Hear No Evil: Encouraging construction workers to reduce their noise exposure

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Abstract

In construction, noise has traditionally been identified as a difficult hazard to address. However, the many associated costs have made noise exposure reduction an area of concern for companies. Ninety eight workers from a large construction organisation were interviewed about their knowledge and beliefs about noise reduction activities. Workers’ participation in these activities and their attitudes to noise were examined in relation to constructs of the Health Belief Model. Opportunities to improve and encourage workers’ motivation and participation are discussed.

Introduction to Noise Exposure - Costs and Consequences

The direct cost of noise induced hearing loss (NIHL) as defined by compensation claims has been found to be considerable. In 2006/2007, in NSW Australia, hearing loss claims accounted for 56.1% of all occupational disease claims within the construction industry, equating to a direct cost of $AUS 7.6m (WorkCover, 2008). In reality, the actual cost of NIHL (including costs of ongoing rehabilitation, and indirect costs such as reduced work capacity and burden of disease costs incurred by individuals, families, and the community) is difficult to quantify. For this reason, the construction industry recognises noise as a serious workplace hazard.

However, reducing noise exposure in construction has been acknowledged as a difficult goal to achieve (Berglund & Lindvall, 1995; Nietzel et al, 1999; EASHW, 2005; Colvin & Luxon, 2007). Worksites are generally expected to be an area of high noise and noise is often viewed as one of the lower level hazards on site. Thus workplaces need to carefully consider a range of about factors influencing workers’ attitudes to noise reduction in order to improve their participation.

Method
Ninety eight male participants were sampled opportunistically during visits to four very large construction sites in NSW, Australia. The sites all belonged to an international construction company identified as having a strong safety culture. Workers were aged between 17 - 65 years (M = 35.4, SD = 12.5), and had varying experience working in construction from just a few weeks to 43 years (M= 13 years). Participants were a combination of company employees, contractors, and sub-contractors, and included a variety of positions and fields (e.g. electricians, concreters, bricklayers, foremen, and carpenters).

Structured interviews were undertaken to ask workers about their knowledge, attitudes, and thoughts regarding workplace noise exposure reduction techniques (see Gilliver & Williams, 2009). Results were analysed in relation to the main constructs of the Health Belief Model (HBM; Rosenstock, 1974), to identify areas associated with motivation that may be used to assist in improving participation.

Results and Discussion

Workers showed a relatively high level of interest and compliance towards noise exposure reduction compared to that of workers in other recognized noisy industries (SafeWork SA, 2008). Workers were found to have received and retained a high level of theoretical information about the risks of noise exposure - the result of the company’s strong safety culture. However this knowledge did not translate directly into correspondingly high levels of participation. Thus, education alone appears insufficient to bring about widespread change. A discussion of other factors that may impact on workers’ motivation and behavior is provided below.

Perceived Severity & Susceptibility

Workers showed reasonable awareness of the consequences of noise, and expressed a desire to avoid NIHL. However, workers’ responses suggested that conceptualization of hearing loss remains relatively abstract (e.g. “things will be quieter”) and that its potential severity may be poorly understood.

Many workers were aware of their personal susceptibility to hearing loss, and reported early experiences of NIHL symptoms. Workers also acknowledged their general susceptibility to NIHL from their workplace, accurately identifying major sound sources, and commenting that “construction is noisy”. The expectation and
acceptance of noise in the workplace, however, carries some potentially negative consequences. In a noisy environment it is easy to become ‘acclimatised’ to high noise levels and, as a result, workers may underestimate moderate activities downplaying their potential risk.

Providing more detailed information about the nature of difficulties associated with hearing loss, personalizing the potential impacts, and providing workers with accurate information about their individual noise exposure in all situations may improve motivation and participation.

**Perceived Benefits and Barriers**

Workers showed a strong understanding of the benefits of reducing noise exposure and knowledge of the “facts” of hearing loss. These results are encouraging, but remain open to improvement. Motivation for reducing noise exposure continues to be lower than that for other on-site safety behaviours, with a lack of consistency in the way opportunities for noise exposure reduction are sought out and implemented.

Noise threats on site will always be viewed with less concern than more immediate physical hazards, however it is important that this does not result in low expectations for worker participation. Rather, an overall strong safety culture should be used to improve rather than detract from activities aimed at noise reduction behaviour.

**Self Efficacy**

Employers have a number of controls at their disposal in order to reduce noise exposure on-site including “buying quiet”, providing engineering controls, implementing administrative measures, and providing appropriate personal protective equipment (PPE) and training. Each of these levels were associated with different levels of worker self efficacy. The majority of workers were knowledgeable and confident with PPE use. In contrast, many of the higher level controls were viewed as “management responsibility” and workers were less confident to initiate or participate in their implementation.

While higher level controls do, of course, require approval/support from management, organizations need to create a safety culture where employees feel their input is valued at all levels. It is important, therefore, to continue to support personal noise
exposure reduction techniques (e.g. PPE use) while also encouraging workers to comment on and participate in activities that reduce noise through other means, thereby increasing feelings of self efficacy across the board.

Conclusion

Traditional education about noise and its consequences is an important tool in reducing workers’ noise exposure. However, this is insufficient to achieve widespread change. Personalizing hearing campaigns to acknowledge additional factors associated with workers’ motivation may assist to improve participation.

References


