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Older men and social activity: a systematic review of Men's Sheds and other gendered interventions

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Abstract

Finding ways of improving the health and wellbeing of older men is an important challenge for public health. This systematic review aimed to assess evidence of the impacts of Men's Sheds and other gendered interventions on the health and wellbeing of older men, and to consider their effective components and theoretical frameworks. The review used standardised search criteria and terms to identify papers of sufficient quality for inclusion. Analysis was informed by interpretative and narrative synthesis and a quality assessment tool designed for reviewing disparate data from different research paradigms. The review found evidence that Men's Sheds and other gendered interventions have an impact on the mental health and wellbeing of older men, but little evidence of the impact on physical health. Qualitative data provided valuable insights into how and why complex psycho-social interventions affect participants, but there was a lack of longitudinal evidence drawing on validated health and wellbeing measures. Key components of successful interventions included accessibility, range of activities, local support and skilled co-ordination. A variety of theoretical frameworks were employed. To date, studies in this field are few and of variable quality; it is not possible to convincingly conclude that Men's Sheds and other gendered interventions confer health and wellbeing benefits on older men. More robust mixed-methods studies, including randomised designs, are urgently needed.

Key words:

Older men, social isolation, wellbeing, interventions, systematic review

Introduction

Whilst population ageing is an almost universal phenomenon, women, on average, outlive men across all population groups and cultures (Wang et al, 2012, Salomon et al, 2012). Yet recent data for both the UK and the EU more widely, demonstrates that this gap in gendered life expectancy is closing (Davidson, 2013; Eurostat 2012). Despite this shift, much of the literature on men's health is dominated by negative portrayals of men's life expectancy, in which men are constructed as being more likely to lead riskier lifestyles than women and less likely to make optimal use of health care services (White et al, 2011: 41). Premature mortality amongst men is often attributed to unhealthy lifestyle choices, including those related to alcohol and tobacco. Finding ways of improving the health and wellbeing of older men thus presents an important challenge for public health.

Linked to debates about health and gender in later life is a growing concern about the health impacts of loneliness and social isolation. At its simplest, social isolation can be defined as an absence of other individuals (Victor, Scambler and Bond, 2009; Hawton et al, 2011), whilst loneliness is viewed as the psychological counterpart of social isolation (Shankar et al., 2011). Social isolation, loneliness and stressful social ties are associated with poor physical and mental health, higher risk of disability, poor recovery from illness and early death (Cacioppo et al., 2011; Luanaigh and Lawlor, 2011; Masi et al., 2011). Indeed, amongst older adults, the effect of social isolation and loneliness on mortality is believed to be of similar size to that of cigarette smoking (Holt-Lunstad, Smith and Layton, 2010). Whilst loneliness is not an inevitable consequence of lone dwelling, those who do live alone are at greater risk of social isolation. In the UK alone, between 5 and 7% of middle aged and older people experience severe or persistent

loneliness with the number of older men who live alone reaching around one million for the first time (Steffick, 2000; Victor et al, 2009).

Older women have tended to attract more scholarly attention than older men, hence there is still something of an academic ‘blind spot’ in research around older men in comparison to their female counterparts (Fleming, 1999, Fennell and Davidson, 2003; Arber et al., 2005). Yet social isolation is common amongst older men, particularly those who live alone or experience mood or cognitive problems (Illiffe et al, 2007). Finding activities and interventions that can successfully address the problems of social isolation amongst older men is thus an important health challenge. Older men not only find it harder than women to make friends late in life, they are also less likely to join community-based social groups that tend to be dominated by women. They are known to use fewer community health services than women, and are less likely to participate in preventive health activities (Suominen-Taipale et al., 2006; White et al., 2011). This combination of need and lower rates of engagement with services has prompted the public and third sectors to look to develop a range of social activity interventions specifically targeted at older men.

Social activity in a variety of forms has long been recognised as beneficial to health, particularly among older people. House, Landis and Umberson (1988) for example, highlighted the increased risk of death among those people with a low quantity, and sometimes low quality, of social relationships. Work underpinned by social activity theory for older people has thus hypothesised that health and wellbeing is promoted by high levels of participation in social and leisure activities and role replacement (Betts Adams, Leibbrandt and Moon, 2011). A number of reviews have thus sought to consolidate knowledge on the links between social activity, health

and wellbeing (e.g. Cattan et al, 2005; Dickens et al, 2011; Findlay 2003). Betts Adams et al (2011) in particular, found a diverse literature around 42 studies that showed positive associations between social activity and health and wellbeing. A systematic review by Cattan et al. (2005) further found that group activities with an educational or support input were most likely to be effective in alleviating social isolation amongst older people. Indeed, such is the impact of social activity on health and wellbeing, that a meta-analysis of 148 studies undertaken by Holt-Lunstad et al (2010) found a 50 per cent increase in the overall odds of survival as a function of social relationships. Drawing on the outcomes of a large-scale study of nearly 17,000 adults in North America, Pantell et al (2013) were also led to conclude that as a predictor of mortality, the strength of social isolation is similar to that of well-documented clinical risk factors (although it is worth noting that the data did not allow the authors to account for the effect of social position on mortality).

Developing interventions to promote social activity among older men, particularly those who are lonely or socially isolated, has proven to be a difficult task (Greenfield and Marks, 2004, Milligan et al., 2013). One recent and rapidly developing social activity intervention for older men is that of the Men's Sheds movement. This has spread from Australia to several parts of the Anglophone world including the UK and Ireland (Wilson and Cordier, 2013). Sheds provide a communal space for older men to meet, socialise, learn new skills and voluntarily take part in practical activities with other men. Much of this activity is focused around woodwork but Sheds can cover a wide range of activity stretching from engineering to model railways and the making of musical instruments. They can engage men in informal adult learning activity, provide health-related information, or signposting to relevant services (Milligan et al., 2012). Sheds may also

have a wider benefit to the local community in terms of engaging with, and providing services for, individuals and groups within that the community (Carragher, 2013). Many of the Sheds are member led or are supported by third sector organisations, a few are supported by charitable donations from the business sector. All, however, are tailored to their local context and hence, are not standardised. A Shed then, is a complex intervention with broad aims to improve physical, emotional, social and spiritual health and well-being that go beyond alleviating loneliness or social isolation.

Sheds have captured the public imagination. It is estimated that more than 550 Men's Sheds exist across Australia, with approximately 50,000 older men attending on a regular basis. Men's Sheds have attracted at least \$7million of funding from the Australian Commonwealth and State governments with further support from local sources (Australian Commonwealth Government, 2010; The Australian, 2011). A similar, but more modest, pattern of growth and funding has developed across the UK (Milligan et al, 2013) and Ireland (Carragher, 2013).

However, before advocating gender based activity interventions for older men, several issues need to be clarified. Firstly, we need a better understanding of what the literature tells us about conceptual and measurement differences, reflecting the various academic disciplines that have conducted research in this area. Importantly, to what extent does this enable us to compare and synthesise across studies? Secondly, to what extent does the literature enable us to determine the direction of causality between activity and health? Are older men more likely to be healthy *because* of the activities they participate in, or are they more active due to the good health they enjoy? Thirdly, there are unresolved questions around various types of activities and gender,

with older men appearing to benefit from physical activities and solitary hobbies much more than older women (Betts Adams et al, 2011).

In the light of these issues it is important to have a clear understanding of what the evidence base tells us about the role and impact of gendered based activity interventions on the health and wellbeing of older men. In this paper we thus draw on the outcomes of a systematic review of the existing published literature on Men's Sheds and other gendered interventions that was designed to address the following questions:

- What are the effects on the physical health of older men?
- What are the effects on the mental health of older men?
- What are the effects on the wellbeing of older men?
- What are the effective components of interventions?
- What theoretical frameworks were employed?

Methods

The systematic review of the available studies on Men's Sheds and on other forms of gendered interventions for older men aimed to compare and contrast the evidence of effects on the health and wellbeing of older men.

Our search strategy, incorporating electronic and hand searches of publications from 1990 to January 2014, is set out in Table 1 below. Grey literature searches included the websites of a number of age-related and male orientated voluntary organisations in the UK, Australia, New

Zealand, Ireland, Canada and the United State of America. The websites of appropriate Government departments in these countries were also searched along with the OpenGrey Repository (formerly OpenSIGLE) for relevant literature. The first fifty results from combinations of older men and interventions were also screened for possible inclusion.

INSERT TABLE 1 HERE

The following search terms and all their variations, as set out in Table 2, were incorporated into a search strategy tailored to each databases, drawing on specialist librarian support.

INSERT TABLE 2 HERE

A clear set of inclusion and exclusion criteria was discussed and agreed by the research team prior to undertaking the searches. Inclusion criteria included all forms of publications containing original empirical data on interventions that provided an opportunity for older men to meet together face to face in a specified place for social activities, learning and teaching or the receipt of advice. Included studies needed to contain some measure of how the intervention impacted on health, quality of life or wellbeing of participants or their families. No study design was excluded.

Exclusion criteria included studies that *solely* considered interventions or activities where the primary focus is sport or leisure activities in clubs or religious activity, formal education, paid work or volunteering, or part of statutory service provision (such as local authority day

centres) or disease specific support groups. Studies that reviewed interventions not specifically designed for older people were also excluded.

The search strategy aimed to include all relevant studies of Men's Sheds and other gendered activity interventions that were exclusively or predominantly focused on older men. In line with current provider policy, an older man was defined as someone over the age of 50 years. Initially, a predominant focus was interpreted as a study with a sample that contained three quarters of the total being older men, but at an early stage it was evident that such a stringent approach would limit the number of studies included in the review with the loss of potentially valuable insights. A pragmatic decision was taken to include studies where older men formed the majority of the sample. This was defined as 50 per cent plus one of participants in the sample population, regardless of its size, and where there was clear data from only older males. Figures 1 and 2 detail the search and screening process used for both the Men in Sheds literature and the literature focusing on other gendered activity interventions for older men.

INSERT FIGURES 1 AND 2 HERE

Our search included electronic and manual searches including the checking of bibliographies of papers as well as relevant conference papers and presentations. In addition, individual contact was made with all Men's Sheds projects in the UK as well as experts in Australia to identify further potential sources. All Men in Shed sources and over 10% of 'other gendered activity intervention' sources were screened by two reviewers to ensure accuracy and consistency in the application of the inclusion and exclusion criteria. PI took the lead for work around Men's Sheds, with DN taking the lead for work around other gendered interventions.

Where uncertainty or disagreement around inclusion /exclusion occurred a final decision was made by the whole research team. The whole research team also reviewed and agreed the final set of papers for inclusion.

Quality assessment and data extraction

A common approach was adopted for the quality assessment of the studies using the tool developed by Hawker et al. (2002) for systematically reviewing disparate data from different disciplines and research paradigms. The tool uses a scale of one to four across nine domains to assess methodological rigour and clarity of reporting and was independently applied to the studies by both reviewers. The quality of the papers in the review varied widely, ranging from a low score of 13 up to a high of 34. There was a high degree of agreement between the reviewers and the wider research team on the aggregate scores for the studies included in both reviews.

A common data extraction tool, covering 18 substantive domains ranging from location and methodology through intervention and sample description to findings and limitations, was developed and tested by both reviewers on three studies from each review. This was independently applied to the studies of Men's Sheds and gendered interventions. Minor differences were reconciled through discussions during and after data extraction.

Data analysis and synthesis

Reviews were informed by the Medical Research Council guidance on the development and evaluation of complex interventions (Craig et al, 2008; Medical Research Council, 2008) and the Cochrane Collaboration guidelines for systematic reviews on health promotion and

public health interventions (Armstrong et al, 2007). The studies included in the reviews contained some quantitative data, predominantly from surveys in mixed methods papers, but most data were qualitative, offering insights into the perceptions of older men and the processes involved in Men's Sheds and other gendered interventions. Given the preponderance of qualitative data, an interpretive synthesis (Noblit and Hare, 1988) approach involving both induction and interpretation was used in both reviews. The four step guidance on narrative synthesis in systematic reviews (Popay et al, 2006; Armstrong et al, 2007) was used to address the research questions that were posed prior to the review commencing and provide the structure for the findings.

Results

Of the 19 studies included in the Men's Sheds review, 15 came from Australia (including three on a single study), reflecting the national origin of this form of intervention, along with three studies from the UK (two papers from one study) and one from Canada. With the exception of a study by Graves (2001), who undertook a mixed methods, longitudinal evaluation, most of the Australian studies tended to be descriptive and coalesced into either large scale surveys or small scale qualitative investigations of particular Sheds. Studies by Milligan et al (2012, 2013) in the UK and Reynolds (2011) in Canada used mixed methods approaches involving questionnaires, interviews, focus groups and observations at multiple sites to provide data with richness and depth. In these studies, data collected from older men was supplemented by information from family members and key informants such as project co-ordinators and health or social care professionals.

Twelve studies were included in the review of other gendered interventions. Four studies originated in Australia, including two by Golding and colleagues that were also included in the Sheds review, but also provided insights into alternative activities in communities where Sheds operated. Four studies emanated from the UK, including two on a single intervention in residential care homes in Cornwall, one study came from Norway, one came from Canada and one from America. One further study was not clearly geographically located. The types of interventions in these studies were more varied than the Sheds' literature, covering a range of alternative social activities including a cooking club, a community allotment, walking groups and green exercise in the natural environment. The profile of participants was also more varied in terms of age and capability, with some data from employed active men in their early fifties who volunteered in their community's emergency response services, to older men in their eighties in residential care who engaged in more sedate activities. In terms of study design, there were cross-sectional studies, often including large-scale surveys supplemented with group interviews; and longitudinal research that used mixed methods to assess the impact of an intervention.

What are the effects on the physical health of older men?

There was limited evidence of any positive effects on physical health from the studies of Men's Sheds or those of other gendered interventions. Self-reported improvements from participants suggested that such interventions could improve physical health through promoting moderate levels of physical activity, but we found no supporting evidence from more longitudinal studies using objective or validated physical health measures.

What are the effects on the mental health of older men?

There was more extensive evidence of positive effects on the mental health of those participating in Men's Sheds. The consistency and frequency of such reports suggests that older men find benefits to their mental health from participating in social and physical activities in Sheds, due to a greater sense of belonging and purpose in their lives.

A similar pattern of self-reported improvements in mental health emerged from the other gendered intervention studies. Both Pretty et al (2007) and Gleibs et al (2011) used composite administered research instruments containing questions from validated questionnaires, such as the Profile of Mood States test and the Hospital Anxiety and Depression Scale, to assess mental health status before and after the social activity. Both studies found significant positive effects in terms of improved mental health and wellbeing among participants immediately before and after (Pretty et al, 2007) and over a period of 12 weeks (Gleibs et al, 2011). It is notable that despite a commonly held perception that men are reluctant to acknowledge mental health issues, both reviews drew on studies in which older men talked candidly about their own mental health experiences including feelings of anxiety, depression and even about committing suicide.

What are the effects on the wellbeing of older men?

There is some evidence of the beneficial effects of Men's Sheds on the social wellbeing of older men. Men's Sheds are socially inclusive spaces that provide participants with a sense of accomplishment, both personal - through learning and sharing skills; and social - through contributing to their local community. Sheds also provide a sense of purpose for older men through social engagement with their peers, through enjoyment, and fun (Fildes et al., 2010).

Men's Sheds countered social isolation and loneliness by improving feelings of self-esteem and providing social support through the development of friendship and a sense of camaraderie with other men.

What are the effective components of interventions?

Successful Men's Sheds were in a suitable location, provided a wide range of activities over extended opening hours, enjoyed strong local support and had a skilled co-ordinator who enabled its smooth operation (Milligan et al, 2013).

Men's Sheds are a voluntary activity which operate in relatively unstructured and informal ways that enable older men to choose the activities they will undertake and through this process become '...more than a place to do things but also a place of belonging, friendships and purpose' (Ballinger, Talbot and Verrinder, 2009, 26). It is important to note that 'Shedders' tend to view themselves as volunteers or members (rather than clients or patients) who come together, often to give something back to the community, through enjoyable hands-on activities rather than being the recipients of a complex social intervention designed to improve their health and wellbeing.

The other gendered interventions studies offered similar explanations for success in terms of older men coming together and finding a common sense of identity and purpose through shared experiences in volunteer emergency services (Hayes, Golding and Harvey, 2004; Golding et al., 2009a) or learning new skills (Keller et al., 2004; Milligan, Gatrell and Bingley, 2004; Golding et al., 2009b). The pivotal role of a skilled co-ordinator, usually in a paid position, to provide the organisational skills that enables older men to learn and share skills as well as

empowering them to act as co-participants in the operation of an intervention was a common finding in both reviews (Milligan et al, 2012). The friendships and sense of support that can be built over time amongst older men engaged in purposeful voluntary social activities are the foundational building blocks for successful Men's Sheds and other interventions.

Theoretical frameworks employed

A variety of theoretical frameworks were used in the studies to provide an underpinning for analysis and to develop a deeper understanding of why these types of gendered interventions may work. Importantly, the different theoretical approaches used reflect different aspects of the interventions that these studies were concerned to draw out, whether that be health, gender, inequalities, identity, learning or a combination of these and /or other issues.

In their study of Men's Sheds, for example, Ballinger et al (2009) used the World Health Organisation's '*Fields of Wellbeing*' model to inform their research. This model of health is derived from cross-cultural research on people's conceptions and experiences, along with the World Health Organisation's definition of health as physical, mental and social wellbeing. It contains six elements that capture the interdependency of health: vitality, positive social relationships, a personal sense of control over one's life and living conditions, enjoyable activities, a sense of purpose and a connectedness to community. Other theoretical frameworks employed included a *salutogenic perspective* that emphasises factors contributing to health and wellbeing such as a sense of coherence and continuity in life. This theoretical perspective underpinned the purposeful social activities in the rehabilitation centre studied by Batt-Rawden and Tellnes (2005). Gleibs et al (2011) drew on *social identity theory* in their studies of older

men in residential care. This approach postulates that membership of a social group is critical in forming a shared sense of support through which people are able to understand who they are, and gain the social support they need to protect and enhance their health and wellbeing. Drummond's (2003) study of older men in walking groups conceptualised issues through the lenses of *masculinity and phenomenology* in order to explore how older men experienced ageing and the steps they took to address it. Finally, Golding (2011) used the World Health Organisation's *Determinants of Disadvantage* as a theoretical framework in their studies of Men's Sheds and other types of gendered intervention aimed at older men. This framework identifies a series of factors that underpin the social disadvantages that contribute to health inequalities such as social exclusion, unemployment, difficult experiences earlier in life, the stresses of ageing and the transition from paid work to retirement to develop an explanatory understanding of the circumstances of older men and the scope for effective interventions.

It is worth noting, that whilst the variety of theories and frameworks used can reflect different research priorities, it can also make direct comparisons difficult and hinders the identification of the direction of causal pathways between social activity, health and wellbeing.

Critical reflection on included studies

This review has found evidence to suggest that Men's Sheds and other gendered interventions can have an impact on the mental health and wellbeing of older men, but limited evidence of impact on physical health. What evidence on physical health impacts does exist is largely self-report and limited in scope. Key components of successful interventions included accessibility, range of activities, local support and skilled co-ordination.

Whilst the Men's Sheds literature was relatively homogenous, given it was examining a clearly defined phenomenon, the studies on other gendered interventions were more heterogeneous, covering a wider range of activities stretching from men's cooking clubs to walking groups. The range of activities within the gendered interventions category meant it was more difficult to make generalisable assessments of the impact of these interventions on the health and wellbeing of older men.

The review also identified a limited number and variable quality of studies available for synthesis, reflecting the paucity of interventions aimed at older men. This in itself is an important finding. There was also a preponderance of qualitative studies, and whilst smaller numbers are to be expected in qualitative studies, even taking this into account, some studies were based on very small sample sizes. When larger samples were generated, there was often a lack of validated measures in survey instruments and the collection and analysis of qualitative data was not always clearly reported.

Despite the widespread availability and acceptance of objective scales, none of the studies used validated measure to assess physical, or even functional, changes in physical health status. This omission is significant given that some of the Men's Sheds literature asserts that one of the primary benefits of Shed activity is that of participating in physical activities beneficial to health (Ormsby, Stanley and Jaworski, 2010). There are self-reported improvements in physical health as a result of the intervention across both the Shed and the other gendered interventions literatures (Milligan et al, 2012) but reporting is limited and needs further verification. Hence,

while such evidence should not be dismissed, there is a need for longitudinal and controlled studies that use validated measures of physical health status to provide more reliable evidence to support these self-reported claims that Men's Sheds and other forms of intervention improve the physical health of older men.

Whilst the evidence of benefits to mental health and wellbeing is much more consistent across the literature, it too is based largely on qualitative analysis. The mental health benefits of Men's Sheds would benefit from further investigation using validated measures specifically designed to assess mental health status. The methods adopted within some of the research on other gendered interventions (e.g. Gleibs et al, 2011) provide a potentially useful guide for further work.

These studies also lacked a control group of older men who did not participate in the organised social activities, making it difficult to be confident that self-reported improvements in physical or mental health and social wellbeing were directly attributable to the actual interventions. There is also no evidence about why some older men choose not to participate or alternatively, initially participated but later withdrew.

Finally, it is worth reflecting that to date, most (though not all) of the Men's Sheds research has been conducted in Australia, some of which has been in rural or remote settings. This raises questions about the need for a deeper understanding of cultural context within which Sheds have been developed and the extent to which these may need to be adapted for other parts of the world.

Implications of the review

This systematic review has highlighted limitations to the studies on Men's Sheds and other gendered interventions that mean that conclusions about their beneficial impact on the health and wellbeing of older men are not yet definitive. Qualitative data from these studies provides valuable insights into how and why complex psycho-social interventions affect participants. The sense of identity and purpose in life that older men developed through building friendships and social networks by learning and participating in organised social activities can be difficult to measure but there should be little doubt that it exists.

These wider social wellbeing benefits may be a critical element of Men's Sheds, in that they enable older men to share their health concerns and experiences in a supportive environment that is not viewed by participants as being part of the wider health care system. This more informal "health by stealth" approach to health promotion amongst older men (Milligan et al, 2012) may be one of the major benefits of Men's Sheds. Misan noted that older men "...were less concerned about physical health, and more worried about social, emotional and mental health and wellbeing, about the effects of retirement and about the changing nature of rural communities...Sheds are important environments in which men offer support to each other on these issues (Misan, 2008: 42).

The literature on other gendered interventions was, similarly, generally supportive of improvements in social wellbeing related to participation in social activities that gave older men a 'sense of balance' (Macdonald, Brown and Buchanan, 2001) in their lives. This is particularly

important given that older men are at risk of reduced social wellbeing as a result of the transition from paid work into retirement or into residential care. Gleibs et al's (2011) study of older men in residential care, although modest in scale, provides some evidence of improved social wellbeing and a useful guide for future research. The wider social wellbeing benefits of interventions that provide spaces where older men can stand 'shoulder to shoulder' (Golding and Foley, 2008) have the potential to be considerable but need to be more thoroughly investigated.

The various analytical frameworks used in these studies reflect the variety of academic disciplines and research traditions deployed but all tend to support the core assumptions of activity theory. They contend that the health and wellbeing of older people is promoted by high levels of engagement in social and leisure activities and role replacement when an established role must be relinquished. The frameworks for further research could include the World Health Organisation's Determinants of Disadvantage for men approach that includes domains for social exclusion, unemployment, difficult past lives, the stresses of ageing, substance abuse issues as used by Golding et al (2009a). There is also a case for using the World Health Organisation's Fields of Wellbeing approach, as used by Ballinger et al (2009), which explores six dimensions of health and wellbeing.

Further studies of Men's Sheds and other gendered interventions for older men are needed, in order to provide more generalisable and longitudinal answers to questions about their beneficial effects that would extend the existing evidence base. Future studies should involve larger samples of participants, consider adopting randomised designs, and deploy mixed methods including standardised measures of health and wellbeing and qualitative approaches.

References

- Arber S, Perren K, Daly T, Davidson K. 2009. *Older Men: Their Social Worlds and Healthy Lifestyles*. Swindon, UK: Economic and Social Research Council.
- Armstrong R, Waters E, Jackson N, Oliver S, Popay J, Shepherd J, Petticrew M, Anderson L, Bailie R, Brunton G, Hawe P, Kristjansson E, Naccarel la L, Norris S, Pienaar E, Roberts H, Rogers W, Sowden A, Thomas H. 2007. *Guidelines for Systematic reviews of health promotion and public health interventions. Version 2*. Melbourne University: Australia.
- Ballinger, M. L., Talbot, L. A. & Verrinder, G. K. (2009). More than a place to do woodwork: a case study of a community-based Men's Shed. *Journal of Men's Health*, 6, 20-27.
- Batt-Rawden K, Tellnes G. 2005. Nature–culture–health activities as a method of rehabilitation: an evaluation of participants' health, quality of life and function. *International Journal of Rehabilitation Research*, 28,175–180.
- Betts Adams K, Leibbrandt S, Moon H. 2011. A critical review of the literature on social and leisure activity and wellbeing in later life. *Ageing and Society*, 31,4, 683-687.
- Cacioppo JT, Hawkey LC, Norman GJ, Berntson GG. 2011. Social isolation. *Annals of the New York Academy of Sciences*. 1231, 1,17-22.

Carragher, L. 2013. *Men's Sheds in Ireland: Learning through community contexts*. research report available at: <http://menssheds.ie/m/wp-content/uploads/2013/10/Men's-Sheds-in-Ireland-National-Survey.pdf> [accessed 30/01/14).

Cattan M, Newell C, Bond J, White M. 2003. Alleviating Social Isolation and Loneliness among Older People. *International Journal of Mental Health Promotion*, **5**, 3, 20-30.

Craig P, Dieppe P, Macintyre S, Mitchie S, Nazareth I, Petticrew M. 2008. Developing and evaluating complex interventions: the new Medical Research Council guidance. *British Medical Journal*, **337**, 1655.

Davidson, K. 2013. Older Men in the Community: a UK perspective, in Phellas, C. (ed) *Aging in European Societies, International Perspectives on Aging*. Book Series 6, 163-176, Springer: New York.

Dickens, A.P., Richards, S.H., Greaves, C.J. and Campbell, J.L. 2011. Interventions targeting social isolation in older people: a systematic review. *BMC Public Health*, **11**, 647-659.

Drummond Murray J. 2003. Retired Men, Retired Bodies *International Journal of Men's Health*, **3**, 2, 183-198.

Eurostat. 2012. *Mortality and life expectancy statistics*. European Commission available at:

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Mortality_and_life_expectancy_statistics#The_gender_gap_is_shrinking [accessed 17/01/14).

Fennell G, Davidson K. 2003. The Invisible Man? Older Men in Modern Society. *Ageing International*, **28**,4, 315-325.

Fildes, D., Y. Cass, Wallner, F. and Owen, A. 2010. Shedding light on men: The Building Healthy Men Project. *Journal of Men's Health*, **7**, 3, 233-240.

Findlay RA. 2003. Interventions to reduce social isolation amongst older people: where is the evidence? *Ageing and Society*, **23**,647-58.

Fleming A. 1999. Older men in contemporary discourses on ageing: absent bodies and invisible lives, *Nursing Inquiry*, **6**, 3-8.

Gleibs I, Sonneberg S, Haslam C, Jones J, Haslam A, McNeill J, Connolly H. 2011. No country for old men? The role of a 'Gentlemen's Club' in promoting social engagement and psychological well-being in residential care. *Aging and Mental Health*, **15**, 4, 456-466.

Golding, B. 2011. Older Men's Wellbeing through Community Participation in Australia. *International Journal of Men's Health*, **10**,1, 26-44.

- Golding, B. and Foley, A. 2008. How men are worked with: Gender roles in men's informal learning. *Standing Conference on University Teaching and Research in the Education of Adults (SCUTREA)*. Edinburgh, UK.
- Golding, B., Foley, A., Brown, M. and Harvey, J. 2009a. *Senior men's learning and wellbeing through community participation in Australia*. National Seniors Productive Ageing Centre.
- Golding, B., Brown, M., Foley, A. and Harvey, J. 2009b. *Mens learning and wellbeing through community organisations in Western Australia*. Perth, Australia: Western Australian Department of Education and Training.
- Graves, K. 2001. *Shedding the light on men in sheds: Final report*, Community Health Bendigo.
- Greenfield E, Marks N. (2004). Formal Volunteering as a Protective Factor for Older Adults' Psychological Well-Being. *Journal of Gerontology*, **59**, 5, 258–264.
- Hawker, S., Payne, S., Kerr, C., Hardey, M. and Powell, J. 2002. Appraising the Evidence: Reviewing Disparate Data Systematically. *Qual Health Res*, **12**, 1284-1299.
- Hawton, A., Green, C., Dickens, A., Richards, S., Taylor, R., Edwards, R., et al. 2011. The impact of social isolation on the health status and health-related quality of life of older people. *Qual Life Res*, **20**,1, 57-67.

- Hayes, C., Golding, B., Harvey, J. 2004. *Adult learning through fire and emergency service organisations in small and remote Australian towns*. Adelaide, National Council for Vocational Education Research.
- Holt-Lunstad, J., Smith, T.B., Layton, J.B. 2010. Social Relationships and Mortality Risk: A Meta-analytic Review. *Plos Medicine*, **7**,7.
- House, J., Landis, K., Umberson, D. 1988. Social Relationships and Health. *Science*, New Series, **241**,4865, 540-545.
- Iliffe S, Kharicha K, Harari D, Swift C, Gillmann G, Stuck AE. 2007. Health risk appraisal in older people 2: the implications for clinicians and commissioners of social isolation risk in older people. *British Journal of General Practice*, **57**, 537, 277-82.
- Keller H, Gibbs A, Wong S, Vanderkooy P, Hedley M. 2004. Men Can Cook! *Journal of Nutrition for the Elderly*, **24**,1, 71-87.
- Luanaigh CO, Lawlor BA. 2008. Loneliness and the health of older people. *International Journal of Geriatric Psychiatry*, **23**,12, 1213-21.
- Macdonald J, Brown A, Buchanan J. 2001. *Keeping the Balance: Older men and Healthy Ageing. A Framework for Discussion*. New South Wales Committee on Ageing and the Men's Health Information and Resource Centre, University of Western Sydney.

Masi CM, Chen H, Hawkley LC, Cacioppo JT. 2011. A Meta-analysis of interventions to reduce loneliness. *Journal of Investigative Medicine*, **59**,4, 711-712.

Medical Research Council. 2008. *Medical Research Council guidance on complex interventions*. Prepared by Craig P, Dieppe P, Macintyre S, Mitchie S, Nazareth I, Petticrew M. Medical Research Council.

Milligan, C., Payne, S., Bingley, A., Cockshott, Z. 2013. 'Gender, place and health: shedding light on activity interventions for older men,' *Ageing and Society*. (firstview available at: http://journals.cambridge.org/repo_A89rnwDH).

Milligan, C., Payne, S., Bingley, A. and Cockshott, Z. 2012. *Evaluation of the men in sheds pilot programme*. Report for Age UK.

Milligan C., Gatrell A., Bingley, A. 2004. Cultivating health: therapeutic landscapes and older people in northern England. *Social Science and Medicine*, **58**, 1781-1793.

Misan, G. 2008. *Men's sheds: A strategy to improve men's health*, Report for Mensheds Australia, Spencer Gulf Rural Health School, South Australia.

Noblit G, Hare R. 1988. *Meta-ethnography: synthesizing qualitative studies*. Sage, Beverley Hills.

- Ormsby, J., Stanley, M. and Jaworski, K. 2010. Older men's participation in community-based men's sheds programmes. *Health Soc Care Community*, **18**, 607-13.
- Pantell, M., Rehkopf, D., Jutte, D.S., Syme, I., Balmes, J. and Adler, N. 2013. Social Isolation: A Predictor of Mortality Comparable to Traditional Clinical Risk Factors. *American Journal of Public Health*, **103**, 11, 2056-2062.
- Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K. and Duffy, S. 2006. Guidance on conducting narrative synthesis in systematic reviews. *Methods Briefing 22*, Manchester: CSSR.
- Pretty J, Peacock J, Hine R. Sellens M. South N, Griffin, M. 2007. Green exercise in the UK countryside: Effects on health and psychological well-being, and implications for policy and planning. *Journal of Environmental Planning and Management*, **50**,2, 211-231.
- Reynolds, K. A. 2011. *Older male adults' involvement in mens sheds*. Master of Arts Masters thesis, Manitoba.
- Salomon J, Wang H, Freeman, T, Flaxman A, Lopez A, Murray C. 2010. Healthy life expectancy for 187 countries, 1990–2010: a systematic analysis for the Global Burden Disease Study 2010. *Lancet*, **380**, 2144–62.

- Shankar A, McMunn A, Banks J, Steptoe A. 2011. Loneliness, social isolation, and behavioral and biological health indicators in older adults. *Health Psychology*, **30**, 4, 377-85.
- Steffick DE. 2000. Documentation of Affective Functioning Measures in the Health and Retirement Study: *HRS/AHEAD Documentation Report*. University of Michigan: Ann Arbor.
- Suominen-Taipale A, Martelin T, Koskinen S, Holmen J, Johnsen R. 2006. Gender differences in health care use among the elderly population in areas of Norway and Finland. A cross-sectional analysis based on the HUNT study and the FINRISK Senior Survey. *BMC Health Services Research*, **6**,1,110.
- Victor CR, Scambler SJ, Bowling A, Bond J. 2009. The prevalence of, and risk factors for, loneliness in later life: a survey of older people in Great Britain. *Ageing and Society*, **25**, 3, 357-76.
- Victor, CR, Scambler, S. and Bond, J. 2009. *The Social World of Older People: Understanding Loneliness and Social Isolation in Later Life*, Maidenhead, OpenUniversity Press/McGraw Hill Education.
- Wang H, Dwyer-Lindgren L, Lofgren K, Knoll Rajaratnam J, Marcus J, Levin-Rector L, Levitz C, Lopez A, Murray C. 2012. Age-specific and sex-specific mortality in 187 countries,

1970–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*, **380**, 2071–94.

White A, de Sousa B, de Visser R, Hogston R, Aage Madsen S, Makara P, Richardson N, Zatonski W. 2011. *The State of Men's Health in Europe Extended Report*. Brussels: European Commission Directorate-General for Health and Consumers.

Wilson, N. J. and Cordier, R. 2013. A narrative review of Men's Sheds literature: reducing social isolation and promoting men's health and well-being. *Health Soc Care Community*, **21**,5, 451-463.

Table 1: Search Strategy

Strategy	Actions
An electronic search of databases:	ASSIA, British Nursing Index, CINAHL, Cochrane Library, DARE, Embase, Ingenta, King's Fund, MEDLINE, Proquest, PsycINFO, PubMed, Scopus, Social Sciences Citation Index, Social Care Online, Web of Science.
An electronic and hand search of:	Grey literature including that held by Third Sector, Shed Organisations and research centres. Key journal, including: Health and Place, Ageing and Society, Social Science and Medicine, International Journal of Men's Health, Men's Health, The Journal of Men's Health and Gender, American Journal of Men's Health, Journal of Public Health, Health and Social Care in the Community

Table 2: Search Terms

Older people	Older men, aged, ageing, geriatric(s), middle aged, retirement, retired, elder(s), senior(s), old age, old person, older people, senior citizen(s)
Men	Male(s), men, gender, gender identity
Activity	Men's Sheds, men in sheds, shed(s), hut(s), hutters, intervention, intervention studies, programme evaluation, social activity, social contact, social engagement, social environment, social integration, social participation, social networks, community participation, community support, community involvement, community engagement, friendships, mentors, self-help, befriending, peer(s), promotion, prevention, education.
Health and wellbeing	Health, health status, physical health, mental health, quality of life, wellbeing, self-esteem, self efficacy, loneliness, social isolation, social alienation, dementia, Alzheimer's; disability.

Figure 1: Search process for Men’s Sheds literature

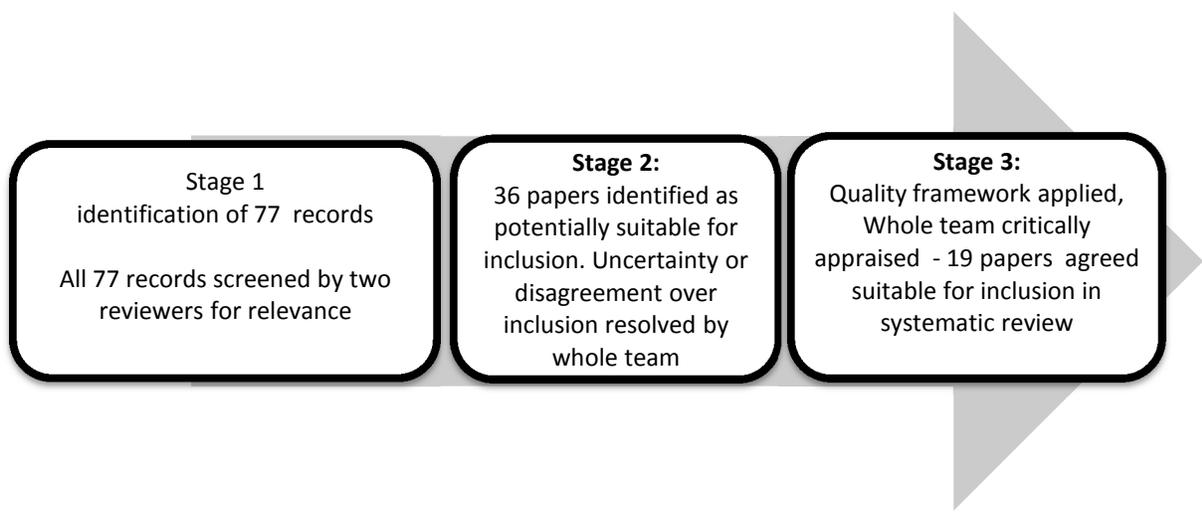


Figure 2: Search process for other gendered activity interventions literature