

Contextual factors for musculoskeletal disorders

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ABSTRACT

Musculoskeletal disorders (MSD) are the most commonly reported occupational injury claim type in New Zealand and internationally. Although the risk factors for work-related MSD are well recognised, much of the research emphasis has been on the role of physical, psychosocial and individual factors, while the organisational and contextual factors that underlie them have not received similar attention. This paper outlines some of the findings on MSD risk factors from a qualitative study recently conducted in the New Zealand meat processing industry. The study involved interviews with 237 workers, management, union and safety personnel in one third of the processing sites nationally. Data on MSD risks were summarised into a list of contextual factors which may create conditions under which greater exposure to physical and psychosocial factors can occur in meat processing. The paper concludes with some reflections on conducting MSD research.

INTRODUCTION

In New Zealand, the highest industry incidence of accepted MSD claims is found in the meat processing industry, with MSD accounting for over half the injury compensation costs to ACC for the sector and a claims incidence of approximately twice that of comparative processing industries. The range of risk factors for work-related MSD is well recognised (Bernard 1997). NRC-IOM (2001) use the term 'contextual factors' to refer to the social, economic, cultural, political and organisational factors that are seen as creating conditions under which physical and psychosocial risk factors can occur. These contextual factors include forces external to the industry but which act on it (e.g. the effects of drought), which in turn may influence industry structure or management of the organisations within it (e.g. systems of payment). These may then result in the occurrence of common risk factors for workers on the line (e.g. static postures, repetition).

A number of studies and reviews have taken a broader, systems approach to MSD analysis, and some have pointed to the importance of contextual factors for MSD in meat processing (e.g. Nossent et al 1995). Recommendations from a government funded pilot programme (1993-96) in three New Zealand meat processing plants (Slappendel et al, 1996) included strengthening the industry's health and safety infrastructure, improving information sharing on injury prevention, and changes to the culture regarding an acceptable level of injury.

Reported MSD cases in meat processing have remained high, and have proven to be resistant to micro-level interventions arising from government led injury prevention campaigns. As the wider literature suggests, multifactorial solution approaches addressing a number of contributory factors are likely to have the greatest effect in reducing MSD (Silverstein et al 2004). Additionally, these interventions have often targeted system elements or risk factors rather than all elements of the broader work system.

The premise of this paper is that a broader range of MSD risk factors can be identified within meat processing than currently occurs; that these contextual factors are latent conditions for MSD in the industry; and that this approach is consistent with existing theoretical frameworks for MSD causation (NRC-IOM 2001, Karsh 2006).

METHOD

The qualitative study involved data collection from 28 New Zealand meat processing plants that were selected to be representative of the industry. The sample comprised plants processing: sheep (12), beef (10), veal (3), venison (2), pork (1). Semi-structured interviews were conducted with staff including: those engaged on high risk tasks, other workers on related tasks, supervisors, health and safety staff, union officials, and managers. Some 237 staff across the plants were interviewed, including 69 managers and supervisors, 134 process staff and union representatives and 34 people employed in health and safety. Qualitative thematic content analysis was conducted on MSD risk factor data. The criteria for establishing the list of contextual factors (with the exception of economic factors) included the number of plants at which it was raised (greater than 25% of the plants in the sample).

The findings were triangulated with the literature on MSD risk factors and expert opinion of the researchers themselves based on their knowledge of the industry, to ensure that each factor merited its inclusion. This information was combined with other findings from this stage of the study to produce a draft document on key risk factors, intervention strategies, and implementation barriers. This was developed with the Meat Industry Health and Safety Forum, a group representing key stakeholders in the NZ meat processing industry, who provided input to help interpret and contextualise the information gathered.

RESULTS AND DISCUSSION

Figure 1 provides an overview of the relationship between the various contextual factors identified in the study. The conceptual model is based on a systems approach with arrows indicating the direction of influence for contextual factors and their role in increasing exposure to physical and psychosocial risk factors.

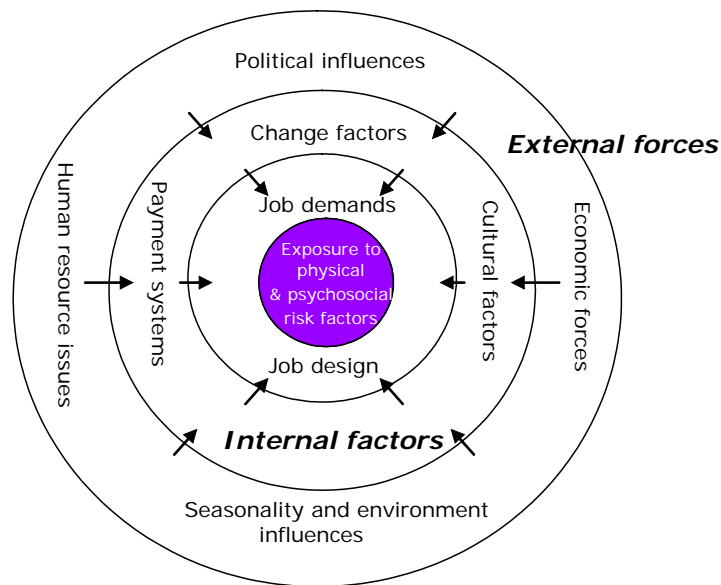


Figure 1. A conceptual model for contextual factors in meat processing MSD

The attention to these factors reflects their important role in producing conditions of work that result in high MSD incidence. Cultural factors, for example, were found to impact on workplace issues such as flexibility in job design and training provision, while issues such as ‘blame the victim’ and ‘work through the pain’ values are significant barriers to effective prevention. Economic and political forces have produced change across the industry that has contributed to increased MSD risk, while payment systems used across much of the industry further encouraged an overwhelming productivity focus and culture of speed in the production line.

The study has theoretical implications for MSD analysis and prevention. Karsh’s (2006) integrated model highlighted where contextual risk factors for meat processing fit in a causation model. This study provides support for Karsh’s model, where wider cultural, social and economic influences can be critical precursors to exposure to physical and psychosocial MSD risk factors in the industrial workplace. The contextual factors that became evident during the data analysis are an important finding for the overall study of which this paper is one part.

The findings of the study also raise the issue of prevention. While changes to physical aspects of the work of meat processing workers, such as improvements in knife sharpness and maintenance may be relatively easy to implement, wider economic, political, social and cultural influences are often beyond the direct control and influence of the industry. However, the first step to addressing the problem associated with such contextual factors is to recognise their influence on what occurs in the workplace. The industry can then begin to adopt a change in mindset towards the problem and consider options for reducing the influence of external contextual factors such as seasonality and human resource issues, while addressing more directly the internal contextual factors such as cultural influences and payment systems.

The adoption of a participative approach to this research helped create industry acceptance and ownership of the findings of the study. The industry is beginning to understand the implications of not addressing contextual risk factors for the future of an industry where human capital is increasingly scarce and the importance of employee retention, health, and longevity of employment are crucial elements to their survival.

CONCLUSION

This study has contributed to the understanding of MSD causation and prevention in the New Zealand meat processing industry. MSD research in comparable industry settings could consider a similar approach as that taken in this study, to understand the broader context for the presence of physical and psychosocial risk factors in the workplace, and to develop interventions that address these broader contextual factors. Such research may require a willingness to confront and break down prevailing attitudes across the industry that stand as barriers to MSD prevention, and to help the industry understand the implications of not addressing the MSD problem at this level.

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