islam1@lancaster.ac.uk

Additional Team Members

Other then those already added, please select which type of team members will be working on this project:

☐ I am not working with any other team members.
☐ Staff
☐ Student
☑ External

Please list all external contacts here:

First Name

Judith

Surname

Salamam

Organisation

East Lancashire Hospitals NHS Trust

Please list all external contacts here:

First Name

Bhuvaneswari

Surname

Bibleraaj

Organisation

Edge Hill University

Details about the participants

As you are conducting research with Human Participants/Tissue you will need to answer the following questions before your application can be reviewed.

If you have any queries about this please contact your Ethics Officer before proceeding.

What's the minimum number of participants needed for this project?

9

What's the maximum number of expected participants?

12

Do you intend to recruit participants from online sources such as social media platforms, discussion forums, or online chat rooms?

⦿ Yes   ○ No

Will you get <u>written</u> consent and give a participant information sheet with a <u>written</u> description of your research to all potential participants?

⦿ Yes   ○ No   ○ I don't know

Will any participants be asked to take part in the study without their consent or knowledge at the time or will deception of any sort be involved?

○ Yes   ⦿ No   ○ I don't know

Is your research with any vulnerable groups?

(Vulnerable group as defined by Lancaster University Guidelines)

○ Yes   ⦿ No   ○ I don't know

Is your research with any adults (aged 18 or older)?

⦿ Yes   ○ No

Is your research data collected with completely anonymous adult (aged 18 or older) participants, with no contact details or other uniquely identifying information (e.g. date of birth) being recorded?

○ Yes   ⦿ No

Is your research with adult participants (aged 18 years, or older) in private interactions (for example, one to one interviews, online questionnaires)?

⦿ Yes   ○ No

Is your research with any young people (under 18 years old)?

○ Yes   ⦿ No   ○ I don't know

Does your research involve discussion of personally sensitive subjects which the participant might not be willing to otherwise talk about in public (e.g. medical conditions)?

⦿ Yes   ○ No   ○ I don't know

Could the study induce psychological stress or anxiety, or produce humiliation or cause harm or negative consequences beyond the risks encountered in a participant's usual, everyday life?

⦿ Yes   ○ No   ○ I don't know

Is there a risk that the nature of the research topic might lead to disclosures from the participant concerning either:

- Their own or others involvement in illegal activities
- Other activities that represent a threat to themselves or others (e.g. sexual activity, drug use, or professional misconduct)?

⦿ Yes   ○ No   ○ I don't know

Does the study involve any of the following:

- Physically intrusive procedures including touching or attaching equipment to participants
- Administration of substances
- Ultrasound or sources of non-ionising radiation (e.g. lasers)
- Sources of ionising radiation, (e.g. X-rays)
- Collection or use of samples of Human Tissue (e.g. Saliva, skin cells, blood etc.)

○ Yes   ⦿ No   ○ I don't know

Details about Participant relationships

Do you have a current or prior relationship with potential participants? For example, teaching or assessing students or managing or influencing staff (this list is not exhaustive).

○ Yes   ⦿ No   ○ I don't know

If you need written permission from a senior manager in an organisation where research will take place (e.g. school, business) will you gain this in advance of undertaking your research?

○ Yes   ○ No   ○ I don't know   ● N/A

Will you be using a gatekeeper to access participants?

○ Yes   ● No   ○ I don't know if I will be using a gatekeeper

Will participants be subjected to any undue incentives to participate?

○ Yes   ● No   ○ I don't know

Will you ensure that there is no perceived pressure to participate?

● Yes   ○ No   ○ I don't know

Participant data

Will you be using video recording or photography as part of your research or publication of results?

● Yes   ○ No

Will you be using audio recording as part of your research?

● Yes   ○ No

Will you be using audio recordings in outputs (e.g. giving a presentation in a conference, using it for teaching)?

○ Yes   ● No

Will you be using portable devices to record participants (e.g. audio, video recorders, mobile phone, etc)?

◉ No

○ Yes, and all portable devices will be encrypted as per the Lancaster University ISS standards, in particular where they are used for recording identifiable data

○ Yes, but these cannot be encrypted because they do not have encryption functionality. Therefore I confirm that any identifiable data (including audio and video recordings of participants) will be deleted from the recording device(s) as quickly as possible (e.g. when it has been transferred to a secure medium, such as a password protected and encrypted laptop or stored in OneDrive) and that the device will be stored securely in the meantime

Will you be using other portable storage devices in particular for identifiable data (e.g. laptop, USB drive, etc)? (Please read the help text)

◉ No

○ Yes, and they will be encrypted as per the Lancaster University ISS standards in particular where they are used for recording identifiable data

Will anybody external to the research team be transcribing the research data?

○ Yes   ◉ No

Online Sources

Does your research comply with the site(s) terms and conditions? Before completing the section below please read the 'Social Media Guidance for Researchers'

◉ Yes   ○ No   ○ It's unclear in the terms and conditions

Is there a reasonable expectation of privacy?

◉ Yes   ○ No

Because there is a reasonable expectation of privacy, you must obtain consent from site users. Therefore you will need to upload a copy of the Participant Information Sheet & Consent form that you intend to use to obtain their informed consent.

General Queries

Does the funder or any organisations involved in the research have a vested interest in specific research outcomes that would affect the independence of the research?

○ Yes   ● No   ○ I don't know

Does any member of the research team, or their families and friends, have any links to the funder or organisations involved in the research?

○ Yes   ● No   ○ I don't know

Can the research results be freely disseminated?

● Yes   ○ No   ○ I don't know

Will you use data from potentially illicit, illegal, or unethical sources (e.g. pornography, related to terrorism, dark web, leaked information)?

○ Yes   ● No   ○ I don't know

Will you be gathering/working with any special category personal data?

○ Yes   ● No   ○ I don't know

Are there any other ethical considerations which haven't been covered?

● Yes   ○ No   ○ I don't know

REC Review Details

Based on the answers you have given so far you will need to answer some additional questions to allow reviewers to assess your application.

It is recommended that you do not proceed until you have completed **all of the previous questions**.

Please confirm that you have finished answering the previous questions and are happy to proceed.

☑ I confirm that I have answered all of the previous questions, and am happy to proceed with the application.

Questions for REC Review

Summarise your research protocol in lay terms (indicative maximum length 150 words).

Note: The summary of the protocol should concisely but clearly tell the Ethics Committee (in simple terms and in a way which would be understandable to a general audience) what you are broadly planning to do in your study. Your study will be reviewed by colleagues from different disciplines who will not be familiar with your specific field of research and it may also be reviewed by the lay members of the Research Ethics Committee; therefore avoid jargon and use simple terms. A helpful format may include a sentence or two about the background/ "problem" the research is addressing, why it is important, followed by a description of the basic design and target population. Think of it as a snapshot of your study.

The purpose of this study is to understand how the concept of psychological safety works within an NHS operating theatre. An individual experiences psychological safety when they are able to express themselves without fear of negative consequence. Within an operating theatre team, psychological safety is important for patient safety, continued learning and staff wellbeing. This research will talk to operating theatre staff about their experiences in work, to develop a theory of psychological safety within an operating theatre team. It is clear the operating theatre has increased risks if the team is not psychologically safe, and yet the aspects of the operating theatre environment appear to contradict the evidence-based requirements for a psychologically safe team. Therefore, this thesis aims to explore how psychological safety works within an NHS operating theatre.

State the Aims and Objectives of the project in Lay persons' language.

How does psychological safety happen in the operating theatre team with inconsistent, changing team members?
How does psychological safety work in a learning environment requiring safety procedures with the presence of power disparities?
How staff take the interpersonal risk of speaking up, despite an awareness that this may impact their wellbeing, instead of using silence as a protective method?
Overall, this thesis aims to explore how psychological safety works within an NHS operating theatre.

Participant Information

Please explain the number of participants you intend to include in your study and explain your rationale in detail (eg who will be recruited, how, where from; and expected availability of participants). If your study contains multiple parts eg interviews, focus groups, online questionnaires) please clearly explain the numbers and recruitment details for each of these cohorts (see help text).

The research will recruit up to 12 participants. Similar to power calculations in quantitative studies, information power (Malterud et al., 2016) has been used to assess sample size in this qualitative study. By only including participants who are operating theatre staff, the specificity within the study methodology contributes to the information power. The sample size is supported by using purposive sampling to include participants with a variety of job roles. The communication skills of the interviewer, gained through clinical psychology training, will contribute to the building of rapport within the interview. Factors reported by Aldiabat and Le Navenec (2018) to improve the likelihood of reaching data saturation are being used in this thesis. These include having a simple research question, recruiting participants with expertise in the field to increase the knowledge received in each interview, recruiting participants from across the different staff groups to support the triangulation approach of gaining different perspectives and having support from supervisors with expertise in qualitative methodology. A slightly increased sample size is predicted to account for potential attrition from the recruited sample and to provide understanding on if data saturation has been achieved. As the sample consists of NHS staff, no patient registers or records will be reviewed. Potential participants will be recruited using social media platforms of Facebook, Twitter and LinkedIn. The social media posts will encourage sharing via professional network contacts and the use of tagging influencers within the field. Using a contact within an NHS operating theatre team, staff have been consulted on the content, style and accessibility of the social media advert to support the success of the recruitment process. Recruitment will take place imminently following ethical approval and virtual interviews will be arranged via email communication to take place as soon as is feasible for the interviewer and participant.

You have selected that the research may involve personal sensitive topics that participants may not be willing to otherwise talk about. Please indicate what discomfort, inconvenience or harm could be caused to the participant and what steps you will take to mitigate or manage these situations.

> Risk of distress
> The interview will explore a participant's experience at work and therefore there is a small risk the participant may feel distressed. There is the potential the interview will explore topics which may be sensitive, embarrassing or upsetting. The content of the interviews will not ask about non-work-related issues. Before the interview the researcher will explain to the participant that they can stop the interview at any point. If the participant becomes visibly distressed, or communicates they are distressed, the interviewer will sensitively explore what steps can be taken to support the individual and collaboratively agree these with the participant. Details of staff well-being and support contacts are detailed on the participant information sheet. The option to stop the interview will be offered. Contact details for researcher and supervisory team will be provided on the participant information sheet, alongside a statement and resources for the participant if they experience distress after the interview.

You have indicated that you will collect identifying information from the participants. Please describe all the personal information that you gather for your study which might be used to identify your participants.

> Name, age, gender, ethnicity, job title and number of years working in the NHS.

Please describe how the data will be collected and stored.

> On the consent form, the participants will be asked to share details such as name, age, gender, ethnicity, job title and number of years working in the NHS. All data will be stored securely on the Lancaster University approved server OneDrive, it will be accessed securely via a personal computer and files will be password protected. Personal data will be deleted as soon as possible, post-participation or post-dissemination as applicable.

Please describe how long the data will be stored and who is responsible for the deletion of the data.

> All data will be stored securely on the Lancaster University approved server OneDrive. The password used to encrypt documents and the period of time the data needs to be stored for (10 years) will be shared with the DClinPsy Research Coordinator.

You stated that the study could induce psychological stress or anxiety, or produce humiliation or cause harm or negative consequences beyond the risks encountered in a participant's usual, everyday life. Please describe the question(s) and situation(s) that could lead to these outcomes and explain how you will mitigate this.

> Question: Could you talk me through a time when communication in the operating theatre hasn't gone well and there wasn't a sense of trust in the team, how did it make you feel?
> Question: Could you talk to me about the factors you've experienced that prevent you from speaking up or prevent you from supporting others to speak up?
> Question: Are there times when you're working with a team and it's not like that, it doesn't go well, how does it make you feel?
>
> Before the interview the researcher will explain to the participant that they can stop the interview at any point. If the participant becomes visibly distressed, or communicates they are distressed, the interviewer will sensitively explore what steps can be taken to support the individual and collaboratively agree these with the participant. Details of staff well-being and support contacts are detailed on the participant information sheet. The option to stop the interview will be offered. Contact details for researcher and supervisory team will be provided on the participant information sheet, alongside a statement and resources for the participant if they experience distress after the interview.

You have selected that there is a risk that the nature of the research might lead to disclosures from the participant. What kind of information might participants disclose? How will you manage that situation?

> Whistleblowing:
> There may be potential risk issues identified within the interviews which are associated with the research topic. These may include whistleblowing by the participant and/or disclosure of negative experiences. In these circumstances, the interviewer will be aware of NHS policy and procedures in relation to raising concerns as well as being knowledgeable of NHS wellbeing services to ensure appropriate signposting and safeguarding. There is also potential for the interviews to explore topics which include inappropriate or illegal behaviour such as actions including abuse, negligence or fraud. In relation to the context, examples may include discrimination, assault, errors with controlled drugs. If this occurs, the interviewer will re-discuss parameters of confidentiality with the interviewee. It is unlikely the interviewee will have shared sufficient details to act on the information. However, if sufficient information is shared indicating illegal action it will be raised with research and field supervisors as soon as possible. The General Medical Council have been contacted and they advise the researcher to follow their guidelines for reporting a concern available on the GMC website. The research will follow appropriate professional body guidance (GMC, NMC, HCPC) and then reported to the police if required. If the interviewer feels uncertain about the information shared, it will be discussed with supervisors and a plan regarding further action will be agreed if required.

Participant Data

Explain what you will video or photograph as part of your project, why it is appropriate and how it will be used.

> The interview will take place virtually using University Approved Microsoft Teams and will be recorded using the "record" function of Microsoft Teams. Microsoft teams records both video and audio. The participant will be given the option to have their video on or off. If the participant's video is turned off, only the audio will be recorded. Having video on during the interview will support the researcher to use body language to guide the conversation and additional information to respond to any distress which may be encountered. The interview data will be recorded and the Microsoft Teams transcriptions of the interview recordings will be saved to the University OneDrive. Following the interview, the data will be anonymised and pseudonyms will be used.

How will you gain consent for the use of video/photography?

> Consent form questions:
> Microsoft Teams will record video and audio, I understand I have the choice to turn my camera off so only audio is recorded.
> I understand that my interview will be recorded and then made into an anonymised written transcript.
> I understand the anonymised transcript and interview recording will be kept separately in secure files within the Lancaster OneDrive system.
> I understand only the researcher and not their supervisors will have access to the recording. I understand this will be deleted once the research project has been examined.
> I understand that only the researcher and their supervisors will have access to the anonymised transcript.
> I understand that Lancaster University keep anonymised written interview transcriptions, coded data, demographic data, and consent forms for 10 years after the study has finished.

State your video/photography storage, retention and deletion plans and the reasons why.

> The interview data will be recorded via University Approved Microsoft Teams and the Microsoft Teams transcriptions of the interview recordings will be saved to the OneDrive. Following the interview, the data will be anonymised and pseudonyms will be used. The anonymised data will be saved to OneDrive. The chief investigator will have access to the password protected data stored on Lancaster University approved server OneDrive. The research supervisors will only have access to the anonymised transcribed interviews stored securely on the university server. No data will be stored on the personal computer. The recordings will be kept until the research project has been examined.

What would you do if a participant chose to make use of their GDPR right "of being forgotten" or "right to erasure"? Could you remove their data/video/picture from publication? (please see help text).

> In the case of a request to withdraw from the study after data has been incorporated into the analysis, the participant information sheet informs the participant that no direct quotes from their interview will be included in the write up but that it will no longer be possible to withdraw their data from the analysis. Participants will be informed of the limits of withdrawing their data in the participant information sheet and consent form.

Will you take all reasonable steps to protect the anonymity of the participants involved in this project?

◉ Yes   ○ No

Explain what steps you will take to protect anonymity.

> Anonymised transcriptions and pseudonyms used. Only the chief investigator has access to the stored personal information and interview recordings. Supervisors will only have access to the anonymised transcipts.

Information about the Research

What are your dissemination plans? E.g publishing in PhD thesis, publishing in academic journal, presenting in a conference (talk or poster).

> The research will be submitted to Lancaster University as part of the Doctorate in Clinical Psychology and associated presentations will be completed. A summary report of the findings will be shared with interested individuals working in or with operating theatre teams to inform their practice. The research findings may be submitted for publication following educational requirements.

Online Sources

You have indicated site users have a reasonable expectation of privacy and therefore you will need to obtain consent to use their data for this project. Please explain how you propose to obtain consent.

> The project will advertise using Twitter, Facebook and LinkedIn. The researcher will use their personal social media accounts. Their twitter and LinkedIn accounts are used in a professional manner relating to psychology and have followers which will increase visibility and dissemination. Their facebook account is private, it can be used to disseminate the advertisement on medical staffing facebook groups with the public only having access to the researchers name and no other personal information due to security settings. Approval to post the advert will be sought from administrator where required. Site users will be asked to contact chief investigator via email to participate in the study. No personal data of potential participants will be used from the social media sites.

General Queries

You have stated that there are other ethical considerations that have not been covered. Please explain what these other ethical considerations are, and how you would mitigate concerns regarding this research project.

> Time Commitment:
> In relation to commitment, the participant will be able to choose a time and date that is suitable for them. However, there is a potential risk of burden that allocating this time to the research project may impact their work or personal life. The interviewer will offer flexible time slot to minimise potential burden and inconvenience, this will ensure it does not impact patient care. The benefit of offering flexible interviews is to enable participants to share their experiences whilst maintaining their other commitments and responsibilities, enabling inclusion. When interview slots are arranged outside of "working hours", they will be arranged at a mutually convenient time. The process for participants withdrawing from the research is provided on the participant information sheet.

Data Storage

How long will you retain the research data?

> The password used to encrypt documents and the period of time the data needs to be stored for (10 years) will be shared with the DClinPsy Research Coordinator.

How long and where will you store any personal and/or sensitive data?

> All data will be stored securely on the Lancaster University approved server OneDrive, it will be accessed securely via a personal computer and files will be password protected. The recordings will be kept until the research project has been examined.

Please explain when and how you will anonymise data and delete any identifiable record?

> Prior to the interview, the participant will have been informed on the participant information sheet about the audio and video recording. The participant will be asked, and their decision actioned, for if they would prefer to have their camera on or off and therefore video recorded or not. Following the interview, the chief investigator will anonymise the interview transcript by changing the participant name to a pseudonym and redacting any other identifying information. The anonymised transcript will be saved to a secure Lancaster University OneDrive file. Supervisors will only have access to the anonymised data. The audio/video recordings will be kept in a separate, password protected Lancaster University OneDrive secure file which only the chief investigator will have access to. They will be kept until the research project has been examined and following this the recordings will be deleted.

Project Documentation*

Important Notice about uploaded documents:

When your application has been reviewed if you are asked to make any changes to your uploaded documents please highlight the changes on the updated document(s) using the highlighter so that they are easy to see.

Please confirm that you have read and applied, where appropriate, the guidance on completing the Participant Information Sheet, Consent Form, and other related documents and that you followed the guidance in the help button for a quality check of these documents. For information and guidance, please use the relevant link below:

FST Ethics Webpage

FHM Ethics Webpage

FASS-LUMS Ethics Webpage

REAMS Webpage

☑ I confirm that I have followed the guidance.

In addition to completing this form you must submit all supporting materials.

Please indicate which of the following documents are appropriate for your project:

☑ Research Proposal (DClinPsy)
☑ Advertising materials (posters, emails)
☑ Letters/emails of invitation to participate
☑ Consent forms
☑ Participant information sheet(s)
☐ Interview question guides
☐ Focus group scripts
☐ Questionnaires, surveys, demographic sheets
☐ Workshop guide(s)
☐ Debrief sheet(s)
☐ Transcription (confidentiality) agreement
☐ Other
☐ None of the above.

Please upload the documents in the correct sections below:

Please ensure these are the latest version of the documents to prevent the application being returned for corrections you have already made.

As you are in a DClinPsy course please upload your Research Proposal for this project.

		Documents			
Type	Document Name	File Name	Version Date	Version	Size
Research Proposal	202211_ResearchProtocol_v7	202211_ResearchProtocol_v7.docx	16/11/2022	7	828.8 KB

Please upload all consent forms to be used in this project.

		Documents			
Type	Document Name	File Name	Version Date	Version	Size
Consent Form	202211_ParticipantConsentForm_v3	202211_ParticipantConsentForm_v3.docx	16/11/2022	3	48.7 KB

Please upload all Participant Information Sheets:

Documents

Type	Document Name	File Name	Version Date	Version	Size
Participant Information Sheet	202211_ParticipantInformationSheet_v3	202211_ParticipantInformationSheet_v3.docx	16/11/2022	3	57.6 KB

Please upload all advertising materials (posters, emails)

Documents

Type	Document Name	File Name	Version Date	Version	Size
Advertising materials	202209_SocialMediaAdvert	202209_SocialMediaAdvert.jpg	09/09/2022	1	168.4 KB

Please upload all letter and emails to participate here:

Documents

Type	Document Name	File Name	Version Date	Version	Size
Letters/emails of invitation to Particpate	202209_EmailToParticipate_v1	202209_EmailToParticipate_v1.docx	09/09/2022	1	30.6 KB

Declaration

Please Note

Research Services monitors projects entered into the online system, and may select projects for quality control.

All research at Lancaster university must comply with the LU data storage and governance guidance as well as the General Data Protection Regulation (GDPR) and the UK Data Protection Act 2018. (Data Protection Guidance webpage)

☑ I confirm that I have read and will comply with the LU Data Storage and Governance guidance and that my data use and storage plans comply with the General data Protection Regulation (GDPR) and the UK Data Protection Act 2018.

Have you that you have undertaken a health and safety risk assessment for your project through your departmental process? (Health and Safety Guidance)

☑ I have undertaken a health and safety assesment for your project through my departmental process, and where required will follow the appropriate guidance for the control and management of any foreseeable risks.

When you are satisfied that this application has been completed please click "Request" below to send this application to your supervisor for approval.

Signed: This form was signed by Dr Dawn Goodwin (d.s.goodwin@lancaster.ac.uk) on 18/01/2023 10:48 AM

Please press "Request" to send this application to your second supervisor.

Signed: This form was signed by Dr Nargis Islam (n.n.islam1@lancaster.ac.uk) on 18/01/2023 10:47 AM

Please read the terms and conditions below:

- You have read and will abide by Lancaster University's Code of Practice and will ensure that all staff and students involved in the project will also abide by it.
- If appropriate a confidentiality agreement will be used.
- You will complete a data management plan with the Library if appropriate. Guidance from Library.
- You will provide your contact details, as well as those of either your supervisor (for students) or an appropriate person for complaints (such as HoD) to any participants with whom you interact, so they know whom to contact in case of questions or complaints?
- That University policy will be followed for secure storage of identifiable data on all portable devices and if necessary you will seek guidance from ISS.
- That you have completed the ISS Information Security training and passed the assessment.
- That you will abide by Lancaster University's lone working policy for field work if appropriate.
- On behalf of the institution you accept responsibility for the project in relation to promoting good research practice and the prevention of misconduct (including plagiarism and fabrication or misrepresentation of results).
- To the best of your knowledge the information you have provided is correct at the time of submission.
- If anything changes in your research project you will submit an amendment.

Applicant Only: To complete and submit this application please click "Sign" below:

Signed: This form was signed by Katie Knott (k.knott1@lancaster.ac.uk) on 18/01/2023 10:45 AM

Appendix 4-B

Research Protocol: Exploring psychological safety in NHS operating theatre teams

Research Protocol

Version 7

Study Title

Exploring psychological safety in NHS operating theatre teams

Study Contact Details

Chief Investigator

Name: Miss Katie Knott

Role: Trainee Clinical Psychologist

Address: Lancaster University Doctorate in Clinical Psychology, B31 Health Innovation One, Sir John Fisher Drive, Lancaster University, LA1 4AT

Email: k.knott1@lancaster.ac.uk

Telephone: █████████████

Academic Supervisor 1

Name: Dr Dawn Goodwin

Role: Senior Lecturer in Social Sciences and Director of PBL

Address: Lancaster Medical School, Lancaster University, LA1 4AT

Email: d.s.goodwin@lancaster.ac.uk

Telephone: █████████████

Academic Supervisor 2

Name: Dr Nargis Islam

Role: Senior Research Tutor

Address: Lancaster University Doctorate in Clinical Psychology, B31 Health Innovation One, Sir John Fisher Drive, Lancaster University, LA1 4AT

Email: n.n.islam@lancaster.ac.uk

Telephone: █████████████

Field Supervisor 1

Name: Mrs Judith Salaman

Research Protocol: Exploring psychological safety in NHS operating theatre teams

Role: Consultant General and Colorectal Surgeon
Address: East Lancashire Hospitals NHS Trust Theatres, Royal Blackburn Teaching
Hospital, Haslingden Road, Blackburn, BB2 3HH
Email: ▮▮▮▮▮▮▮▮▮▮▮▮
Telephone: ▮▮▮▮▮▮▮▮

Field Supervisor 2
Name: Dr Bhuvaneswari Bibleraaj
Role: Reader in Health and Social Care and Postdoctoral NIHR Research Fellow
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Research Protocol: Exploring psychological safety in NHS operating theatre teams

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Introduction

The National Health Service (NHS) is the government-funded healthcare system offering individuals living in the UK healthcare which is free at the point of delivery. It is a complex organisation which strives to continue improving all aspects of patient care, safety and experience (Department of Health & Social Care, 2021). Within the NHS, surgical procedures to treat an individual's illness, injury or functioning are performed within operating theatres.

Staff within NHS operating theatre teams are multidisciplinary and consist of surgeons, anaesthetists, nurses, operating department practitioners, healthcare assistants, porters, students and other allied healthcare professionals (Royal College of Surgeons of England, 2021). These interdisciplinary teams combine individuals with specialised skills, who use an improvised manner to work together in unpredictable high-risk environments towards a shared goal of treating an individual (Cima & Deschamps, 2013; Edmondson, 2003; Sundstrom et al., 1990). The NHS Patient Safety Strategy promotes the shared value of healthcare professionals continuously improving patient care and acknowledges the interactions between staff and the system (NHS England and NHS Improvement, 2019). The strategy aims to improve the patient safety culture through insight, involvement, and improvement. Patient safety is paramount and to do this, NHS individuals, teams and organisations are required to acknowledge that errors occur and therefore staff members are required to work alongside procedures and technology to identify risk of patient harm. The requirement of healthcare workers to communicate potential risk and the barriers associated with this is recognised in government reports with the importance of moving away from a blame culture to a learning culture being recommended within NHS organisations (Francis, 2013). Safety in the operating theatre is known to be affected by human errors (such as skill errors or decision errors), technical errors, communication failure and safety issues (Wahr, 2022). To address the risks of adverse events, governance guidelines and strategies such as simulation based training, briefings and debriefings, checklists, structured communication, incident reporting and establishing a safety culture (Wahr, 2022) have been developed and implemented. A component of many of these is the encouragement of, and reliance on, staff speaking up and raising their concerns when a problem or risk is identified

(National Guideline Centre, 2020; Wahr, 2022). The NHS Patient Safety Strategy identifies the concept of psychological safety as a fundamental element in improving patient safety (NHS England and NHS Improvement, 2019).

Psychological safety is a term used at an individual, group and organisational level. Psychological safety is defined as the ability for an individual to express themselves without fear of negative consequence (Edmondson, 1999; Kahn, 1990). Within a team, it is the shared belief that it is safe for interpersonal risk taking and is seen as the ability to discuss differences with others through openness and honesty in a way that leads to learning (Edmondson, 1999; Kahn, 1990). Psychological safety represents the individual's view of their work environment and how their colleagues will respond to their risk-taking behaviour (Carmeli & Gittell, 2009). Edmondson (1999) explains that an environment experienced as psychologically safe, provides a confidence that the "team will not embarrass, reject, or punish someone for speaking up" (page 354). A psychologically safe environment should support learning behaviour by reducing potential threats to the individual of retaliation, rejection and guilt (Schein & Bennis, 1965) which could negatively impact their self-image, status or career (Kahn, 1990). The environment should feel respectful, in that a raised error will not be held against an individual. Edmondson and Lei (2014) note that psychological safety at the individual, group and organisational levels of analysis "facilitates the willing contribution of ideas and actions to a shared enterprise" (page 24). Frazier et al. (2017) conducted a meta-analysis to understand the antecedents for psychological safety. At an individual level they found personality variables (proactive, emotional stability and learning orientation), positive leader relations (inclusive, transformational, and trusting leadership) and work characteristics (autonomy, interdependence, role clarity and supportive work context) were all significantly related to psychological safety. At the group level, the increased presence of power and hierarchy between staff in the teams negatively impact how psychologically safe an individual feels, and an empowering leadership style has a positive impact on psychological safety (Jada & Mukhopadhyay, 2018; Nembhard & Edmondson, 2006). The factors which contribute to psychological safety, can be experienced overtly or covertly from the individual, group, and organisational level.

Within an operating theatre team, Jones and Durbridge (2016) identified that a psychologically safe environment resulted in fewer adverse events and more positive

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patient outcomes. A breadth of evidence highlights how a lack of psychological safety seen through poor, disruptive and failed communication contributes to decreased patient safety (Chrouser & Partin, 2019; Ridley et al., 2021; Schwappach et al., 2018; Torring et al., 2019). Staff wellbeing is negatively impacted by a lack of psychological safety when disruptive communication (Chrouser & Partin, 2019), poor staff relationships (Vitous et al., 2021) and disparities in power between staff (Bochatay et al., 2021) are present in the environment and relationships. Unsurprisingly, the World Health Organization (2009) identifies communication as a critical factor within operating theatre teams for patient safety. Therefore, psychological safety in the operating theatre team at an individual, group and organisational level has been found to be beneficial to staff and patients.

Psychological safety is considered to develop in teams over time and is understood by team members without being explicitly stated or discussed (Edmondson, 1999). Inconsistent findings suggest a positive relationship between psychological safety and time as a team, a u-shape curvilinear relationship with new and old teams having the highest psychological safety and other research finding no relationship at all between time and psychological safety (Koopmann et al., 2016). The staff within an operating theatre team are not consistent and change daily, including during operations, resulting in teams being made up of different people. In addition, some healthcare disciplines of staff are required to move and work in different hospitals as part of their employment which can mean operating theatre teams do not develop long team relationships as there are frequent changes of people from outside of the wider staff team known to that hospital. Therefore, permanent staff of different disciplines within the hospital may know each other but they will also be working with new team members meaning the team is neither "new" nor "old". The operating theatre requires staff to take interpersonal risks, in line with safety procedures, and yet the changing staff team environment in which they work does not facilitate a team to develop consistent, shared, and actionable understandings required for psychological safety as suggested by Edmondson (1999). This raises the question of how psychological safety happens in the operating theatre team with inconsistent, changing team members?

A psychologically safe environment enables learning behaviour through people being able to speak up about mistakes or errors (Frazier et al., 2017) and is

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furthered when high-quality relationships through shared goals, knowledge and respect are present (Carmeli & Gittell, 2009). Within the operating theatre there is the presence of power imbalances across healthcare disciplines, with certain professions and grades of staff being more senior in the hierarchy. The operating theatre is also a learning environment for healthcare professionals to train in and develop in their career, often under the supervision of a colleague who teaches skills and signs off competencies. A learning environment would be facilitated by having psychologically safety however, the as noted the presence of power imbalances amongst staff in the operating theatre would suggest a negative impact on the ability to learn and raise potential errors of themselves or those in power. Yet, the operating theatre holds an expectation for individuals across the hierarchy to facilitate their learning and improve patient care despite power imbalances and the associated threats of the decision to speak up impacting their career and self-image. This raises the question of how does psychological safety work in a learning environment requiring safety procedures with the presence of power disparities?

Compared to the general population, healthcare professionals have a higher risk of burnout, with surgeons amongst the highest, and poor wellbeing reported early in careers from students and trainees (Carrau & Janis, 2021; Shanafelt et al., 2009; Vitous et al., 2021). Poor occupational wellbeing in operating theatre staff has been further evidenced throughout the recent coronavirus pandemic (Royal College of Surgeons of England, 2020) and concerns that patient safety is impacted by poor staff wellbeing have been raised (Ike et al., 2019). The operating theatre encourages staff to speak up about patient safety through the risk management procedures and culture. However, speaking up poses the previously mentioned risks of criticism and threat to self if the environment is not psychologically safe. Silence has been found to be both protective and defensive with staff experiencing fear of criticism, fear they are not superior enough or are too superior to answer (Gardezi et al., 2009; Jones & Durbridge, 2016). Patient safety silence describes the choice of staff to remain silent despite potential risk and is recognised as a major barrier to the safety of patients (Jeong et al., 2021). This raises the question of how staff take the interpersonal risk of speaking up, despite an awareness that this may impact their wellbeing, instead of using silence as a protective method?

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This research project investigates the importance of having psychologically safe operating theatre teams for increased patient safety, continued learning and improved staff wellbeing. It is clear the operating theatre has increased risks if the team is not psychologically safe, and yet the aspects of the operating theatre environment appear to contradict the evidence-based requirements for a psychologically safe team. Therefore, this thesis aims to explore how psychological safety works within an NHS operating theatre.

Method

Participants

Inclusion Criteria:

- Current healthcare staff working in NHS operating theatre teams, such as surgeons, anaesthetists, nurses, operating department practitioners, healthcare assistants, porters, students and other allied healthcare professionals
- Worked in NHS operating theatre teams for at least 6 months.
- Required to speak English.
- Over 18 years old.

Exclusion Criteria:

- People who do not speak English. This is due to the study materials and procedure being conducted in English however, NHS jobs require employees to have an approved level of English Language.

Design

Sample size. The research will recruit up to 12 participants. Similar to power calculations in quantitative studies, information power (Malterud et al., 2016) has been used to assess sample size in this qualitative study. By only including participants who are operating theatre staff, the specificity within the study methodology contributes to the information power. The sample size is supported by using purposive sampling to include participants with a variety of job roles. The communication skills of the interviewer, gained through clinical psychology training, will contribute to the building of rapport within the interview. Factors reported by Aldiabat and Le Navenec (2018) to improve the likelihood of reaching data saturation

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are being used in this thesis. These include having a simple research question, recruiting participants with expertise in the field to increase the knowledge received in each interview, recruiting participants from across the different staff groups to support the triangulation approach of gaining different perspectives and having support from supervisors with expertise in qualitative methodology. A slightly increased sample size is predicted to account for potential attrition from the recruited sample and to provide understanding on if data saturation has been achieved.

Recruitment. As the sample consists of NHS staff, no patient registers or records will be reviewed. Potential participants will be recruited using social media platforms of Facebook, Twitter and LinkedIn. The social media posts (Appendix 1) will encourage sharing via professional network contacts and the use of tagging influencers within the field. Using a contact within an NHS operating theatre team, staff have been consulted on the content, style and accessibility of the social media advert to support the success of the recruitment process. Recruitment will take place imminently following ethical approval and virtual interviews will be arranged via email communication to take place as soon as is feasible for the interviewer and participant.

Consent. When an individual shows interest in the research project by contacting the chief investigator, the participant information sheet (Appendix 2) and consent form (Appendix 3) will be sent to the person for review. The individual will be asked to return the signed consent form via email to the chief investigator to confirm consent to participate. The participant can withdraw their interest prior to the scheduled interview. At the end of the interview, the participant will be told the date of two weeks following their interview, as the date they are able to contact the chief investigator by if they want to retract their data, in line with the participant information sheet. In the case of a request to withdraw from the study after data has been incorporated into the analysis, the participant information sheet informs the participant that no direct quotes from their interview will be included in the write up but that it will no longer be possible to withdraw their data from the analysis. Participants will be informed of the limits of withdrawing their data in the participant information sheet and consent form.

Personal Information. The research will recruit NHS staff as potential participants and does not include patients or service users. Participation will be voluntary and the data will be anonymised if used in the write up. On the consent

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form, the participants will be asked to share details such as name, age, gender, ethnicity, job title and number of years working in the NHS. These details will be used to screen individuals interested in participating to ensure a wide range of participants are included. Personal data will be deleted as soon as possible, post-participation or post-dissemination as applicable.

Data Collection. The interview will take place virtually on Microsoft Teams and will last for approximately 60 minutes (Dicicco-Bloom & Crabtree, 2006). The interviewer will be the chief investigator who will be in a private and confidential location. The participant will be advised in the information sheet to also join from a private space. The interviewer will use semi-structured interviews utilising an interview topic guide (Appendix 4) to facilitate the participant sharing their own experiences. The use of an interview topic guide will enhance consistency across the interviews and enable the key areas of the evidence base to be covered whilst ensuring the participant is able to bring their own experience and priorities.

Public/Practitioner Involvement and Collaboration. This research does not involve individuals described as patients, service users and/or carers therefore these people have not been included in any aspect of the research process. The research does, however, involve field supervisors and experts by experience who are all NHS operating theatre staff and therefore have experience of working in the study area. Field supervisors and NHS doctors have been involved in the design of the research, have been consulted on the recruitment packs and will be involved in the dissemination of the findings.

Adaptations. To work within the NHS, participants will have had to prove their ability to read, write, speak and understand the English Language to CEFR Level B1 when they applied for their job. Interview questions will be verbal and can be repeated if required. Therefore, no arrangements are required for adapting verbal or written English information.

Analysis

The qualitative data will be analysed using Grounded Theory (Birks & Mills, 2015). This methodology aims for the generation of theory through exploring a generalised research topic without a hypothesis. For this study, the topic area for theory generation is "How does psychological safety work in an NHS operating theatre?". The study will be guided by the grounded theory principles of memo writing, theoretical sampling, and concurrent data collection and analysis.

Continuous memo-writing aims to bring awareness to themes and ideas that are noted during the research process and act as a memory aid for how the theory was generated. Theoretical sampling will be used alongside concurrent data collection and analysis, to guide what data to gather as the theory emerges.

Dissemination

The research will be submitted to Lancaster University as part of the Doctorate in Clinical Psychology and associated presentations will be completed. A summary report of the findings will be shared with interested individuals working in or with operating theatre teams to inform their practice. The research findings may be submitted for publication following educational requirements.

Practical Issues

Data Storage

All data will be stored securely on the Lancaster University approved server OneDrive, it will be accessed securely via a personal computer and files will be password protected. Consent forms will be electronic, and consent will be deemed as given when the participant returns the form via email. In the unlikely event a paper copy is required by the participant it will be scanned to store electronically, and the paper version destroyed. If the participant is unable to electronically sign the consent form, the interviewer will read the consent form out loud and gain verbal consent at the start of the recorded interview. Individuals will be informed of their right to access data according to GDPR guidance. No portable recording devices will be used. The interview data will be recorded via University Approved Microsoft Teams and the Microsoft Teams transcriptions of the interview recordings will be saved to the OneDrive. Following the interview, the data will be anonymised and pseudonyms will be used. The anonymised data will be saved to OneDrive. Direct quotations from respondents will be used in the research but will have been anonymised and published using the agreed pseudonyms.

The chief investigator will have access to the password protected data stored on Lancaster University approved server OneDrive. The research supervisors will have access to the anonymised transcribed interviews stored securely on the university server. The data will be analysed by the chief investigator using their personal computer to securely access the Lancaster University approved server

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OneDrive folders. No data will be stored on the personal computer. Consent forms, interview transcripts and coded data will be stored long term by the Research Coordinator in the DClinPsy admin team. This will be shared securely via the Lancaster University approved server OneDrive and will be saved on a password protected file space on the server. The password used to encrypt documents and the period of time the data needs to be stored for (10 years) will be shared with the Research Coordinator.

Lone Online Working

The Lancaster University guidance on lone working has been read. The study design is not prohibited or require special consideration as defined by the guidance. The lone working workplace does not enhance the risk, the task is appropriate to be carried out by a lone person and no increased controls are required. The researcher has experience of working alone online.

Coronavirus Pandemic Restrictions

A further potential problem may be coronavirus restrictions however, Microsoft Teams (video communication technology) has been successfully used to facilitate data collection during previous lockdowns and will be used for this study. This use of Microsoft Teams has additional benefits of participants being able to take part at a time and place that suits them, a factor which contributed to this decision. Microsoft Teams is approved by Lancaster University.

Ethical Concerns

Ethical Approval

Ethical approval is required from the Faculty of Health and Medicine Research Ethics Committee (FHMREC) at Lancaster University.

Confidentiality

The interviewer will be in a private and confidential space during the Microsoft Teams interviews and the participant will be advised in the information sheet to do the same. The interview transcripts will be anonymised and pseudonyms will be used for each participant. There is a risk of breach of confidentiality if risk to self or others is disclosed, this is included on the participant information sheet and will ensure the safety of all involved is maintained.

Risk of distress

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The interview will explore a participant's experience at work and therefore there is a small risk the participant may feel distressed. There is the potential the interview will explore topics which may be sensitive, embarrassing or upsetting. The content of the interviews will not ask about non-work-related issues. Before the interview the researcher will explain to the participant that they can stop the interview at any point. If the participant becomes visibly distressed, or communicates they are distressed, the interviewer will sensitively explore what steps can be taken to support the individual and collaboratively agree these with the participant. Details of staff well-being and support contacts are detailed on the participant information sheet. The option to stop the interview will be offered. Contact details for researcher and supervisory team will be provided on the participant information sheet, alongside a statement and resources for the participant if they experience distress after the interview.

Whistleblowing

There may be potential risk issues identified within the interviews which are associated with the research topic. These may include whistleblowing by the participant and/or disclosure of negative experiences. In these circumstances, the interviewer will be aware of NHS policy and procedures in relation to raising concerns as well as being knowledgeable of NHS wellbeing services to ensure appropriate signposting and safeguarding (Independent National Whistleblowing Officer, 2022; NHS England, 2022). There is also potential for the interviews to explore topics which include inappropriate or illegal behaviour such as actions including abuse, negligence, or fraud. In relation to the context, examples may include discrimination, assault, errors with controlled drugs. If this occurs, the interviewer will re-discuss parameters of confidentiality with the interviewee. It is unlikely the interviewee will have shared sufficient details to act on the information. However, if sufficient information is shared indicating illegal action it will be raised with research and field supervisors as soon as possible and then reported to the police if required. The General Medical Council have been contacted and they advise the researcher to follow their guidelines for reporting a concern available on the GMC website. The research will follow appropriate professional body guidance (GMC, NMC, HCPC) and then reported to the police if required. If the interviewer feels uncertain about the information shared, it will be discussed with supervisors and a plan regarding further action will be agreed if required.

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Time Commitment

In relation to commitment, the participant will be able to choose a time and date that is suitable for them. However, there is a potential risk of burden that allocating this time to the research project may impact their work or personal life. Therefore, the researcher will speak with field supervisors to mitigate any increased risk. The interviewer will offer flexible time slot to minimise potential burden and inconvenience, this will ensure it does not impact patient care. The benefit of offering flexible interviews is to enable participants to share their experiences whilst maintaining their other commitments and responsibilities, enabling inclusion. When interview slots are arranged outside of "working hours", they will be arranged at a mutually convenient time. The process for participants withdrawing from the research is provided on the participant information sheet.

Potential Benefits

The participants may benefit from talking to someone about their experiences of communicating within the operating theatre team and their wellbeing. There are no direct benefits to participating in the research. There are no payments for taking part in the research. The chief investigator nor any member of the research team will receive personal payment or any other benefits for conducting the research, other than those associated with educational requirements and normal salary.

Timescale

ACTIVITY	DATE	WHO
Submit ethics proposal	September 2022	Trainee
Data collection	November – January 2023	Trainee
Data analysis	November – January 2023	Trainee
Submit thesis (Literature Review, Research Paper, Critical Review)	March 2023	Trainee
Submit papers for publication	June 2023	Research supervisor
If accepted, submit final accepted manuscript to research coordinator	July 2023	Research supervisor/trainee

Appendix 4-C

Appendix 4-D

Email of invitation to participate

Hi,

Thank you for your contacting me with your interest in participating in the research project titled: *Exploring voice and trust in operating theatre teams*.

I have attached the Participant Information Sheet to provide you with more details about the study.

If you would like to participate please complete the Consent Form attached to this email and send it back to me via email. Following this, I will liaise with you to find a mutually convenient time for the research interview using Microsoft Teams.

Many thanks,

Katie

Katie Knott | Trainee Clinical Psychologist
Doctorate in Clinical Psychology | Lancaster University
Contact me on Teams (Internal)

www.lancaster.ac.uk

Appendix 4-E

Doctorate in Clinical Psychology | Lancaster University

Participant Information Sheet

Exploring psychological safety in NHS operating theatre teams

My name is Katie Knott and I am conducting this research as a Trainee Clinical Psychologist on the Doctorate in Clinical Psychology at Lancaster University, United Kingdom.

What is the study about?

The purpose of this study is to understand how the concept of psychological safety works within an NHS operating theatre. An individual experiences psychological safety when they are able to express themselves without fear of negative consequence. Within an operating theatre team, psychological safety is important for patient safety, continued learning and staff wellbeing. This research will talk to operating theatre staff about their experiences in work, to develop a theory of psychological safety within an operating theatre team.

Why have I been approached?

You have been approached because the study requires information from people who work in an NHS operating theatre.

Do I have to take part?

No. It's completely up to you to decide whether or not you take part. Participation is voluntary.

What will I be asked to do if I take part?

If you decide you would like to take part, I will contact you to arrange a time and date for an interview using Microsoft Teams. Before the interview, you will have been asked to return the signed consent form to confirm you are happy with the information on it.
The interview is anticipated to last one hour and you will be asked to talk about your experiences within operating theatre teams. During the interview, I will use some pre-prepared questions to facilitate our conversation.

Will my data be Identifiable?

Your data will be protected in the following ways:
  o The data collected for this study will be stored securely on the Lancaster University OneDrive system.
  o The files in OneDrive will be encrypted and password protected.
  o Only the researchers conducting this study will have access to this data.

V25-5-18

- o The interview will be recorded using Microsoft Teams. Microsoft Teams will record video and audio, but you have the choice to turn your camera off so only audio is recorded. 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. A pseudonym will be used for your data.
- o Personal information collected will be stored securely in a separate secure file from your interview data to protect your anonymity and keep this personal data confidential. Only the chief investigator will have access to this data.
- o Supervisors will only have access to the anonymised transcripts.
- o Recordings will be deleted once the project has been examined.
- o All reasonable steps will be taken to protect the anonymity of the participants involved in this project.

There are some limits to confidentiality: if what is said in the interview makes me think that you, or someone else, is at significant risk of harm (including actions such as abuse, negligence, or fraud) I will have to break confidentiality and speak to a supervisor and possibly a professional body about this. If possible, I will tell you if I have to do this.

Lancaster University will be the data controller for any personal information collected as part of this study. Under the GDPR you have certain rights when personal data is collected about you. You have the right to access any personal data held about you, to object to the processing of your personal information, to rectify personal data if it is inaccurate, the right to have data about you erased and, depending on the circumstances, the right to data portability. Please be aware that many of these rights are not absolute and only apply in certain circumstances. If you would like to know more about your rights in relation to your personal data, please speak to the researcher on your particular study.

For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage: www.lancaster.ac.uk/research/data-protection

What will happen to the results?

The results will be summarised and reported in a thesis which will be submitted to meet the educational requirements of the Doctorate in Clinical Psychology. The results may be submitted for publication in an academic or professional journal/conference. A summary report will be available for participants, if you would like to receive this.

Are there any risks?

There are no risks anticipated with participating in this study. However, if you experience any distress during or following participation you are encouraged to

inform the researcher. Support
information and resources are 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.

Who has reviewed the project?

This study has been reviewed and approved by the Faculty of Health and Medicine Research Ethics Committee at Lancaster University.

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 Katie, alternatively you can contact my supervisors Dawn or Nargis:
Katie Knott – k.knott1@lancaster.ac.uk
Dawn Goodwin – d.s.goodwin@lancaster.ac.uk
Nargis Islam – n.n.islam1@lancaster.ac.uk

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 Ian:

- Dr Ian Smith
  Tel: (01524) 592 282
  Research Director; Email: i.smith@lancaster.ac.uk
  Division of Health Research, Lancaster University, Lancaster, LA1 4YW

If you wish to speak to someone outside of the Lancaster Doctorate Programme, you may also contact:

- Dr Laura Machin Tel: +44 (0)1524 594973
  Chair of FHM REC Email: l.machin@lancaster.ac.uk
  Faculty of Health and Medicine, Lancaster Medical School, Lancaster University, Lancaster, LA1 4YG

Thank you for taking the time to read this information sheet.

Resources in the event of distress

It is not anticipated that taking part in this study will result in any distress for you, however should you feel distressed either as a result of taking part, or in the future, the following resources may be of assistance.

- Staff Mental Health and Wellbeing Hub
  - https://www.england.nhs.uk/supporting-our-nhs-people/support-now/staff-mental-health-and-wellbeing-hubs/
- Helplines and Listening Services
  - https://www.mind.org.uk/information-support/guides-to-support-and-services/crisis-services/helplines-listening-services/
- GP

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o You may wish to contact
your GP to discuss how you are feeling as they are also able to direct
you to a local support service.

Appendix 4-F

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Participant Consent Form

Exploring psychological safety in NHS operating theatre teams

We are asking if you would like to take part in a research project asking NHS operating theatre staff about their experiences of being able to speak up at work and how they feel.
Before you consent to participating in the study, we ask that you read the Participant Information Sheet and the information below.
If you have any questions or queries before signing the consent form please speak to the principal investigator, Katie Knott.

Please mark each box below with your initials if you agree and consent to take part in the research.

1.	I confirm that I have read the information sheet and understand what is expected of me within this study.	Initials
2.	I understand Microsoft Teams will record video and audio and I have the choice to turn my camera off so only audio is recorded.	Initials
3.	I understand only the researcher will have access to the recording, this will be deleted once the research project has been examined.	Initials
4.	I understand that my recorded interview will be made into an anonymised written transcript.	Initials
5.	I understand the researcher will share the anonymised interview transcript with their supervisors and discuss this as needed.	Initials
6.	I understand that my interview data will be anonymised, combined with other participants, and a pseudonym used.	Initials
7.	I understand that my participation is voluntary and that I can withdraw at any time up until two weeks after my interview without giving any reason.	Initials
8.	I understand that once my data has been anonymised and incorporated into themes two weeks after my interview, it might not be possible for it to be withdrawn but no direct quotes will be used.	Initials
9.	I understand that Lancaster University keep anonymised written interview transcriptions, coded data, demographic data, and consent forms for 10 years after the study has finished.	Initials
10.	I understand that the information I give will be kept confidential and anonymous, unless the researcher believes there may be a risk to myself or another person. I understand that in this case information will be shared with the researcher's supervisors and if required, the appropriate professional body guidance for reporting a concern will be followed.	Initials
11.	I understand the anonymised data may be published, used in reports, conferences, and training events.	Initials
12.	I confirm that I have had the opportunity to ask any questions and have had them answered.	Initials

Name of participant: Click or tap here to add your name.

Date: Click or tap to enter a date.

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Participant Demographics:

Please could you answer the following questions. This information will be used to describe the sample of participants who took part in this study.

1. Gender:
   ☐ Male
   ☐ Female
   ☐ Other – please specify: Click or tap here to enter text.
   ☐ Prefer not to say

2. Age: Click or tap here to add your age.

3. What is your ethnic group?

   (Choose the option that best describes your ethnic group or background)

   (Categories taken from the Office of National Statistics Census of England and Wales, 2021)

   A. Asian or Asian British
   ☐ Indian
   ☐ Pakistani
   ☐ Bangladeshi
   ☐ Chinese
   ☐ Any other Asian background, please state Click or tap here to enter text.

   B. Black, African, Caribbean or Black British
   ☐ Caribbean
   ☐ African, please specify Click or tap here to enter text.
   ☐ Any other Black, African or Caribbean background, please state Click or tap here to enter text.

   C. Mixed or Multiple ethnic groups
   ☐ White and Black Caribbean
   ☐ White and Black African
   ☐ White and Asian
   ☐ Any other Mixed or Multiple background, please state Click or tap here to enter text.

D. White

☐ English / Welsh / Scottish / Northern Irish / British

☐ Irish

☐ Gypsy or Irish Traveller

☐ Roma

☐ Any other White background, please state Click or tap here to enter text.

E. Other ethnic group

☐ Arab

☐ Any other ethnic group, please state Click or tap here to enter text.

4. What is your job title?

Click or tap here to add your job title.

5. How long have you worked in an NHS operating theatre for?

Click or tap here to add number of years. **years**

Appendix 4-G

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Interview Topic Guide V1

Question	Follow Up Questions
Could you talk me through a time when communication in the operating theatre has gone well and there was a sense of trust in the team, how did it make you feel?	How did you feel afterwards? Did you talk to anybody afterwards? - Was it someone in work or not?
Could you talk me through a time when communication in the operating theatre hasn't gone well and there wasn't a sense of trust in the team, how did it make you feel?	How did you feel afterwards? Did you talk to anybody afterwards? - Was it someone in work or not? Has it got to the stage where you have needed time out or away from work?
Could you talk to me about the factors you've experienced that support you to speak up or enable you to support others to speak up?	How do these impact decision making? How do these impact patient care? How do these impact how you feel?
Could you talk to me about the factors you've experienced that prevent you from speaking up or prevent you from supporting others to speak up?	How do these impact decision making? How do these impact patient care? How do these impact how you feel?
Are there times when you're working with a team and it all goes well, how does it make you feel?	What does this feel like during a shift? What does this feel like at the end of a shift?
Are there times when you're working with a team and it's not like that, it doesn't go well, how does it make you feel?	What does this feel like during a shift? What does this feel like at the end of a shift?
Is there anything else you've thought about which you wanted to share?	

Section 5: BMJ Open - Author Submission Guidelines

Psychological Safety: Exploring NHS organisational factors and the experiences of operating theatre teams.

Word count (excluding references, tables, and appendices): N/A

Katie Knott

Doctorate in Clinical Psychology

Division of Health Research, Lancaster University

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Example references

Journals:

- **Print journal article:** Koziol-Mclain J, Brand D, Morgan D, et al. Measuring injury risk factors: question reliability in a statewide sample. Inj Prev 2000;6:148—50.
- **Online only journal article:** Dark P, Dunn G, Chadwick P, et alThe clinical diagnostic accuracy of rapid detection of healthcare-associated bloodstream infection in intensive care using multipathogen real-time PCR technology. BMJ Open 2011;1:e000181. doi: 10.1136/bmjopen-2011-000181
- **Supplement article:** Mugosa A, Cizmovic M, Lakovic T, et alAccelerating progress on effective tobacco tax policies in Montenegro. Tobacco Control 2020;29:s293-s299
- **Abstract article:** Bricca A, Swithenbank Z, Scott N, et al21 Predictors of recruitment in randomised controlled trials of smoking cessation: meta-regression analyses from the IC-SMOKE systematic review project. Abstract competing for the 'doug altman scholarship'. BMJ Evidence-Based Medicine 2019;24:A52-A53.
- **Rapid response to an article:** Krishnamoorthy KM, Dash PK. Novel approach to transseptal puncture. Heart Online [Rapid response] 18 September 2001. http://heart.bmj.com/cgi/eletters/86/5/e11#EL1

Databases and websites:

- **Preprints:** Rostami A, Sepidarkish M, Leeflang M, et al. First snap-shot meta-analysis to estimate the prevalence of serum antibodies to SARS-CoV-2 in humans. MedRxiv 20185017 [Preprint]. September 02, 2020 https://doi.org/10.1101/2020.08.31.20185017.
- **Data citations:** Wang G, Zhu Z, Cui S, at al. Glucocorticoid induces incoordination between glutamatergic and GABAergic neurons in the amygdala. Dryad Digital

Repository [dataset]. August 11, 2017. https://doi.org/10.5061/dryad.k9q7h.
- **Electronic citations:** Moore A. Paracetamol: widely used and largely ineffective [online]. 2018. http://uk.cochrane.org/news/paracetamol-widely-used-and-largely-ineffective (accessed 23 May 2018).

Books and Legal:

- **Book:** Howland J. Preventing Automobile Injury: New Findings From Evaluative Research. Dover, MA: Auburn House Publishing Company 1988:163–96.
- **Chapter in a book:** Nagin D. General deterrence: a review of the empirical evidence. In: Blumstein A, Cohen J, Nagin D, eds. Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates. Washington, DC: National Academy of Sciences 1978:95–139.
- **Legal material:** Toxic substances Contro Act: Hearing on S776 Before the Subcommittee of the Environment of the Senate Comm. on Commerce, 94th Congress 1st September (1975).
- **Law references:** The two main series of law reports, Weekly Law Reports (WLR) and All England Law Reports (All ER) have three volumes a year e.g. Robertson v Post Office [1974] 1 WLR 1176

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