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Building healthy construction workers: Their views on health, wellbeing and better workplace design

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ABSTRACT

Construction is a heavy manual industry where working into later life can be a challenge. An interview study was conducted to explore workers' understanding of their health at work and ways of making their jobs easier, safer or more comfortable. Using purposive sampling, 80 trades' workers were selected from construction sites in the UK. The Nordic Musculoskeletal Questionnaire and Work Ability Index were used to explore aches and pains and reducing strain on the body. A high prevalence of symptoms was reported and ratings of work ability were high. Workers were aware of the physical demands of their work and had over 250 ideas around health and wellbeing e.g. rucksacks for tools, bespoke benches, adapting PPE, and higher cost solutions e.g. mechanical lifting aids. Engagement of the workforce should be encouraged and feed into change processes in the industry to enable all workers stay fit for work for longer.

1. Introduction

Construction is a tough, heavy, manual industry where injury and ill health are likely; many workers leave the industry early due to ill health or musculoskeletal disorders (Arndt et al., 2005). This loss of the workforce occurs in the climate of an ageing population in the UK, Europe and globally; Western Europe has one of the oldest populations, with 17% aged over 65 in 2010, and is predicted to increase to 30% by 2060 (Walker and Maltby, 2012). In the UK, it is illegal to discriminate against workers due to their age, so employees cannot be forced into retirement (Equality Act, 2006). This was also supported by abolishing the official UK retirement age (GOV UK, 2014) allowing longer working lives, together with the state pension age rising progressively to 68 by 2046. This has contributed to the prediction that by 2050, almost a third of the workforce will be aged 50 and over (Vos et al., 2008) and it is important that these workers can remain in their jobs for as long as they wish.

The ageing process leads to physiological and cognitive changes which can make working into later life a challenge. This is more difficult in construction with its heavy, manual jobs, indeed the UK construction industry accounts for 27% of fatal injuries and 10% of reported major injuries (Hengel et al., 2012; HSE, 2013). However, remaining in work has been shown to have a positive effect on maintaining social networks and providing a sense of purpose (LeMasters et al., 2006; Damman et al., 2013). The organizational structure of construction sites also makes the job more difficult in comparison to white collar industries, particularly in terms of maintaining a good level of mental and physical health and wellbeing. The peripatetic nature of construction means that workforces are often transient and site locations vary from one job to the next, often requiring early starts and considerable travelling impacting on other members of the family (Riemer, 1979; Earle-Richardson et al., 2005). Construction workers work in dirty, noisy environments with a lack of natural lighting and ventilation; they perform repetitive movements, heavy lifting and work in awkward and cramped positions for extended periods of time. Injury and ill health are often expected to come with the job and research suggests that construction workers are at a higher risk of musculoskeletal disorders in shorter periods of time compared to white collar workers (Arndt et al., 1996; Punchihewa and Gyi, 2009; Järvholm et al., 2014). These conditions are likely to exacerbate natural age-related declines. Principal contractors and employers are responsible for ensuring adequate welfare facilities, personal

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protective equipment (PPE) and general health and safety monitoring (HSE, 2007). Despite this there are still high numbers of early retirements from the industry due to injury and ill health.

Older construction workers are considered to be an asset to the workforce; they are perceived to be dedicated, reliable and produce work of a high quality (Leaviss et al., 2008). There is a high level of respect from younger colleagues, as older workers have spent years learning their trade (Lombardi et al., 2009) and are considered to hold superior trade related skills in comparison to their younger counterparts. However, there is no research quantifying these skill levels, which may be as a result of changes in the levels of qualifications available to construction workers in recent years (Dainty et al., 2005; Lombardi et al., 2009). Historically there are also negative perceptions; older workers are perceived to be difficult to train, slower, and averse to health and safety regulations (e.g. wearing PPE), all concerns in an industry where often time is money (Taylor and Walker, 1994; Loretto and White, 2006; Williams et al., 2011).

Participatory ergonomics is an approach which has been shown to be successful in a number of industries. Within the context of this study it is the theory behind it which is of interest, namely involvement of the end-user in the development of potential interventions, decision making, idea generation and encouraging engagement (Wilson, 1995; Hignett et al., 2005). Previous research suggests that by using elements of participatory ergonomics such as a bottom-up approach together with good management support and key stakeholder involvement, significant benefits can be achieved for workplace, job and equipment design and healthy working behaviours (Rivilis et al., 2008; Tappin et al., 2016). There are fewer recent examples of participatory ergonomics in construction, perhaps due to the peripatetic nature of the work environment and transient workforce. Van der Molen et al. (2005) found that the approach had no significant effect on the use of ergonomic measures in bricklaying companies; however de Jong & Vink, (2002) successfully encouraged installation workers to consider their working practices. Using a participatory approach resulted in 138 new items of equipment and 15 solutions, including a portable fold-out bench to improve posture and an assembly seat to minimise kneeling. Hess et al. (2004) also successfully implemented the approach with concrete labourers using a new device which led to a reduction in the risk of lower back disorders. End-user engagement was also successful in similarly heavy manual industries such as manufacturing. BMW created a pilot production line of older workers who put forward ideas on how their workplace could be improved. 70 changes were made which benefitted both older and younger workers, such as flooring to reduce knee impact, and better seating for rest breaks. Production levels on this pilot line increased and absenteeism dropped providing strong evidence that involving the workforce in changes can help retain older workers and benefit workers of all ages (Loch et al., 2010).

Despite the large number of studies on construction workers' health at work, there are few on their awareness of risks, and maintaining a good level of work ability within their trades. In the context of an ageing workforce, the purpose of this paper is to explore good working practices, behaviours, and ideas for workplace design from the workers' perspective. For this research, 'work place design' is considered to be all-encompassing, including job rotation and the way in which workers carry out their day to day tasks as well as physical design of the workplace. Ultimately the goal is that workers stay fit for work for longer and remain in their jobs for as long as they wish.

2. Aims and objectives

In-depth semi-structured interviews were used to explore the extent to which construction workers can contribute to changes in the workplace in order to improve their health and wellbeing. The objectives were:

- To capture the prevalence of musculoskeletal symptoms in workers from construction trades and measure the effect on work ability.
- To explore workers' views on health and wellbeing at work and the factors that might influence these when working in their trades.
- To capture workers' ideas to make their jobs easier, safer, healthier or more comfortable.

This research is part of a larger Age UK funded project to encourage healthy ageing in construction workers. The findings will lead to guidance for the industry on engaging with the workforce to encourage idea generation, communication and facilitate healthy working practices.

2.1. Sampling and participants

Sample size was defined considering the peripatetic nature of construction sites and the time available for interviews. A purposive sampling strategy was used as it enables the researcher to satisfy the specific needs of a project and recruit the population of interest (Robson, 2011).

Construction sites and individual workers were recruited through professional and personal contacts. Using snowball sampling techniques from each interviewee, the aim was to recruit 60–80 construction workers. During initial contact with site managers, information was given regarding the inclusion and exclusion criteria of participants: over 18 years old; English speaking; and trades involving heavy manual labour e.g. bricklayers, carpenters/joiners, plumbers and electricians. Care was taken to ensure the sample was as random as possible with site managers selecting the participants from a homogenous group of workers. Participants were grouped in terms of age; under 25, 25–34, 35–49 and 50 and over. Workers aged 50 and over were classified as 'older workers' following many research studies in the UK (Vos et al., 2008). A complete age demographic was included to allow comparisons between older and younger workers. No workers in supervisory roles were interviewed to ensure, as far as possible, that they were exposed to similar working conditions and tasks. Ethical approval was issued by Loughborough University Ethical Advisory Committee in March 2013. Participants were given an information sheet prior to interview explaining the purpose of the study, what was expected of them and their right to withdraw and were asked to sign an informed consent sheet.

3. Method

Semi-structured interviews were conducted on site and recorded using a Dictaphone. A flexible 30 min interview schedule was structured around four main discussion points (Table 1) – not all questions were used for all participants. This flexibility allowed for in-depth discussion around topics whilst covering relevant points.

Demographic information included age range, trade and time spent in construction. Participants were asked details about their job to immerse them in thinking about their day to day work and any health risks or concerns. The main focus of the interviews was to ask them to think about their health and wellbeing at work and how their jobs could be made easier, safer, and healthier in terms of ideas for changes to their job and the workplace. Participants were encouraged to think of any improvements that could be made irrespective of feasibility, budget or management constraints to