

The impact of health and safety management on organisations and their staff

Report submitted to the IOSH Research Committee

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Abstract

The research assessed the impact of organisational approaches to occupational safety and health (OSH) management on organisational performance, safety climate, employees' attitudes to the organisation and employees' health and wellbeing. The research was conducted in 31 case study organisations, covering a broad range of company sizes and industrial sectors. Seventy-eight interviews were conducted with health and safety managers, directors and workers' representatives across the organisations to obtain in-depth information on OSH management and organisational performance indicators. The findings from the interviews were used to classify organisational OSH approaches into three categories: 'yet to be fully engaged', 'complier' and 'very good' (using the Continuous Improvement Cycle model). A cross-sectional survey of employees from these organisations (involving a sample of 2,067 employees) looked at the impact of company size, industrial sector and approach to OSH management on indicators of organisational performance and employees' attitudes and health outcomes.

Public sector employees reported lower safety climate perceptions and more work-related illnesses than private sector employees. Comparisons between specific industrial sectors showed that employees in the construction industry have the highest levels of general health, safety climate awareness, organisational commitment and self-reported job performance. Employees in the utilities and property development, renting and business activities sectors also reported high levels of self-reported health and safety climate perceptions, and positive organisational attitudes. Large organisations reported higher staff absence rates, yet employees in small and medium-sized businesses reported higher levels of work-related illness. With regard to the impact of the organisation's OSH approach on employees, 'very good' organisations were found to show more positive safety climate perceptions across eight out of the nine safety climate dimensions. Employees in organisations with 'very good' OSH management were more committed to their organisations and showed greater satisfaction with their job than employees in organisations which are categorised as 'yet to be fully engaged' or 'complier'. These positive safety climate and organisational attitudes were associated with better self-reported physical and mental health.

Executive summary

Project aims

This research examined the relationship between occupational safety and health (OSH) activity in organisations and key aspects of corporate culture and organisational performance. While previous research has focused on the financial benefits of OSH management, this study examined its impact on both organisational outcomes and important employee outcomes, such as their attitudes towards the organisation and their health and wellbeing.

The study documents in detail the impact of OSH management on a range of organisational outcomes both within and across industrial sectors. Organisational outcomes included:

- profit margin
- staff turnover
- number of accidents
- number of days lost due to accident or injury
- total level of sickness absence.

Employee outcomes included:

- demographic and job characteristics
- employee attitudes (job satisfaction, organisational commitment, intention to quit and job motivation)
- self-reported absence, performance and work-related ill health
- general and mental health
- safety climate.

This broad-based assessment was conducted to improve the evidence base for efforts aimed at promoting greater investment in OSH risk management.

Qualitative phase

The study employed a mixed-method cross-sectional design. A total of 31 organisations were recruited, covering a broad spectrum of organisational size, complexity and industrial sectors. The first part of the study consisted of a series of 78 interviews with key stakeholders of the participating organisations (health and safety personnel, company directors and workers' representatives). The aim of the interviews was to employ a 'triangulation' approach, whereby a number of different stakeholders from each participating organisation would be interviewed to establish a realistic assessment of the organisation's approach to OSH management.

In addition to generating rich qualitative data on OSH management and examples of good practice, the results of the interview phase were used to categorise the 31 organisations according to their approaches to OSH management. The study used the Continuous Improvement Cycle model⁴¹ to discriminate between organisations on the basis of their approach to OSH. This framework helps to identify organisations or individuals in terms of their approach to health and safety, and describes three main types: 'yet to be fully engaged', 'complier' and 'very good'. The last of these categories covers organisations that are the most proactive in their approach to OSH management. Five of the 31 organisations in this study were categorised as 'yet to be fully engaged', 13 were categorised as 'complier' and 13 were placed in the 'very good' category. This categorisation allowed an investigation of the impact of OSH approach on organisational performance and employee outcomes.

Quantitative phase

The second part of the study involved a survey of employees from across the 31 participating organisations. A structured questionnaire comprised items to assess demographic characteristics, organisation and job tenure, job satisfaction, organisational commitment, intention to quit and job motivation, self-reported absence, performance and work-related ill health. Employee health and wellbeing were assessed using the SF-36 Health Questionnaire, and safety climate was measured using the Safety Climate Assessment tool, which assesses nine dimensions of safety climate.

Industrial sector and organisational size comparisons

While there were no significant differences between private and public sector organisations in terms of organisational performance, a number of interesting differences were found for employee

outcomes. Public sector employees reported lower safety climate perceptions across all nine facets compared with private sector employees. Public sector organisations reported lower health scores for vitality only, with no significant differences reported for general or mental health. There were no significant differences in terms of organisational and job attitudes between the sectors. Employees in public sector organisations reported more work-related illnesses per head over the previous 12 months.

With respect to organisational size, the results showed that large organisations reported a staff absence rate over twice that of small and medium-sized enterprises (SMEs). Conversely, employees in SMEs reported a higher number of work-related illnesses per head over the previous 12 months than those in larger organisations. The lower levels of staff absence in SMEs may reflect the fact that some of the small companies did not pay employees taking sickness absence; this is supported by comments made in the qualitative interviews. In terms of health and wellbeing, employees from larger organisations reported significantly better mental health and vitality compared with employees from SMEs. This suggests that working in larger organisations may promote better mental health and lower levels of fatigue. As far as job attitudes were concerned, there was a significant difference only in intention to quit the organisation, with employees in larger organisations reporting less desire to leave their job and the organisation. For three of the climate perception facets there were significant differences between small/medium and large organisations, with employees in large organisations reporting poorer safety climate perceptions.

Analysis by industrial sector demonstrated that employees in the construction industry had the highest levels of general health, while those in health and social care showed the lowest levels. Employees in the property development, renting and business activities sector reported the highest levels of mental health compared to vitality. Employees in health and social care reported the lowest levels of both mental health and vitality. Respondents from the construction industry reported the most positive safety climate perceptions, with employees in the utility sector in second place. Public administration and defence showed the lowest safety climate perceptions, significantly lower than all the other sectors except health and social work. Workers from the construction industry rated themselves as the highest performers in the sample, with manufacturing workers in second place. Construction workers also reported the highest levels of organisational commitment, closely followed by utility sector employees.

Impact of OSH management on organisational performance and employee outcomes

The final set of quantitative analyses focused on how an organisation's approach to OSH management affects performance, accidents and absence figures at an organisational level, and health and wellbeing, safety climate perceptions, attitudes towards the organisation and self-reported performance at an employee level. For the purpose of statistical analysis, it was necessary to group the 'yet to be fully engaged' and 'complier' categories together, enabling a comparison between organisations with a proactive approach to OSH management and those which are more reactive.

While there were no statistically significant differences between the 'yet to be fully engaged/complier' and 'very good' organisations in terms of organisational performance outcomes, there were some interesting trends. For example, profit margins were higher among organisations with better OSH management. Also in organisations 'yet to be fully engaged', employees had more reportable and non-reportable accidents than organisations in the 'complier' and 'very good' categories. The 'yet to be fully engaged' organisations also tended to lose more working days through accidents, with the 'very good' organisations losing the fewest. Total sickness absence was lower in 'yet to be fully engaged' organisations than the 'complier' and 'very good' organisations but, as discussed above, this is likely to be due to the lack of paid sick leave in some of the former organisations.

The next stage of analysis involved comparing employee outcomes (eg job satisfaction, safety climate perceptions) between organisations categorised as 'yet to be fully engaged/complier' and 'very good'. The results showed that OSH management has a significant effect on employee outcomes, with a number of significant differences between the 'yet to be fully engaged/complier' and 'very good' organisations. 'Very good' organisations showed more positive perceptions across eight out of the nine safety climate dimensions. As far as employees' attitudes towards their organisation are concerned, the results demonstrated that employees in organisations with 'very good' OSH management were more committed to their organisation and showed greater satisfaction with their job than employees in organisations categorised as 'yet to be fully engaged' or 'complier'.

While the multivariate analysis across organisations indicated no significant differences across ‘yet to be fully engaged/complier’ and ‘very good’ organisations in terms of employees’ health, a regression analysis exploring the relationship between health and organisational attitudes did reveal significant effects. Self-reported general health was positively associated with both job satisfaction and personal appreciation of risk; specifically, higher levels of general health were found where individuals were more satisfied in their job and felt less at risk of a workplace accident. Better levels of mental health were experienced by employees who reported greater job satisfaction, less intention to leave the organisation, more positive safety climate perceptions in terms of safety rules and procedures, a more positive personal appreciation of risk and greater support for their ability to work safely. Surprisingly, mental health was better where individuals reported lower intrinsic job motivation and priority of safety. Employees reporting higher levels of vitality reported higher job satisfaction, as well as a more positive personal appreciation of risk and the physical work environment. However, as for mental health, vitality was negatively associated with intrinsic job motivation. Overall these results indicate that proactive OSH management is associated with better safety and organisational attitudes and that these positive attitudes are related to higher levels of physical and mental health.

Conclusions

This study examined the impact of proactive OSH management on organisational performance, employees’ attitudes towards their job and organisation, and employees’ health and wellbeing. At an organisational level, a proactive OSH approach was associated with more positive organisational attitudes and safety climate perceptions. At an individual employee level, more positive safety perceptions and organisational attitudes were associated with better health and wellbeing. These findings strengthen the evidence base for the linkage between good OSH management and improved organisational performance and health at work.

1 Introduction

1.1 Background

The latest statistics on work-related health and safety show that 2 million people are suffering from an illness they believe was caused or made worse by work, with approximately 30 million days (1.3 days per employee) lost per year due to work-related ill health or injury.¹ It is clear from this figure that work-related ill health, accidents and injury present a significant cost to the UK economy and employers, as well as to individual employees and their families who experience the personal impact of work-related health and safety issues – an impact which may be felt long after the event.²

Despite the obvious need to manage health and safety proactively, some organisations do not give it the priority it deserves. This may be due to a lack of knowledge, skills and motivation, or to limited staff resources. Cost is also an important issue, with companies feeling that they lack the capital necessary to make proper investment in health and safety, and failing to appreciate the importance of this investment.³ Likewise, few companies measure or understand the costs of health and safety failures in their organisations.⁴ This failure to understand how investment in health and safety may affect the organisation in terms of measurable outcomes is partly due to the challenges inherent in establishing exactly how effective occupational safety and health (OSH) management is related to organisational performance.

1.1.1 The evaluation of OSH management – financial performance

Previous work investigating the impact of effective OSH management has focused largely on the financial benefits of improved OSH activity. For example, one project used 19 case studies to demonstrate the cost benefits of effective health and safety initiatives in organisations across a variety of industry sectors.⁵ The benefits included savings from initiatives such as improved absence management and reductions in specific occupational injuries (eg manual handling injuries). Indeed, the case for demonstrating the economic value of OSH investments and interventions is growing across academic, public policy and industry arenas.⁶ However, the value of OSH investments is by its very nature multifaceted, with indices used to measure value extending across objective measures (eg turnover, absence) and subjective measures (eg employee attitudes).⁷

It is well recognised that quantifying benefits is far more difficult than quantifying economic costs.⁸ While the inputs in terms of time, resources and so on are usually clearly identifiable, the outputs are not always so readily measurable, particularly given some of the inherently subjective, less tangible outcomes associated with investments in health and safety.⁹ However, it is clear not only that these ‘intangibles’ (eg employee attitudes) are an important part of an employee’s experience of work, but also that they may have an impact on ‘bottom line’ costs; associations have been demonstrated between attitudes (such as job satisfaction) and physical and psychological health, performance and turnover, and objectively recorded safety events.^{10–12}

1.1.2 The evaluation of OSH management – employee outcomes

While there has traditionally been a focus on demonstrating the effectiveness and economic value of OSH management and interventions,¹³ as well as, more recently, OSH management systems,¹⁴ far less research has focused on employee outcomes of OSH management. The limited research available has generally focused on the theories of ‘social exchange’^{15,16} and ‘perceived organisational support’.¹⁷ Together, these theories suggest that employees’ perception of their treatment by their employer influences their behaviour and attitudes to work. Where employees feel that they are treated favourably by their organisation, they will in turn ‘reciprocate’ with more positive work behaviours and attitudes.

Perceived organisational support has been found to have a positive influence on safety attitudes and behaviours.^{18,19} A recent study found that management commitment to safety was related to a number of employee attitudes, including job satisfaction, organisational commitment and intention to quit. Other work has considered how safety climate perceptions are linked to employee outcomes, including organisational commitment, intention to quit and job involvement.²⁰ This research suggests that where employees feel their organisation ‘cares’ for them, including where they have positive views on the management of their health and safety, this may foster safer working practices and have a positive impact on employees’ attitudes. However, all this research was conducted within specific industries, meaning that wider generalisations cannot necessarily be made.

Another employee outcome of interest is health and wellbeing. Very little research has been conducted into the impact of health and safety management on health and wellbeing, but it has been suggested

that stress and anxiety may play a role in the incidence of safety failures and accidents.^{21–23} In addition, general health has been found to be a mediator between organisational variables and occupational accidents,²⁴ with a further study suggesting a link between psychological health and self-reported workplace errors.²⁵ However, as with the research examining safety and employee attitudes, most of the above research was conducted within one industry, with no research exclusively positioning OSH management as a predictor variable for general employee health and wellbeing. Furthermore, no research to date has examined how OSH management influences employees' health and wellbeing.

1.1.3 OSH management and corporate social responsibility

The doctrine of corporate social responsibility (CSR) requires that organisations be held to account for the social and ethical consequences of their actions by a variety of stakeholders.²⁶ This obviously includes social and moral obligations in the employment of staff as well as wider issues concerning the organisation's impact on the community and the environment, and its relations with consumers and suppliers.²⁷ An important aspect of CSR in relation to the management of staff is the obligation of employers to provide their staff with a clean and safe working environment;²⁷ this makes OSH management an integral part of the wider CSR movement.

The question as to why organisations should become more socially responsible has often been addressed in research terms, through studies examining the links between CSR and organisational performance, and in particular financial performance.²⁸ Authors have argued that adopting CSR principles affects an organisation's financial performance both unfavourably, with the costs of CSR activities putting companies at an economic disadvantage,²⁹ and favourably, with the costs associated with CSR being outweighed by the economic benefits associated with more positive employee attitudes and increased productivity.^{30,31}

Other research has extended beyond a simple analysis of the impact of CSR on financial performance, by considering possible wider employee outcomes. For example, some authors have argued that the CSR principles of effective human resource and OSH management will lead to increased employee morale and reduced staff turnover, both of which will favourably affect bottom-line costs associated with recruitment and training.²⁷ Other work, looking at the closely allied construct of corporate citizenship, has found evidence for an association between citizenship and employees' commitment to the organisation.^{32,33} Such work suggests that this association may in part explain associations also found with business performance, through the possible impact of increased commitment on lower absenteeism and staff turnover, as well as more positive role behaviours.^{32,33}

The CSR and corporate citizenship literature reviewed above suggests that in general there may be links between a humanistic orientation towards employees (among other stakeholders) and economic advantages for the organisation and better employee attitudes. It is also suggested that such improved employee attitudes may have commensurate 'indirect' economic benefits through reduced costs associated with absence and turnover. A desire to provide a clean and safe working environment (the central tenet of OSH management) is viewed as part of CSR, and to this end it can be argued that investments in health and safety driven by ethical and moral motives may have a favourable impact on both employers and employees. This not only stands alone as a conceptual framework for the investigation of OSH management on economic and employee outcomes, but also dovetails with the literature on 'perceived organisational support', which broadly hypothesises similar outcomes. However, as with this literature, research into CSR and specific health and safety outcomes appears limited. Therefore, the present research builds on previous work by examining how an approach to OSH management which is based on employee welfare concerns (ie 'proactive' OSH management) is related to both improved organisational performance outcomes and better employee attitudes, wellbeing and safety.

1.1.4 Models of OSH management and safety culture

While there is a wide range of safety culture measurement tools available to the practitioner, many of these have specific developmental histories and are sector-specific. Furthermore, some authors have argued that there is a lack of a unifying theoretical model underpinning these tools,³⁴ and there have been difficulties in replicating factor structures, even within the same industries, over time. This suggests that current safety climate measures may be limited to particular industries or sample populations.³⁵

A further concern is that some safety climate measures may only be useful in detecting change over time, so that a score on a climate facet is not necessarily meaningful in the absence of benchmarking

or 'norm' information. Indeed, there is some degree of consensus in both academic and practitioner literatures that to be useful, a safety culture model or assessment tool should not only identify what a positive safety culture is, but should also provide guidance on how to improve.³⁶ To counter some of these problems, some authors have developed systematic methods which seek to identify the stage of 'cultural maturity' of the safety climate under measurement. In general, such methods attempt to address the need for a normative framework describing what 'positive' and 'negative' safety cultures are, as well as information on how organisations can improve their cultures and a tool to allow comparison of cultures across organisations.³⁶

The Safety Culture Maturity model,³⁷ which was based on the maturity model concept in software engineering, was developed to measure safety culture in the offshore oil and gas industry. This model describes ten elements of safety culture (eg management commitment, communication and participation), with five stages of cultural maturity in terms of safety: emerging, managing, involving, co-operating, and continually improving. When published, this model was to be used as a framework rather than a diagnostic tool, but it has since been used as a survey aid in research into air traffic management.³⁸

A second example of a staged or systematic model of safety culture is the framework developed by Parker *et al.*,³⁹ based upon Westrum's typology of organisational cultures.⁴⁰ This framework was developed from interviews with executives in the oil and gas industry, and identifies five levels of safety culture: pathological, reactive, calculative, proactive and generative. The aim of this framework was to allow organisations to identify their own safety culture. It has been tested recently for its internal reliability,³⁶ although it remains untested in terms of its validity as a predictor of organisational safety outcomes.

Both of these examples of systematic or staged models for the determination of organisational safety culture build on previous safety culture measurement models by recognising that organisations may show not only inter-organisational differences in terms of their stage of safety culture development, but also intra-organisational differences across different safety culture facets. Furthermore, such models also provide information about what characterises the most desirable stages of positive safety culture and how to facilitate a stepped change through the stages of cultural maturity. However, both of these models were developed within one particular industrial sector, and it may be of only limited use to try to generalise their safety climate themes across industries and sample populations.³⁵

The method used in this research to discriminate between organisations on the basis of their approach to OSH management is a further staged safety framework known as the Continuous Improvement Cycle (CIC) model.⁴¹ This framework was designed to be used by practitioners as a strategic tool to determine how organisations, groups or individuals could be categorised by their view on health and safety, with the aim of helping them move on to the next level and improve their health and safety performance. The CIC model is like other systematic safety culture and cultural maturity models, in that it is based on the idea that organisations can be categorised into stages of development according to their approach to OSH management. The model identifies three main stages: those that are 'yet to be fully engaged', those that are simply 'compliers', and those that are more proactive, described as 'very good'. Figure 1 illustrates how moving between these three categories can be viewed as 'climbing the OSH mountain'.

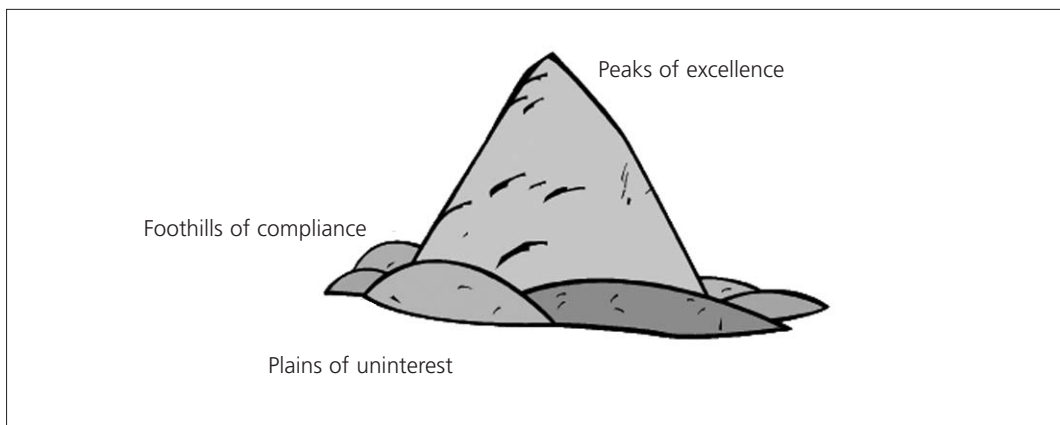


Figure 1
The Continuous Improvement Cycle model

The model identifies a number of drivers and indicators for discriminating between organisations on the basis of their approach to OSH management. Table 1 explains the CIC model, outlining the drivers, the characteristics that differentiate each level from the previous level, the problems associated with each level, and what organisations at each level need to do to improve their OSH approach.

This model shares with other systematic models the concept of a ‘staged’ approach to development of OSH management and safety culture, in the sense that it identifies different levels of safety management and defines how organisations can move between them. However, the primary reason for choosing this model above others is that, unlike similar models, the CIC framework was designed by practitioners and academics from a variety of industries, and therefore does not focus on any one sector or sample population. Furthermore, the CIC model was not designed as a safety culture model, but rather as a tool to evaluate how organisations approach OSH management; as a result, the focus is perhaps wider in CIC than in models that are concerned solely with safety culture.

In research terms, the CIC model – like previous systematic models – has yet to be fully established in the academic literature as a method of differentiating between organisations on the basis of their approach to OSH management. This research aims to develop the CIC framework further to allow the meaningful categorisation of organisations in terms of their OSH management, and to demonstrate how OSH management is related to the organisational and employee outcomes outlined above.

1.2 The present study

This study used the CIC framework to categorise organisations on the basis of their approach to OSH management, using data from semi-structured interviews. The CIC categories were then examined for their associations with both organisational (objective or economic) and employee (attitudinal and wellbeing) outcomes, using data from an employee survey. This study therefore extends the previous research in a number of ways. Firstly, it adds to the literature on both ‘perceived organisational support’ and safety culture by examining the impact of a staged model of OSH management on both ‘objective’ organisational attitudes and ‘subjective’ employee attitudes, health and wellbeing. Secondly, it builds on earlier work by combining these outcomes with an investigation of how the chosen approach to safety is related to safety climate perceptions. Thirdly, it considers how an organisation’s approach to OSH is related to outcomes across different organisational sizes, economic sectors (ie public and private) and industrial sectors, allowing inter- and intra-sector and size comparisons.

1.3 Objectives

The objectives of this research were to:

- 1 examine the relationship between OSH activity in organisations and OSH outcomes, both organisational (eg absence, turnover) and employee-related (eg employee attitudes, health and wellbeing, and safety climate perceptions)
- 2 undertake comparisons between organisations of different sizes, economic sector and industrial sector to understand how these characteristics affect OSH management and organisational culture and performance
- 3 conduct in-depth, qualitative case study investigations in organisations, detailing OSH activity and associated outcomes for the organisation and its employees
- 4 identify examples of OSH best practice in organisations and how they benefit business performance.

1.4 Research approach

A number of methods were employed for this research, with both quantitative and qualitative approaches represented. At an organisational level, organisations were asked to allow members of their staff to participate in a number of stakeholder interviews, as well as to provide performance data (eg accident statistics and absence figures). At an individual level, employees in participating organisations were asked to complete a questionnaire.

1.5 Report format

This report takes the following format:

Section 2 – Methods and analytical approach

Section 3 – Results: sample profile and descriptive statistics

Table 1
The Continuous
Improvement
Model

CIC category	Yet to be fully engaged	Complier	Very good
Basic drivers	Enforcement Regulation Insurance Cost	Enforcement Regulation Insurance Cost Humanitarian concerns Benchmarking Embarrassment if caught	Cost – investing in health to save in the future Insurance Humanitarian concerns translated into action Understanding Desire to be excellent Reputation/brand image Corporate social responsibility
Differences from lower level		Awareness – higher level Resources applied to health and safety management Expertise – some limited access to advice	Awareness – understanding of business costs of poor performance Awareness – occupational health staff better able to articulate arguments and persuade senior managers Size (in some cases) – large companies often see more health problems and therefore they become business issues Expertise – a high level is often available in-house Visible senior management commitment Measurement
Issues	Lack of awareness of occupational health issues Lack of awareness of the scale and severity of the problem	Occupational health often not integrated into day-to-day management Line managers do not perceive need to manage 'softer' issues Often restricted view of occupational health Complying with the letter of the law may not equate to fulfilling moral duty	Where does occupational health stop? What are the issues we can effectively manage in the future? Decisions sometimes delayed because 'everyone' has to be consulted Difficulty of keeping tabs on everything that is being done
Needs to get to next level	Understanding of issue Understanding of a proportionate response Easy, low-cost access to support services Push from insurers Simple activities that staff can do with minimal training Individual to champion the cause Mentoring from businesses in the 'very good' category	Stronger emphasis on occupational health in management training Best practice examples from exemplar companies Supply chain/peer pressure Development of an occupational health champion Mentoring from businesses in the 'very good' category	Competitions for ideas in key areas; open areas up to people beyond the traditional stakeholders, eg Back to Work programme Exchange forums Involve ment in education of the next generation, in both large companies and SMEs More employee ownership of health and safety

Section 4 – Results: size and sector comparisons
Section 5 – Results: comparisons by OSH approach
Section 6 – Results: case-study examples – intra-industry comparisons
Section 7 – Results: stakeholder interviews
Section 8 – Results: expert panel – validation of findings
Section 9 – Discussion and recommendations

The results are divided into a number of sections. The quantitative research findings are presented in Sections 3–6, which together describe the findings of the employee survey and objective organisational performance data analyses, along with the organisational case study comparisons. Section 7 presents the findings from the organisational stakeholder interviews and best practice examples.

2 Method

2.1 Study design

The study employed a mixed-method cross-sectional design. The first part of the study consisted of a series of structured interviews with key stakeholders in the participating organisations. The second part of the study involved a survey of employees from these organisations.

2.2 Sample

The study aimed to recruit 30 case study organisations across a variety of industries, with the sample ideally splitting into equal numbers of small (< 50 staff), medium (50–250 staff) and large (> 250 staff) organisations. For the employee survey, the aim was to obtain a sample of 2,000 responses from across the 30 case study organisations.

2.3 Recruitment of organisations

Organisations were recruited to the study using a purposive sampling strategy,⁴² which allowed targeting of organisations across organisational sizes (small, medium and large) and industries, to ensure that a wide range of organisations was represented in the final sample. The first stage of recruitment was to publicise the study across a variety of media. This began with an initial press release through the university's public relations department. This was followed up with input to health and safety publications and local radio.

Following the general publicity of the research, a number of specific recruitment strategies were used:

- Networks. A number of business networks distributed information via email to their members:
 - the IOSH Safety Sciences Group
 - the network of university health and safety advisers
 - the network of police health and safety advisers
 - the Staffordshire Business and Environment Network
 - the East Midlands Engineering Employers' Federation.
- University business contacts. Organisations were approached which had previously participated in health and safety-related research with Loughborough University. Personal business contacts of the research team were asked whether their employing organisations (or clients' organisations) would be interested in participating in the research.
- Direct contact. Organisations were identified using the commercially available business database 'Thompson Business Search Pro', with a focus on Midlands-based organisations. Likely candidate organisations were then approached directly using phone calls, emails or by letter.

These recruitment activities resulted in a total of 34 organisations agreeing to participate. However, between initial agreement and the data collection phase, this total was reduced to 26 following the withdrawal from the sample of eight organisations. Reasons for withdrawal included:

- loss of the key contact in the organisation – eg due to resignation or promotion
- change in the organisation's circumstances – eg management or departmental restructuring
- OSH issues – eg a workplace fatality investigation leaving insufficient resources to co-ordinate the project.

Following this reduction, a second wave of recruitment was undertaken using similar strategies. From this, a further five organisations were recruited to the research sample.

2.4 Stakeholder interviews

2.4.1 Sample

The aim during the interviews was to employ a 'triangulation' approach, whereby a number of different stakeholders from each participating organisation would be interviewed to gather different opinions on its approach to OSH management. A key contact in each organisation was asked to identify employees to be interviewed who collectively could represent three viewpoints on OSH practice in the organisation:

- strategic health and safety, eg a senior manager or board representative
- operational health and safety, eg an OSH adviser or, where this was not possible, someone whose role incorporates a substantial health and safety component

- staff representation, eg a trade union representative or an employee who represents staff on a health and safety committee.

The kind of personnel selected to participate in the structured interviews differed across organisations and depended largely on the company's size and structure, the nature of the industry, the positioning of the OSH function and personnel, and the extent to which trade unions were recognised. In practice, due to time constraints and the difficulty of releasing employees for interview, the smaller organisations often identified only one person for interview. However, the triangulation approach was followed where possible, and for the majority of organisations (particularly the medium and large organisations), this proved successful.

2.4.2 Design of interview schedule

The interview was designed to ascertain the organisations' approach to OSH management. The interview needed to be structured to allow comparisons to be made across organisations, but comprehensive enough to capture the diversity of the OSH challenges faced by different organisations and their attempts to meet them.

Several sources informed the development of the interview schedule. One IOSH research report – *What practitioners do*⁴³ – and two guidance documents – *Professionals in partnership*⁴⁴ and *Systems in focus*⁴⁵ – provided information on best practice for OSH professionals and management systems. Best practice information on the websites of the Department of Trade and Industry and the Health and Safety Executive (HSE) was also used. From these sources, a set of questions was prepared, which were then grouped into ten themes:

- the background to the organisation's OSH function and personnel
- the organisation's attitudes towards OSH management
- the priorities of OSH management
- management commitment to OSH
- stakeholder involvement in OSH
- training and communication of OSH information
- future OSH improvements
- OSH management systems
- monitoring of OSH activity
- auditing and benchmarking of OSH activity

Following the identification of the themes for the interview, best practice guidelines were consulted in the development of the interview schedule. Bryman,⁴⁶ in his discussion on social research methods, outlines a number of considerations for the preparation of the schedule, and these informed how the schedule was constructed. Firstly, the question themes were ordered to guide the flow of the conversation (while recognising that this might change during the interview itself), with general questions asked in the initial stages, leading to more specific and focused points towards the end of the interview. Secondly, the questions were focused on gathering evidence on the topic areas, while ensuring, through a combination of open and closed questions, that the information being gathered was not too specific. Thirdly, the language used in the questions was relevant to the target audience, but comprehensible to a wider audience. Fourthly, leading questions were avoided; and finally, basic demographic information was collected on each interviewee so that responses could be put into context.

Based on the above recommendations, the draft schedule was developed and agreed by the research team. Following this, the interview schedule was piloted on OSH professionals based at Loughborough University; after a number of minor amendments, this led to the final version. The interview schedule can be found in Appendix 1.

2.4.3 Interview protocol

All interviews with employees were conducted face-to-face by a member of the research team in the employees' place of work. All interviews were recorded using a digital dictaphone. Before each interview, the interviewee was briefed by the researcher about the nature of the study and their organisation's role in the research. Interviewees were also asked for their permission to be recorded, and briefed on issues regarding the confidentiality of the interview data, and their anonymity in the feedback process. The time taken for the interviews ranged from 18 minutes to 1 hour 41 minutes. All interviews were transcribed using a professional transcription service.

2.5 Employee survey

2.5.1 Questionnaire development

The first stage in developing the questionnaire was to identify which measures were to be included. Measures were chosen on the basis of their reliability and validity, with practical issues also considered, such as length and readability. Consideration was also given to what factors might be correlated with the study variables, which would therefore need to be controlled for in the analyses. Such factors were included in the background information section at the beginning of the questionnaire.

Once the questionnaire had been drafted and agreed by the research team, it was piloted on 10 volunteers. These volunteers were picked to provide a pilot sample that spanned different ages, both sexes and a variety of different job types. The volunteers were asked to note how long the questionnaire took to complete, as well as any comments they had about its content or layout. Following this feedback process, a few minor changes were made to the questionnaire before it was rolled out across the participating organisations. The questionnaire is reproduced in Appendix 2.

2.5.2 Questionnaire variables

2.5.2.1 Demographics

Participants were asked their age, sex, and how long they had worked in their current job and for the organisation in total. Participants were also asked to identify their job type (full-time, part-time, job-share, or fixed-term/casual), and whether they had supervisory or management responsibilities. Finally, they were asked to give their ethnic or national origin using a free response format, the answers to which were coded at the point of data entry.

In order to give some indication of their socio-economic status (SES), which is known to be correlated with health outcomes,⁴⁷ participants were asked to indicate their highest educational qualification and their current full-time equivalent salary. Both of these questions gave participants a number of possible responses, which were coded and combined to give an SES overall variable with a range of 2 to 13, with higher scores indicating higher SES (higher educational level and salary).

2.5.2.2 Job attitudes

Organisational commitment was measured using a nine-item scale developed by Cook and Wall.⁴⁸ Participants were asked to rate each item using a seven-point Likert-type scale, where 1 = 'strongly disagree' and 7 = 'strongly agree'. This measure contained three subscales relating to 'identification', 'involvement' and 'loyalty', with these subscales summed to give an overall commitment score (with a range of 9 to 63, and high scores indicating high commitment). This measure showed good internal consistency (Cronbach's $\alpha = 0.875$).

Job satisfaction was measured using a three-item scale taken from the Michigan Organizational Assessment Questionnaire.⁴⁹ Participants were asked to respond on a seven-point Likert scale, where 1 = 'strongly disagree' and 7 = 'strongly agree'. The scale was scored by averaging the responses, with a possible range of 1 to 7, with high scores indicating high levels of job satisfaction. Reliability was good for this scale ($\alpha = 0.873$).

Intention to quit was measured using another scale from the Michigan Organizational Assessment Questionnaire.⁴⁹ This three-item scale was split into two sections, with the first item asking participants to answer the question 'How likely is it that you will actively look for a new job in the next year?' using a seven-point Likert scale, where 1 = 'not at all likely' and 7 = 'extremely likely'. The next two questions asked respondents to rate the extent to which they agree with two statements, using a different seven-point Likert scale, where 1 = 'strongly disagree' and 7 = 'strongly agree'. The measure was scored by calculating the average response across the three items, with a possible range of 1 to 7; high scores indicate a strong intention to leave the job ($\alpha = 0.875$).

Intrinsic job motivation was measured using a six-item scale developed by Warr *et al.*⁵⁰ to assess 'the degree to which a person wants to work well in his or her job in order to achieve intrinsic satisfaction'. Responses are given to each statement using a seven-point Likert scale, where 1 = 'strongly disagree' and 7 = 'strongly agree'. Responses were summed to produce a score for the measure, with a range of 6 to 42, with high scores equating to high intrinsic job motivation. This measure also showed good internal consistency ($\alpha = 0.803$).

2.5.2.3 Absenteeism and performance

Self-reported absence and performance were measured using a number of questions from the World Health Organization's Health and Work Performance Questionnaire (HPQ).⁵¹ In terms of absence, participants were asked to report how many days they had missed due to problems with their physical or mental health over the previous four weeks. Self-reported performance was assessed by asking participants to rate their overall job performance over the previous four weeks using an 11-point Likert scale, where 0 = worst performance and 10 = top performance.

2.5.2.4 Work-related ill health

This was assessed using questions from the HSE Labour Force Survey.¹ Participants were asked two questions relating to occupational illness. Firstly, respondents were asked whether over the previous 12 months they had suffered from an illness, disability, or other physical or mental problem that they believed was caused or made worse by their job. This question encompassed the full range of possible physical and mental work-related health problems. This question was coded as a dichotomous categorical variable. Respondents were then asked how many illnesses they had experienced over the past 12 months that they believed were caused or made worse by their job. This question is more specific to work-related illness. This question was entered as a continuous variable.

2.5.2.5 Health and wellbeing

Employee health and wellbeing was assessed using the SF-36 Health Survey, version 2.⁵² This measure is one of the most widely used functional health surveys in health research,⁵³ and has been found to be a valid and reliable measure across both US and UK samples.⁵⁴ The SF-36 addresses eight areas of functioning and wellbeing, which together cover physical and mental health. For each dimension, item scores are coded, summed and transformed into a scale from 0 (worst possible health state) to 100 (best possible health state). Reliabilities for the subscales used in this research were all high, with alphas of 0.801 (general health), 0.847 (mental health) and 0.853 (vitality).

2.5.2.6 Safety climate

Safety climate was measured using the short-form version of the Safety Climate Assessment.⁵⁵ This 18-item measure assesses the 'tangible' outputs of an organisation's safety culture, for example how employees may 'perceive and describe the importance given to safety issues... and how local arrangements seem to reflect this'.⁵⁶ The toolkit has been tested in multiple industries,⁵⁷ making it appropriate to use in research conducted across a variety of industries and occupational groups. The question asked participants to rate the extent to which they agree with the 18 statements using a five-point Likert scale, where 1 = 'strongly disagree' and 5 = 'strongly agree'. The measure represents nine dimensions of safety climate:

- 1 management commitment – employees' perceptions of management's overt commitment to health and safety issues
- 2 communication – the nature and efficiency of health and safety communications in the organisation
- 3 priority of safety – the relative status of health and safety issues in the organisation
- 4 safety rules and procedures – respondents' views on the efficacy and necessity of rules and procedures
- 5 supportive environment – the nature of the social environment at work, and the support for health and safety derived from it
- 6 involvement – the extent to which safety is a focus for everyone, and all are involved
- 7 personal priorities and need for safety – the individual's view of his or her own health and safety management and the need to be safe
- 8 personal appreciation of risk – how individuals view the risk associated with work
- 9 physical work environment – individuals' perception of the nature of the physical environment.

These nine dimensions were assessed by two items each. Following the approach advised by Cox and Cheyne,⁵⁵ the scores for each dimension were summed to produce a range from 2 to 10 per dimension, and an overall safety climate score of 18–90, with higher scores equating to more positive attitudes towards the safety climate. The inter-item correlations showed a moderate to good internal consistency for each of the safety climate facets, with correlations ranging between 0.412 and 0.836, with a mean correlation of 0.652.

2.5.3 Questionnaire distribution

The first stage in questionnaire distribution was to agree a target sample of staff with the key contact from each of the participating organisations. This target sample was chosen in light of a number of constraining factors, namely:

- the organisation's reasons for participation
- its organisational structure and geographical spread
- the number of surveys conducted over the previous year
- the practical considerations of including certain occupational groups (eg lone workers).

The research team liaised with the contact from each organisation to identify the target sample within these constraints. The researchers presented three options:

- to sample all staff
- to sample discrete groups of staff (eg a department, site or occupational group)
- to target a stratified and representative sample of staff from across the organisation.

In practice, each of these options was employed across the 31 organisations, although in most small organisations all staff were targeted, with the larger organisations tending to recommend discrete sites or groups, or use a stratified sampling approach.

All organisations were provided with questionnaire packs and asked to distribute them. Participants were asked to complete the questionnaire and return it direct to Loughborough University using the freepost envelope enclosed in the pack. This returns policy was used to reassure participants of the anonymity of the process, as well as to underline the independent nature of the research. It also removed the need for the participating organisations to collect the questionnaires.

Several strategies were used to try to maximise response rates. Firstly, each organisation was encouraged to publicise the project widely among its staff before the questionnaire was distributed. This was done by email, newsletter or poster, and aimed to raise awareness of the project and the anticipated outcomes. The research team was often involved in drafting publicity material for organisations, in order to maintain the quality of information available to potential respondents. Secondly, key contacts in organisations were asked to contact staff a few weeks after the questionnaires had been distributed to encourage them to return them by reiterating the nature of the study and the importance of their contribution. The issue of response rates will be discussed further in Section 3.5.

2.6 Organisational performance outcomes

In addition to the interview and employee survey data, participating organisations were also asked to provide information on a number of performance, accidents and absence indices. This allows an examination of more objective performance outcomes alongside the subjective data provided by the employee survey. The organisations were asked to provide data on:

- profit margin – financial gain or excess of returns over outlays, measured as a percentage of turnover
- staff turnover – the number of leavers over the previous 12 months as a percentage of total staff
- number of accidents reportable under the requirements of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 over the previous 12 months
- number of non-reportable accidents over the previous 12 months
- total number of accidents
- number of days lost due to accident or injury over the previous 12 months
- number of days lost due to sickness absence over the previous 12 months.

2.7 Analysis

2.7.1 Qualitative analysis

2.7.1.1 Further development of the CIC framework

The main aim of this stage of the analysis was to develop the CIC⁴¹ further, in order to discriminate between organisations on the basis of their approach to OSH. This framework describes three main 'types' of organisation – the 'yet to be fully engaged', the 'complier' and the 'very good'. The last of these categories identifies those organisations that are the most proactive in their approach to OSH management.

The CIC framework was developed by the Continuous Improvement Programme Action Group, which was established as part of the HSE's 'Securing health together' strategy. The authors of the framework initially intended it as a tool to help organisations with planning and implementing positive changes to their OSH management. For this reason, while there are some key discriminating

features for each category, the focus is understandably on the issues of OSH management for each level, and how effort can be best channelled towards moving on to the next level. Furthermore, the authors of the model acknowledge that the framework does not include issues of organisational culture and management commitment, which were excluded as they were felt to be worthy of a separate analysis.

In order to make fullest use of the rich dataset from the 78 stakeholder interviews, it was felt that an initial analysis of the data would serve to supplement the CIC framework, by building on the initial issues identified and developing a thorough model by which organisations could be distinguished on the basis of their approach to OSH management, across the full range of OSH issues.

This first stage of the qualitative analysis was therefore designed to identify themes from the stakeholder interviews, which could be used as key indicators across the CIC categories. To do this, the transcribed interview data were subjected to template analysis.⁵⁸ This gives the researcher a framework on which to structure the analysis; given that the interviews were designed to cover a number of areas relating to OSH activity, the initial analysis proceeded using a template based on the themes identified in the structured interview.

Template analysis allows the data to be thematically organised and analysed in hierarchies, which may be defined before the analysis on the basis of theoretical reasoning or expectations. Template analysis was considered to be the most appropriate means of analysing the data given the structured approach of the stakeholder interviews, which asked questions based on industry best practice in OSH management. However, template analysis is an iterative process, in which themes may emerge from the data that change the template and the hierarchy, before the final template is ultimately obtained.

A set of 10 key themes emerged from this template analysis. These were included as key indicators in the framework, with evidence from the interviews assigned to these themes as a way of discriminating between organisations. In addition, this analysis further developed the drivers for each category, with evidence again taken from the interview data. Because the focus in this research was on developing the framework as a discriminating tool, the 'issues' and 'needs to get to the next level' for each category were not further explored in the interview or the analysis.

The full list of drivers, themes and key indicators is given in the results section (see Section 7).

2.7.1.2 Categorisation of the organisations using the new CIC framework

The second stage of the analysis involved discriminating between the organisations on the basis of the augmented CIC framework. The interview transcripts for each organisation were re-examined and reviewed to identify evidence for the key OSH indicators and drivers, allowing their categorisation according to the three approaches to OSH management outlined in the CIC model.

In practical terms, the categorisation process highlighted that few organisations fitted exactly into one CIC category. The interviews sometimes revealed OSH management characteristics that spanned all three categories. However, a pragmatic approach was taken, whereby an organisation was assigned to that category for which there was the most evidence. Two members of the research team independently categorised the organisations before reviewing their results and reaching a consensus on the final categorisation.

2.7.2 Quantitative analysis

The data from the questionnaires were entered into SPSS (Statistical Package for the Social Sciences), version 13. The data were screened to identify any outliers and data entry errors. This was followed by a number of tests to assess normality, homogeneity of variance and other key assumptions of parametric statistics. Reliability for the main study variables was assessed using Cronbach's alpha. The results of these assessments are reported individually in the description of each study variable (see Section 2.5.2). Descriptive statistics for the data were then produced, followed by a set of correlations between the main study variables to identify key covariates for the main analysis.

The data were then interpreted with reference to the main research questions. The organisational performance and employee variables were first compared by economic sector and organisational size. A further set of analyses was then run to establish whether there were differences in organisational and employee outcomes between organisations in different industrial sectors.

The analysis then proceeded with an examination of the principal research question – whether a proactive approach to OSH management is associated with benefits for both employers and employees. The organisational performance data and the employee outcomes of organisations in each of the three categories of OSH approach were compared.

In order to determine whether sector, size and the approach to OSH management are related to differences in employee outcomes, three MANCOVA analyses were conducted. This test allows differences in a number of outcome variables to be tested simultaneously, while controlling for the effects of potential confounding variables (covariates). From the correlation matrix a number of confounding variables were identified, and these were controlled for in order to ensure that any results were significant over and above the effects of the potential covariates. For example, does a proactive OSH approach result in differences in employee wellbeing over and above the effects of socio-economic status?

The analysis of differences in organisational and employee outcomes between different industrial sectors included a series of *t*-tests to establish whether such differences were statistically significant.

The sample included a wide range of organisational sizes, so all organisational performance data (eg accident and absence figures) were expressed in per capita terms (eg total sickness absence over 12 months per employee). These data were analysed using a series of *t*-tests to establish whether differences between organisations were related to their sector, size or approach to OSH management.

3 Results: sample profile and descriptive statistics

3.1 Section rationale

This section provides a detailed description of the project sample and the main study variables, as well as an exploration of the relationships between these variables to establish covariates for the analyses in the subsequent sections.

3.2 Overall sample

A total of 31 organisations participated in this research. The sample is represented by organisations in the small ($n=9$), medium ($n=12$) and large ($n=10$) categories, and across a wide range of industrial sectors. Table 2 lists the organisations by size, with information about the general nature of their business.

Figures 2–4 illustrate the split of the overall sample in terms of size, economic sector and industrial sector. For ease of interpretation, SIC codes (see Appendix 3) were used to classify the organisations by industrial sector. The sample includes a good spread of organisations across the spectrum of sizes and sectors.

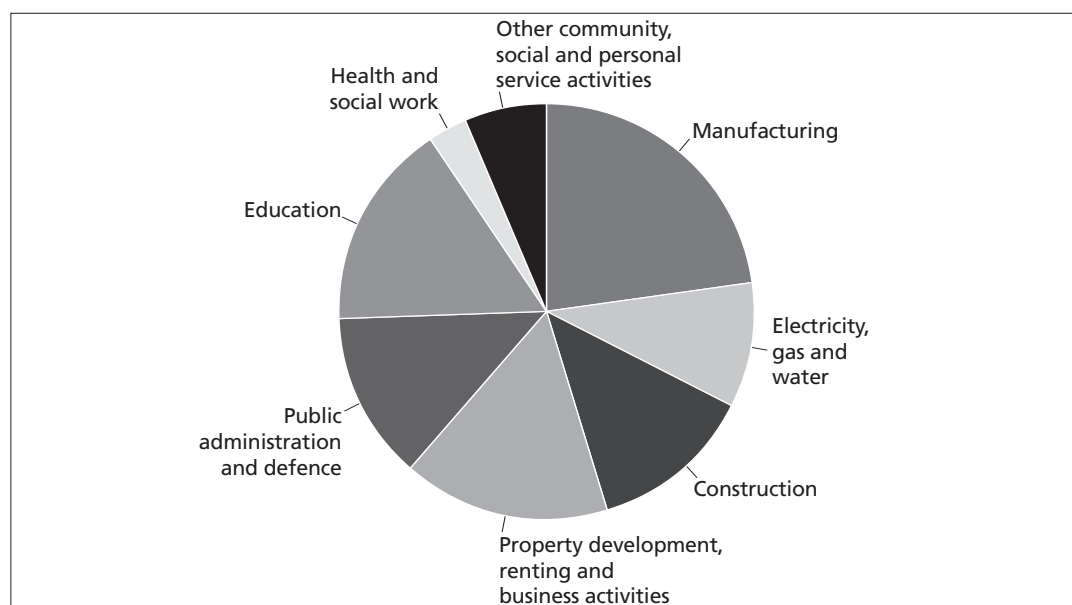
3.3 Stakeholder interview sample

Structured interviews were conducted across the 31 participating organisations, with 78 employees interviewed in total. The interview sample comprised 35 senior managers, 27 staff with operational OSH responsibility and 16 trade union or staff representatives.

Table 2
Study sample by
organisation size
and nature of
business

Small (< 50 staff)	Medium (50–250 staff)	Large (> 250 staff)
Biotechnology consultancy	Asbestos management company	City council (North of England)
Ceramics manufacturer	Ceramics manufacturer	City council (South East of England)
Dental practice	Clay and synthetic additives manufacturer	Facilities management company – defence and logistics
Electronic components manufacturer	Construction company	Facilities management company – nuclear
Hairdresser	Construction component manufacturer	Fire and rescue service
Scaffolder	Electrical power supply manufacturer	Further education college
School	Housing association	Police force
Site mixing company	Housing developer	Students' union management company
Wind power developer	Leisure centre	University
	Polymer manufacturer	Utility company
	School	
	Waste recycling company	

Figure 2
Overall sample of
participating
organisations by
industry



3.4 Organisational outcomes sample

All organisations were asked to provide data on organisational level performance, accident and absence levels. Thirty organisations provided these data, equating to a response rate of 97 per cent.

3.5 Survey sample

A total of 2,067 employees from the participating organisations completed the questionnaire. Analysis of the demographic information yielded the following data:

- the average age of the sample was 43 years
- 61 per cent of respondents were male, 38 per cent female and 1 per cent did not give their sex
- the average length of respondents' current employment was 5 years 10 months, and the average length of service with their current employer 8 years 9 months
- 78 per cent of respondents were in permanent full-time employment, 11 per cent in permanent part-time employment, 3 per cent worked in a job-share arrangement, and 6 per cent were employed on fixed-term contracts or on a casual basis (2 per cent did not specify)
- 90 per cent of respondents described themselves as being from the UK, while 4 per cent reported 'other' national origins (including Asian, African and other European) and 6 per cent did not report their national origin.

Respondents' SES was gauged using questions about their highest educational qualification and their salary. The education question provided the following information:

- 5 per cent of respondents reported no formal educational qualifications
- 6 per cent had qualifications equating to the Certificate of Secondary Education or GCSE grades D–G
- 5 per cent had O Levels or GCSEs at grades A*–C

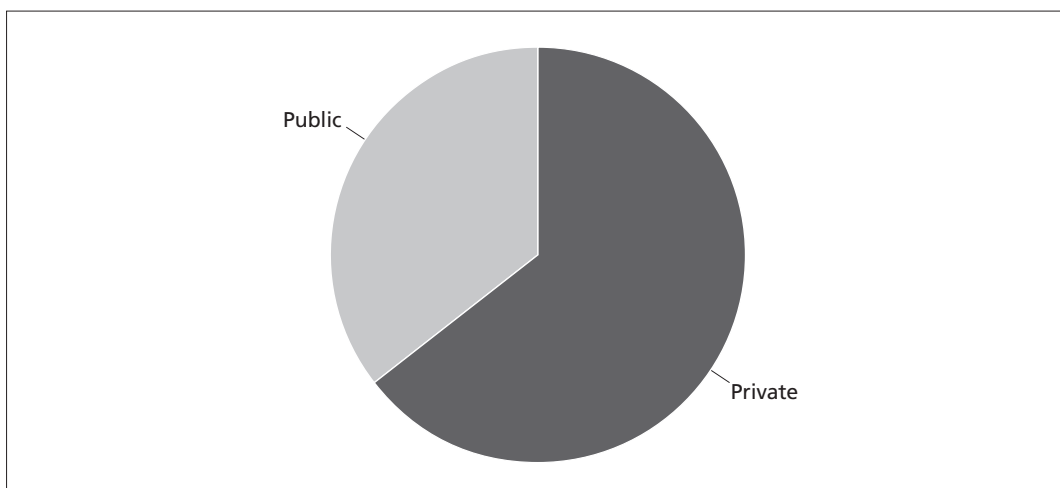


Figure 3
Overall sample of participating organisations by economic sector

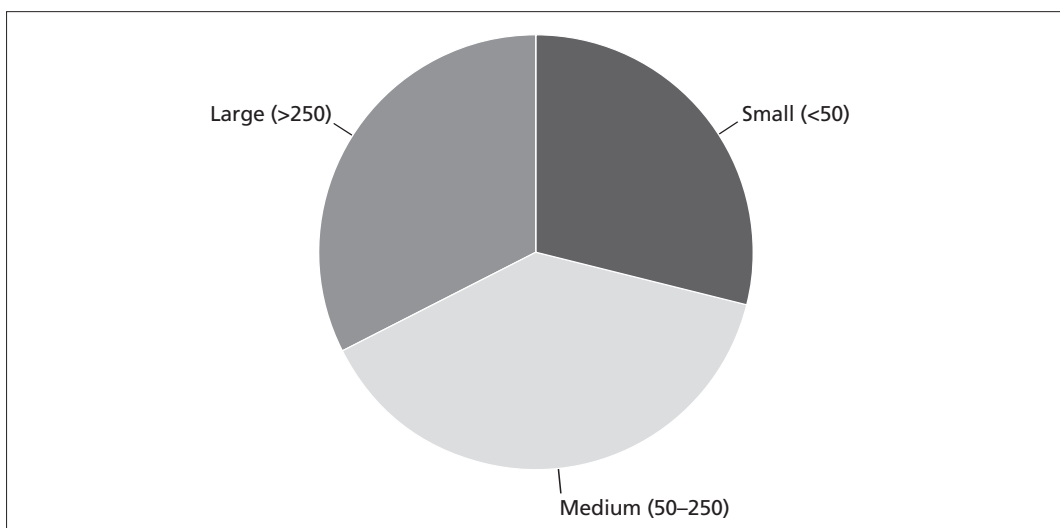


Figure 4
Overall sample of participating organisations by size

- 14 per cent were qualified to A Level standard
- 13 per cent had vocational qualifications
- 27 per cent had a bachelor's degree or equivalent qualification
- 12 per cent had postgraduate qualifications.

When asked about their salary:

- 31 per cent earned less than £18,720 per year
- 34 per cent earned between £18,720 and £28,080
- 35 per cent earned more than £28,080.

A total of 8,071 questionnaires were distributed, so the response rate was 26 per cent across the sample, but this figure hides noticeable variations in response rates between organisations. Response rates also varied by economic and industrial sector, and by organisational size. Figures 5–7 illustrate the breakdown of responses by industrial sector (defined by SIC code), economic sector (public and private) and size (small, medium and large).

The survey sample was represented well in the property development, renting and business activities, public administration and defence, and education sectors. The other sectors make up the remainder of the sample responses. There was also a reasonable mix of public and private sector organisations. Large organisations dominate in terms of organisational size, but this is perhaps to be expected given that more questionnaires were distributed in these organisations.

Figure 5
Employee survey
responses by
industry

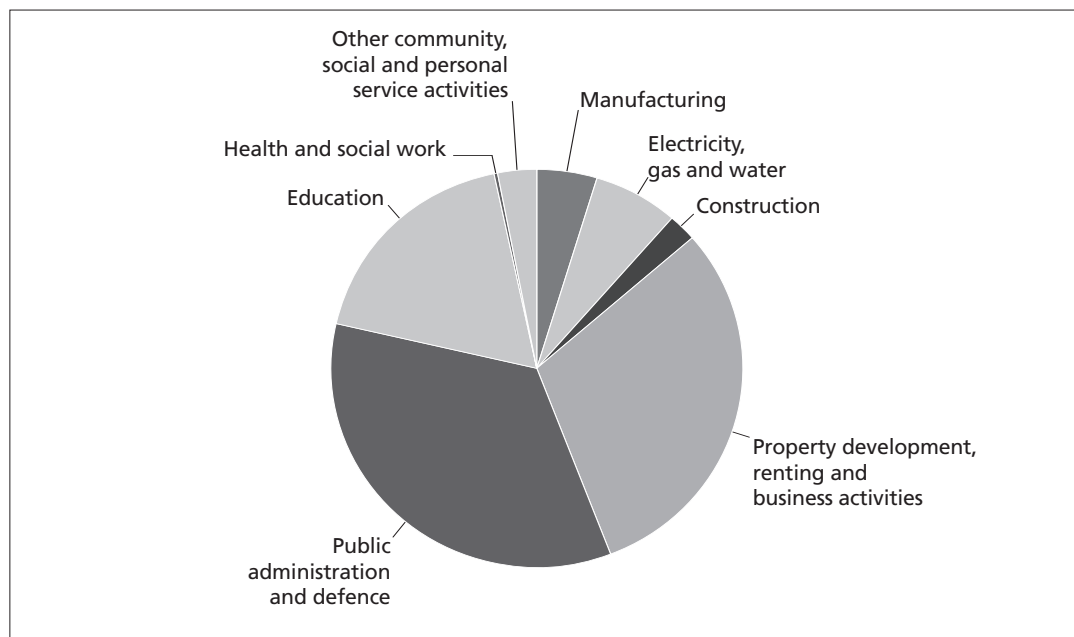
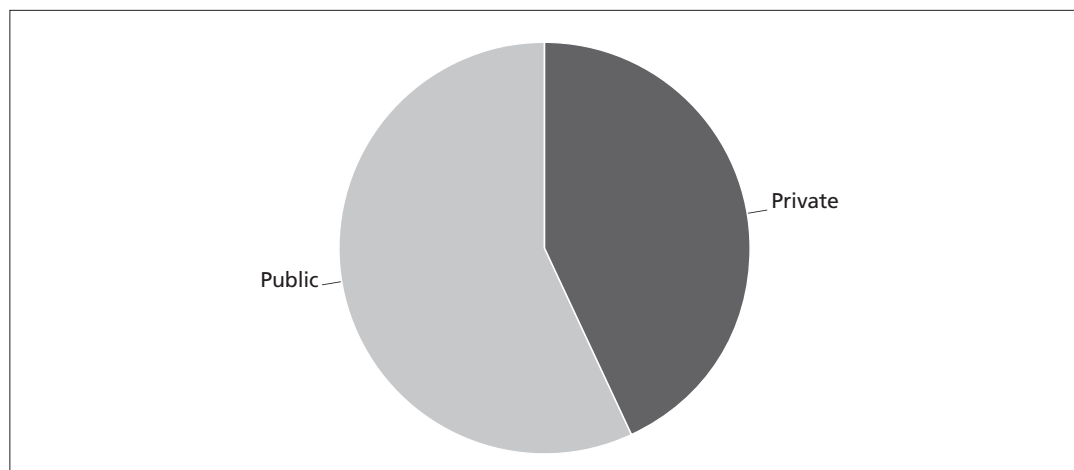


Figure 6
Employee survey
responses by
economic sector



The overall response rate may have been affected by ‘survey fatigue’, as a number of key contacts reported that the questionnaire for this project was one of a number that had been distributed over the previous year in their organisations. Overexposure to the survey process is widely regarded as a reason for people not responding,⁵⁹ and recent experimental work has shown that multiple surveys do appear to suppress response rates.⁶⁰

3.6 Descriptive statistics

3.6.1 Data screening

The data were first screened to check for input errors and outliers. The next stage was to check assumptions of normality for the main study outcomes. Five of the SF-36 subscales were found to be skewed and impervious to transformations, and were therefore dropped from the analysis. However, the general health, mental health and vitality subscales were more normally distributed, so the analyses proceeded using these three outcomes.

3.6.2 Descriptive statistics

3.6.2.1 Organisational outcomes

As outlined in Section 2.6, participating companies were asked to provide data on a number of objective organisational performance indices:

- profit margin
- staff turnover
- number of reportable accidents over the previous 12 months
- number of non-reportable accidents over the previous 12 months
- total number of accidents
- number of days lost due to accident or injury over the previous 12 months
- number of days lost due to sickness absence over the previous 12 months.

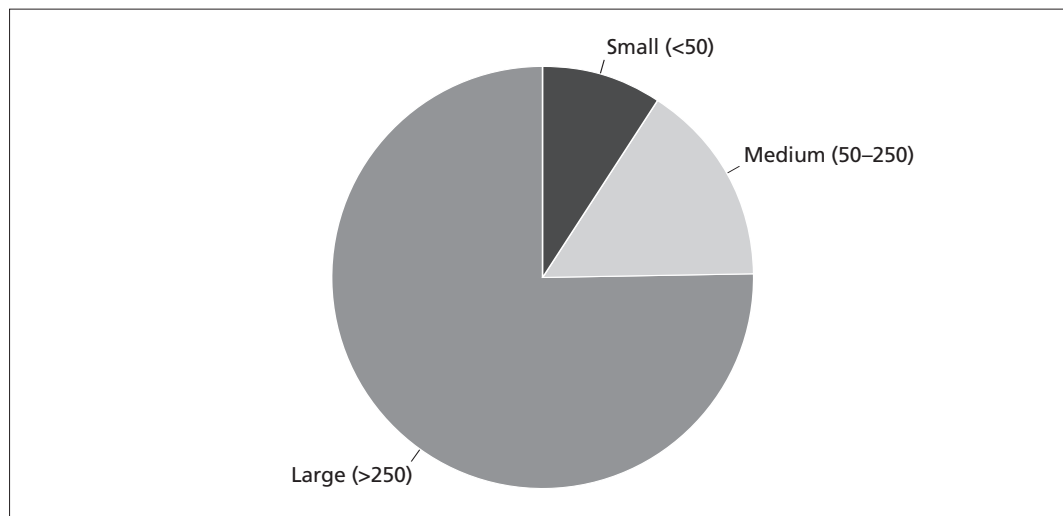


Figure 7
Employee survey responses by organisation size

Organisational outcome	Mean	Standard deviation	Sample size
Profit margin (%)	11.81	4.91	12
Staff turnover (%)	11.72	11.31	28
Reportable accidents per head	0.01	0.02	30
Non-reportable accidents per head	0.09	0.09	29
All accidents per head	0.10	0.10	29
Days lost per head due to accidents	0.18	0.32	25
Days of sickness absence per head	4.51	3.29	22

Table 3
Descriptive statistics for organisational performance outcomes

Table 3 displays the descriptive statistics for the organisational performance outcomes, expressed as explained in Section 2.6 per head of staff.

3.6.2.2 Employee outcomes

As outlined above, the employee survey measured a number of outcomes. Table 4 details the descriptive statistics for the main survey outcomes.

3.6.3 Establishing covariates

The second stage of the preliminary analysis of the employee data was to correlate the demographic and organisational level variables with the main study variables in order to ascertain which should be controlled for as covariates in the final set of analyses. To do this, a series of bivariate correlations

Table 4
Descriptive
statistics for
employee survey
outcomes

Employee outcome	Mean	Standard deviation	Sample size
Health and wellbeing (range 0–100; higher scores = better health)			
General health	72.13	19.15	2023
Mental health	74.79	17.45	2025
Vitality	58.39	19.73	2028
Safety climate (range 2–10; higher scores = more positive culture)			
Management commitment	7.13	2.08	2045
Communication	7.16	1.96	2040
Priority of safety	7.29	2.06	2042
Safety rules and procedures	6.62	1.98	2043
Supportive environment	7.49	1.76	2040
Involvement	6.71	2.06	2035
Personal priorities/need for safety	7.11	1.70	2038
Personal appreciation of risk	6.86	2.11	2040
Physical work environment	6.45	1.77	2035
Job attitudes			
Organisational commitment (range 9–63; higher scores = higher commitment)	46.30	9.22	2013
Job satisfaction (range 1–7; higher scores = higher satisfaction)	5.39	1.33	2048
Intention to quit (range 1–7; higher scores = greater intention to quit)	2.92	1.74	2043
Intrinsic job motivation (range 6–42; higher scores = higher motivation)	35.06	4.73	2040
Performance measures			
Overall performance (range 0–10; higher scores = better performance)	8.09	1.29	1998
Self-reported absence (number of days per head)	0.49	2.69	1963
Self-reported work-related illness (number of illnesses per head)	0.37	0.93	1521

was run between the organisational variables of economic sector, size and industrial sector (SIC code), the individual variables of age, sex, length of employment in job and organisation, job hours, ethnic or national origin, supervisory status, and socio-economic status, and the main study variables. The full correlation matrix is shown in Appendix 4.

All of the variables tested revealed some degree of association with the study outcomes. Of the individual level variables, age, sex, ethnic or national origin, length of employment in job and organisation, job hours, supervisory status and socio-economic status were all associated with either health and wellbeing, job attitudes or safety climate perceptions. Therefore, for all multivariate analyses the following individual level covariates were controlled for:

- age
- sex
- length of employment in job and organisation
- job hours
- ethnicity or national origin
- supervisory status
- socio-economic status.

At the organisational level, economic sector, organisational size and industrial sector were also related to the study variables. This suggests that across public and private sectors, organisational sizes and industrial sectors there are important differences in health and wellbeing, organisational attitudes and safety climate perceptions. These areas will now be considered in turn, with the next section examining how these organisational variables affect the main study outcomes (eg health and wellbeing).

4 Results: size and sector comparisons

4.1 Section rationale

This section focuses on the influence of sector (economic and industrial) and organisational size on organisational performance outcomes and subjective employee outcomes. It shows a number of analyses aimed at establishing how organisations of different sectors and sizes varied in their objective outcomes such as accident and absence rates, as well as staff attitudes, safety climate perceptions and health and wellbeing. This will serve not only as a descriptive account of the project data, but will also inform the final analysis by suggesting how these differences could be statistically controlled for when considering whether a proactive approach to management is associated with benefits for employers and employees alike.

4.2 Do organisational and employee level outcomes differ between public and private sectors?

The first set of analyses examined how the organisational and employee outcomes varied between the public and private sector organisations in the sample.

4.2.1 Organisational outcomes

A series of *t*-tests was run to compare how the economic sector affected organisational performance, accident and absence indices. No significant differences between the public and private sectors were found for any of the organisational variables. These findings are summarised in Table 5.

4.2.2 Employee outcomes

The next stage of analysis involved the comparison of employee outcomes (eg job satisfaction, safety climate perceptions) between public and private sectors. As described in Section 2, the method of analysis used to address this question was a MANCOVA. This method allowed the comparison of each employee outcome to be conducted simultaneously within one analysis, while controlling for other variables that might influence the outcomes under scrutiny. In this instance it would help to answer the question of whether employees in public sector organisations report more positive organisational attitudes than those in the private sector, over and above the impact of covariates such as length of employment and supervisory status.

In addition to the above test, the first of the work-related illness questions asked in the employee survey – whether the employee had suffered an illness, disability, or other physical or mental problem that they believed was caused or made worse by their job – was examined using a chi-square test, to establish whether the frequency of those answering ‘yes’ and ‘no’ differed significantly across sectors.

In terms of the MANCOVA, the multivariate test showed a significant effect of sector on the employee outcomes, $F(20, 1098) = 5.047, p < 0.001$. The test of between subject effects revealed a number of significant differences between the public and private sector organisations, a summary of which is illustrated in Table 6.

Table 5
Organisational
performance
outcomes by
economic sector

Organisational outcome	<i>t</i>	df	<i>p</i>	Economic sector mean scores	
				Public	Private
Staff turnover (%)	0.654	26	NS*	13.78	10.75
Reportable accidents (per head)	−0.847	28	NS	0.01	0.02
Non-reportable accidents (per head)	−1.603	26.65	NS	0.06	0.10
All accidents (per head)	−1.832	26.98	NS	0.06	0.12
Days lost per head to accident or injury	−1.453	21.163	NS	0.08	0.24
Days lost per head to sickness absence	1.105	20	NS	5.53	3.93

* NS = not significant

Table 6 shows a number of differences between the public and private sectors across the survey outcomes. The public sector organisations reported lower health scores for vitality only – no significant differences were reported for general or mental health. Public sector employees reported lower safety climate perceptions across all nine facets compared with private sector employees. There were no significant differences in terms of organisational and job attitudes between the sectors. In terms of self-reported performance outcomes, only the work-related illness variable proved significant, with employees in public sector organisations reporting more work-related illnesses per head over the previous 12 months.

Figures 8–10 illustrate the significant differences between the sectors in terms of health and wellbeing, safety climate perceptions and self-reported work-related illness.

The final chi-square test to determine whether there were significantly different numbers reporting an illness, disability, or other physical or mental problem that they believed was caused or made worse by their job showed a significant difference on the basis of sector: $\chi^2(1, n = 2028) = 39.283(1)$, $p < 0.001$. Figure 11 illustrates that more employees in the public sector report an illness, physical or mental health problem that they believe was caused or made worse by work.

Employee outcome*	F	df	p	Economic sector mean scores	
				Public	Private
Health and wellbeing					
General health	3.486	1	NS	75.27	70.50
Mental health	3.298	1	NS	78.04	73.05
Vitality	9.987	1	<0.01	62.80	55.01
Safety climate					
Management commitment	20.043	1	<0.001	7.57	6.71
Communication	13.103	1	<0.001	7.55	6.70
Priority of safety	49.882	1	<0.001	7.86	6.70
Safety rules and procedures	18.275	1	<0.001	6.92	6.30
Supportive environment	11.974	1	<0.001	8.02	7.02
Involvement	5.916	1	<0.05	7.30	6.17
Personal priorities/need for safety	6.760	1	<0.01	7.61	6.67
Personal appreciation of risk	46.214	1	<0.001	7.38	6.39
Physical work environment	17.329	1	<0.001	6.72	6.10
Job attitudes					
Organisational commitment	1.962	1	NS	47.33	45.44
Job satisfaction	0.791	1	NS	5.46	5.30
Intention to quit	0.571	1	NS	2.79	3.02
Intrinsic job motivation	0.063	1	NS	35.39	35.23
Performance measures					
Overall performance	0.392	1	NS	8.06	8.03
Self-reported absence	0.060	1	NS	0.20	0.41
Self-reported work-related illness	8.939	1	<0.01	0.22	0.43

Table 6
Employee
outcomes by
economic sector

* See Table 4 for detailed definitions of the outcomes

Figure 8
Average vitality
scores by economic
sector

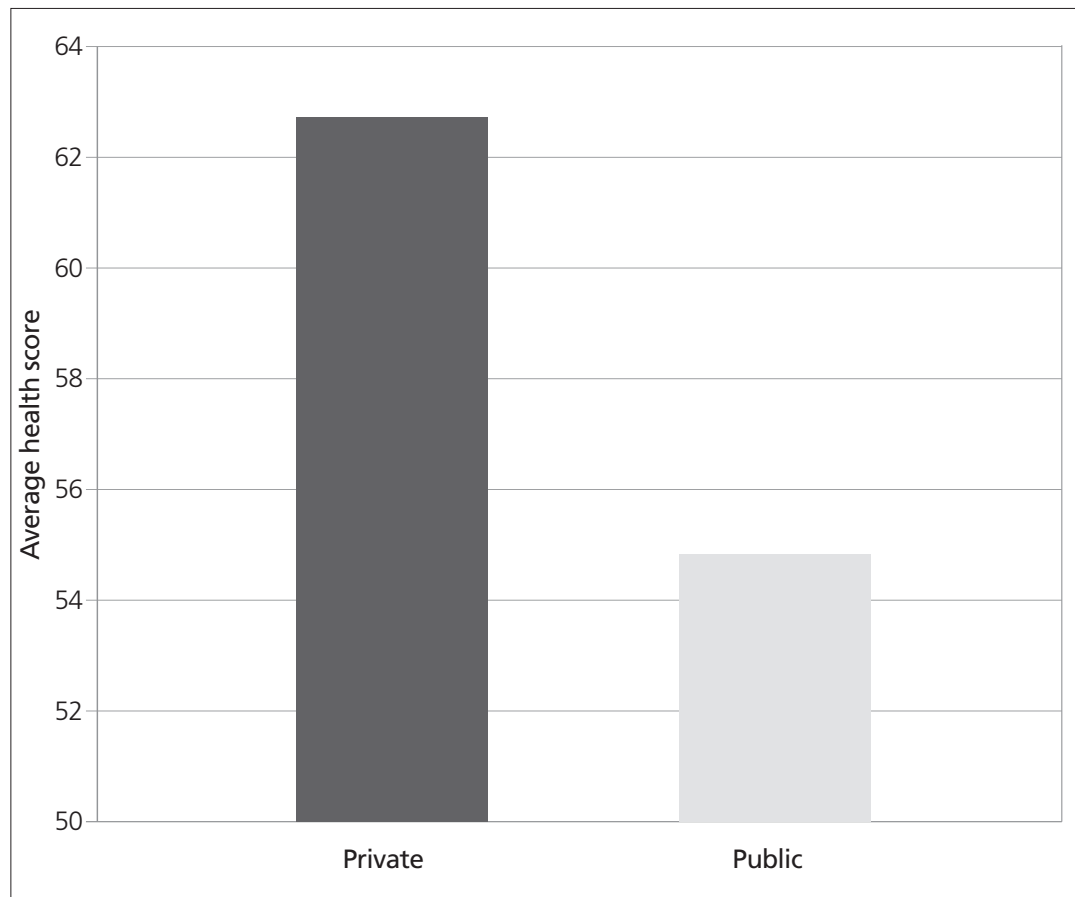
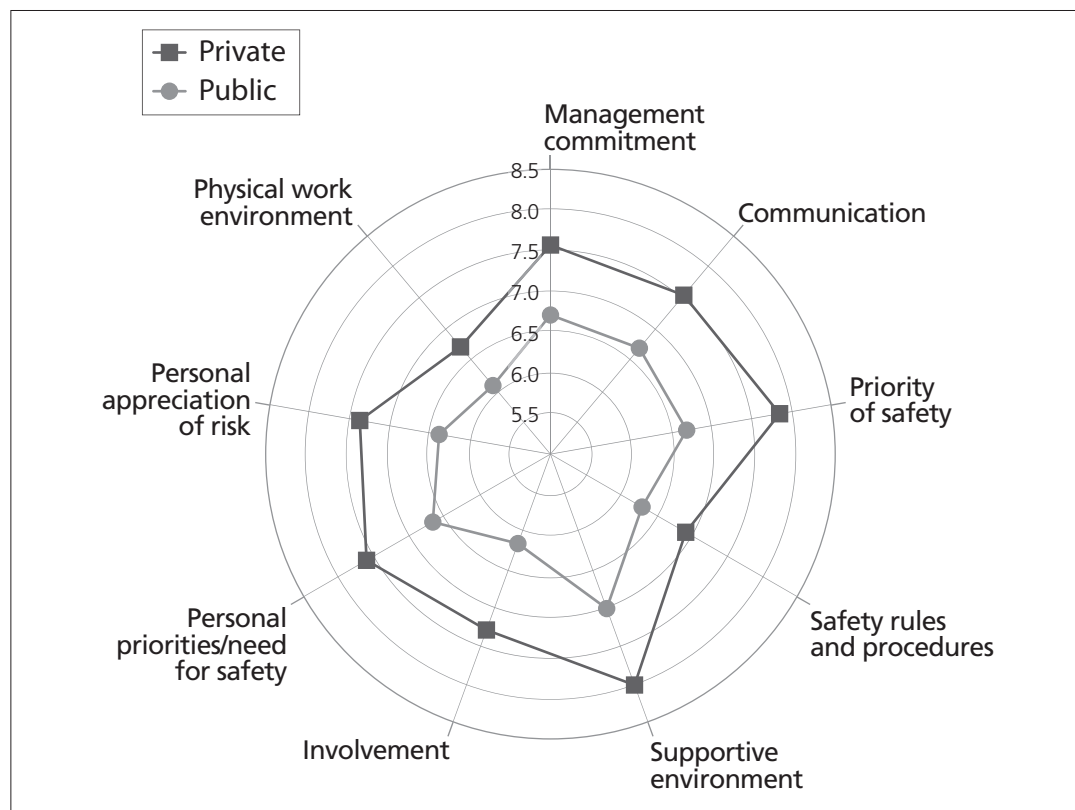


Figure 9
Safety climate
facet scores by
economic sector



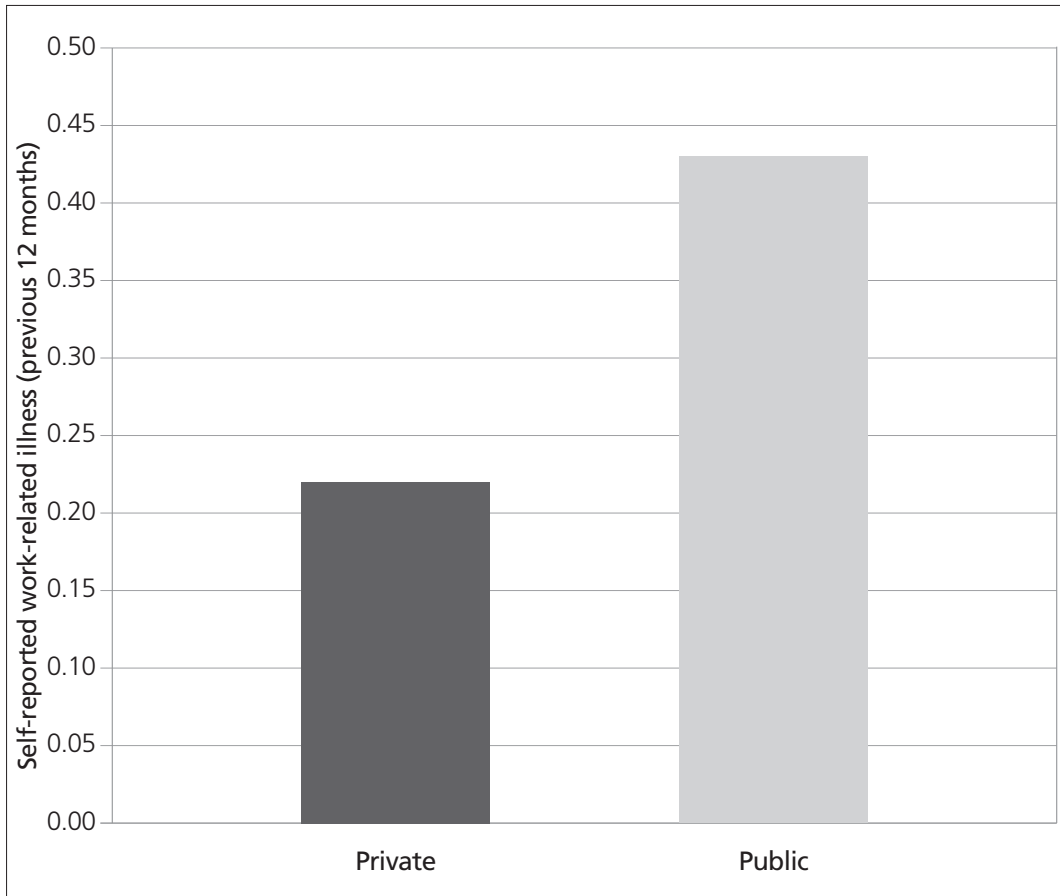


Figure 10
Average number of self-reported work-related illnesses per employee, by economic sector

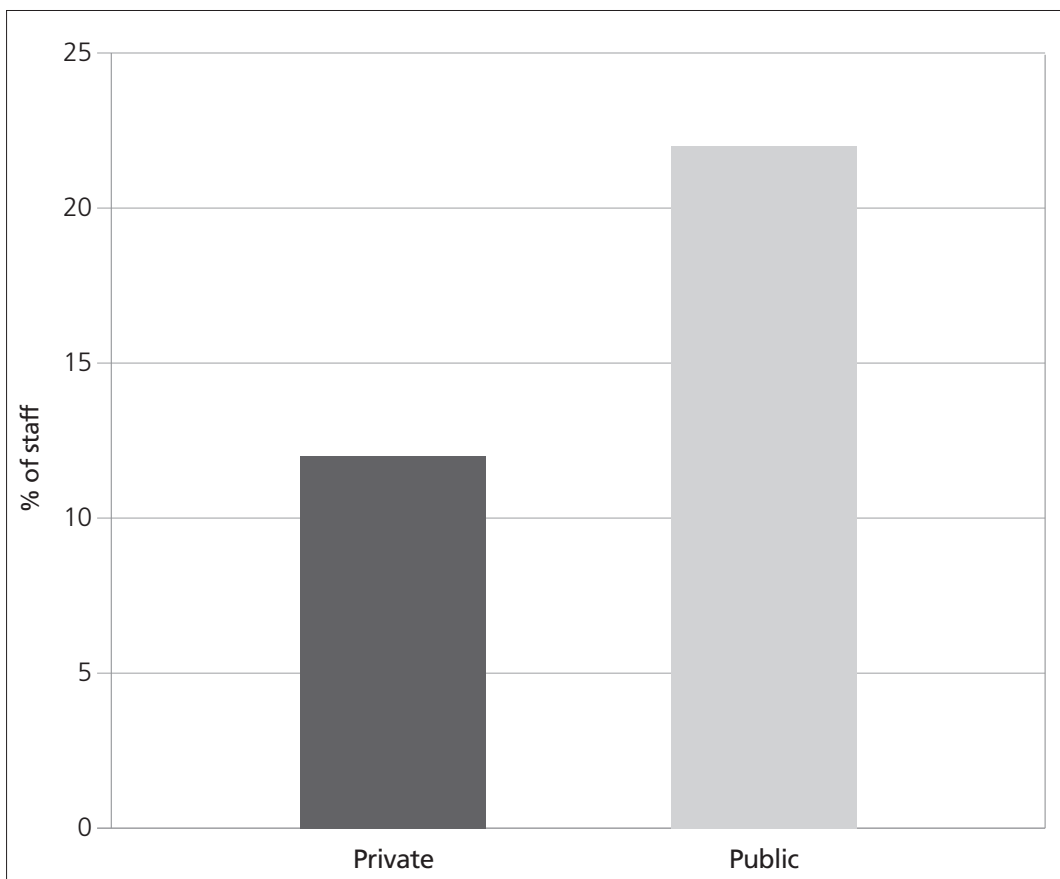


Figure 11
Percentage of staff reporting an illness, disability, or physical or mental health problem that they believe was caused or made worse by work, by economic sector

4.3 Does organisational size affect organisational and employee outcomes?

The second set of analyses examined how the organisational and employee outcomes varied between organisations according to their size.

Because fewer survey responses were received from small and medium-sized organisations (192 small; 320 medium) than from large organisations (1,555), it was decided to combine the responses from the small and medium organisations to create a 'small/medium' group. Therefore, the analysis of the employee outcomes proceeded using two categories. In order to maintain equivalence across the analyses, the organisational outcomes were also compared across small/medium and large organisation groupings.

4.3.1 Organisational outcomes

A series of *t*-tests was run to compare how organisational size was related to the performance, accident and absence indices measured in the study. Table 7 outlines the results of these analyses. Only one of the organisational performance indicators showed a significant difference between small/medium and large organisations. Large organisations reported an average staff absence per head of over twice that of small/medium organisations. Figure 12 illustrates this significant finding. There were no significant differences in any of the other organisational outcomes between small/medium and large organisations.

4.3.2 Employee outcomes

The next analysis compared the employee survey outcomes by organisational size. To do this, a further MANCOVA analysis was conducted to determine whether the employee outcomes differed between small/medium and large organisations. The multivariate test showed that organisational size has a significant effect on the employee outcomes: $F(20, 1098) = 2.829, p < 0.001$. The test of between subject effects revealed a number of significant differences between the small/medium and large organisations, a summary of which is illustrated in Table 8.

As for sector, the between subject effects of the MANCOVA revealed a number of significant differences between employees in small/medium and large organisations. Employees from larger organisations reported significantly higher levels of mental health and vitality compared with employees from SMEs. This suggests that working in larger organisations may promote better mental health and lower levels of fatigue.

The picture on safety climate was slightly different. For three of the climate perception facets there were significant differences between small/medium and large organisations, with employees in large organisations reporting poorer safety climate perceptions. It seems that in larger organisations employees felt that safety rules and procedures were less important or necessary, felt less involved in the process of OSH management, and identified working safely as less of a personal priority than those in smaller organisations.

Table 7
Organisational
performance
outcomes by size
of organisation

Organisational outcome	<i>t</i>	df	<i>p</i>	Mean scores by organisational size	
				Small/medium	Large
Profit margin (%)	0.623	10	NS*	12.33	10.23
Staff turnover (%)	0.039	26	NS	11.78	11.59
Reportable accidents (per head)	0.079	28	NS	0.01	0.01
Non-reportable accidents (per head)	1.110	26.04	NS	0.10	0.07
All accidents (per head)	1.139	26.29	NS	0.11	0.08
Days lost per head to accident or injury	0.308	23	NS	0.20	0.15
Days lost per head to sickness absence	2.976	20	<0.01	3.16	6.87

* NS = not significant

As far as organisational and job attitudes were concerned, the only significant difference was in intention to quit the organisation. Employees in larger organisations reported less desire to leave their job and the organisation.

Lastly, with respect to the self-reported performance measures, the only significant difference between the groups was in work-related illness. Employees in small/medium organisations reported a higher number of work-related illnesses per head over the previous 12 months than those in larger organisations. Figures 13–16 illustrate the significant differences in the employee outcomes between small/medium and large organisations.

The final analysis was a chi-square test to determine how often employees reported experiencing an illness, disability, physical or mental health problem that had been caused or made worse by their job in small/medium and large organisations. The test showed no significant difference between organisational sizes for this criterion.

4.4 Are there differences in organisational and employee outcomes between industries?

The last organisational variable to be considered is the industrial sector. Organisational outcomes could not be statistically compared due to the small number of cases (organisations) within each comparison group (industries). Therefore, the analysis proceeded with a series of *t*-tests to examine how each of the industries are different across employee outcomes only. To illustrate the differences between industries in the employee variables, the following sections will detail the analyses of how organisations across industrial sectors compare in terms of health and wellbeing outcomes, general safety climate perceptions, organisational commitment and self-reported overall performance.

4.4.1 Health and wellbeing

The first employee outcome analysed was health and wellbeing, with 28 *t*-tests run to establish how the industries differed across the three health and wellbeing subscales. Tables 9–11 outline the results of these analyses, while Figure 17 shows the differences between the industries in terms of general health, mental health and vitality.

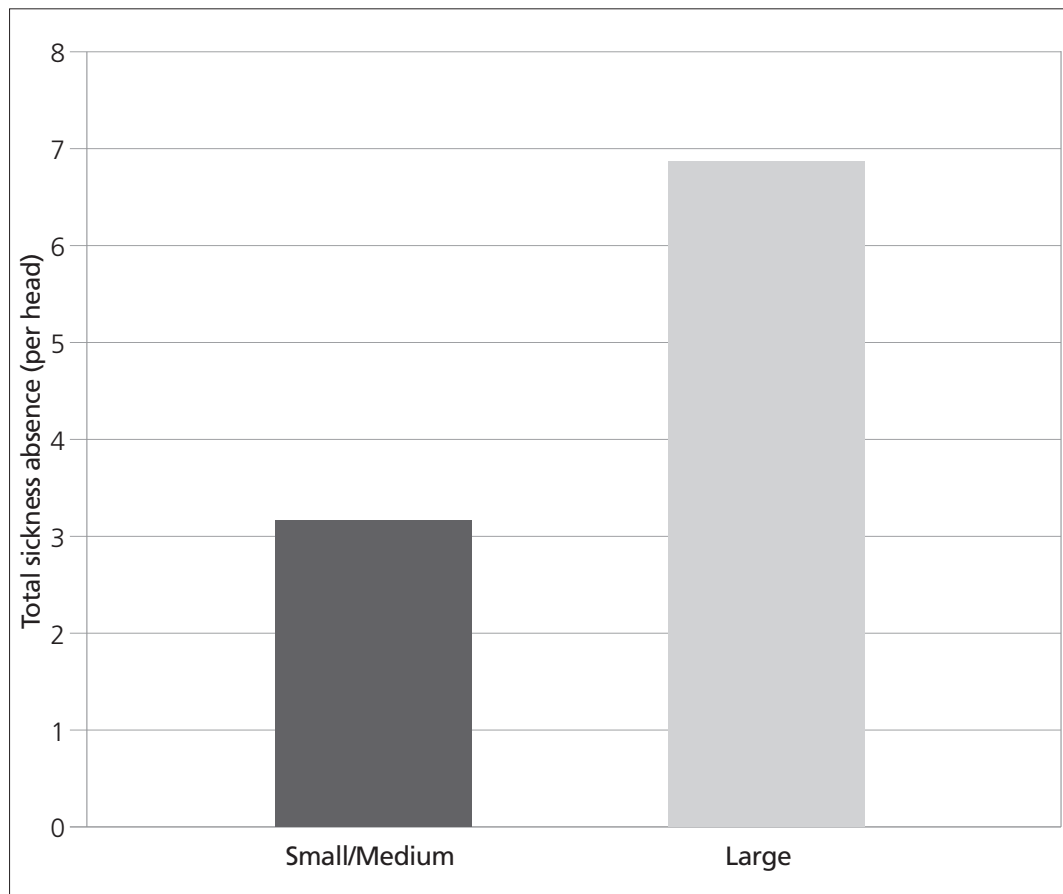


Figure 12
Total sickness
absence per head
over previous 12
months, by
organisation size

The analyses of the health and wellbeing outcomes highlight a number of differences between industries. General health displayed the most consistency across industrial sectors, with only two significant differences found. Employees in public administration and defence showed lower levels of general health when compared with employees in both construction and property development, renting and business activities sectors.

The greatest number of differences between industrial sectors was in mental health. Employees from the property development, renting and business activities sector reported the best levels of mental health, which were significantly higher than those in the manufacturing, public administration and defence, education, and other community, social and personal service activities sectors. Construction workers reported the second best levels of mental health, which were significantly greater than those in the public administration and defence, and other community social and personal service activities sectors. Employees in the electricity, gas and water sector reported the third highest levels of mental health, which were also significantly higher than those in the public administration and defence, and other community, social, and personal service activities sectors, as well as education.

Table 8
Employee
outcomes by
organisation size
(small/medium vs
large)

Employee outcome*	F	df	p	Mean scores by organisational size	
				Public	Private
Health and wellbeing					
General health	2.017	1	NS	71.22	73.01
Mental health	7.282	1	<0.01	71.54	76.06
Vitality	5.972	1	<0.05	54.43	59.41
Safety climate					
Management commitment	1.468	1	NS	7.30	7.08
Communication	0.171	1	NS	7.18	7.08
Priority of safety	0.667	1	NS	7.38	7.23
Safety rules and procedures	6.527	1	<0.05	6.87	6.54
Supportive environment	0.899	1	NS	7.57	7.48
Involvement	7.100	1	<0.01	6.96	6.66
Personal priorities/need for safety	8.614	1	<0.01	7.40	7.07
Personal appreciation of risk	1.454	1	NS	6.62	6.89
Physical work environment	2.167	1	NS	6.58	6.36
Job attitudes					
Organisational commitment	1.100	1	NS	45.40	46.49
Job satisfaction	1.256	1	NS	5.29	5.38
Intention to quit	3.921	1	<0.05	3.21	2.91
Intrinsic job motivation	1.147	1	NS	35.38	35.29
Performance measures					
Overall performance	0.110	1	NS	8.09	8.04
Self-reported absence	1.256	1	NS	0.46	0.29
Self-reported work-related illness	27.816	1	<0.001	0.62	0.28

* See Table 4 for detailed definitions of the outcomes

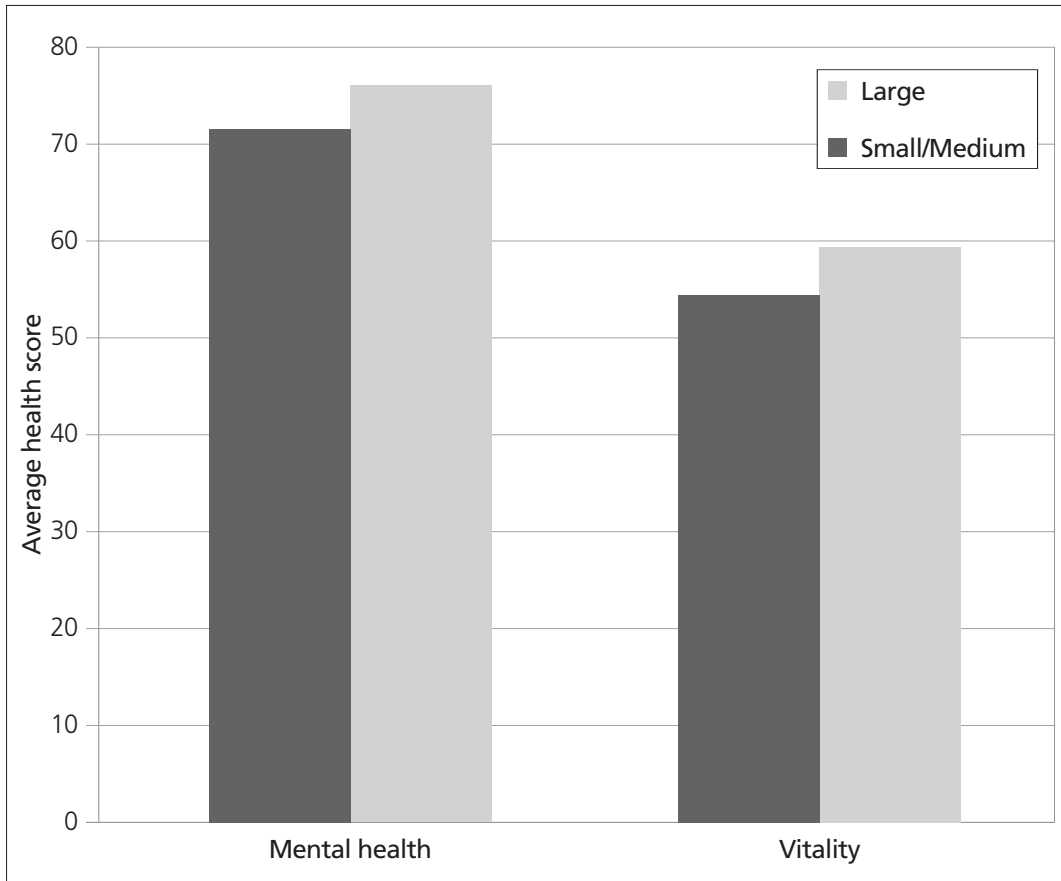


Figure 13
Mental health and vitality scores by organisation size

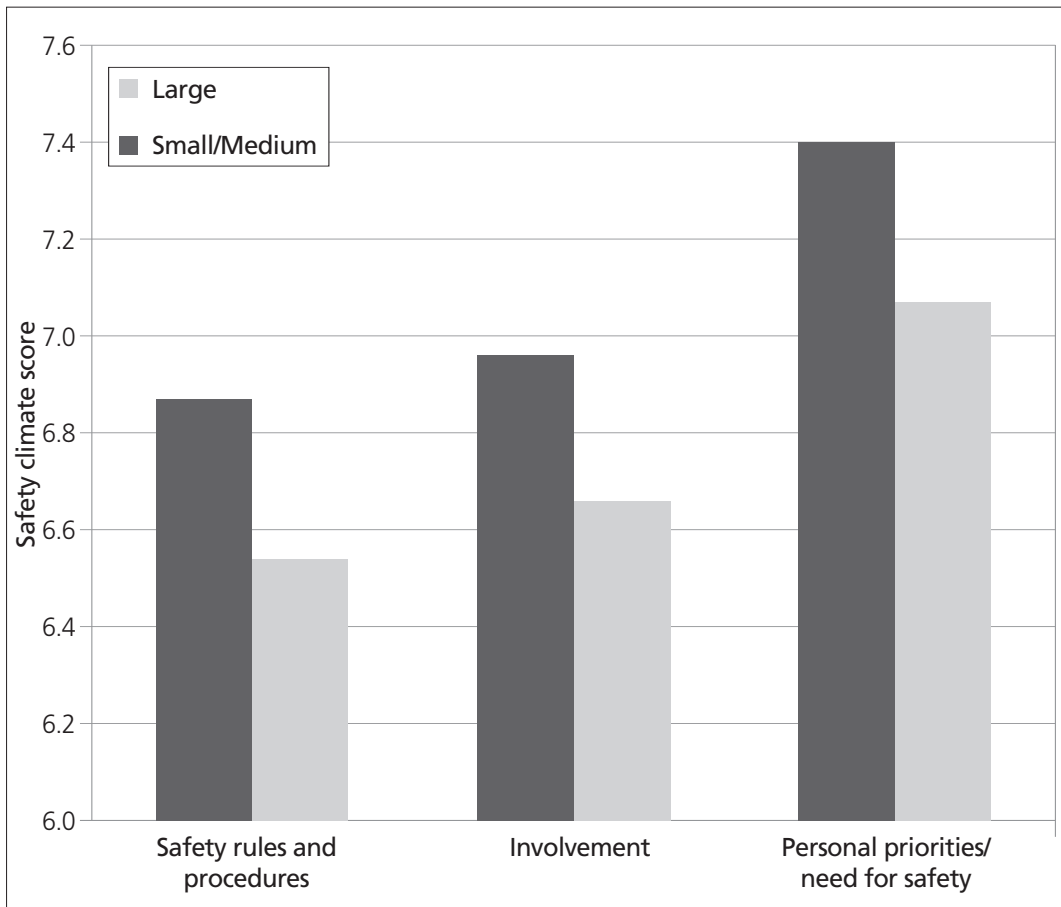


Figure 14
Safety climate scores by organisation size

Figure 15
Employees'
intention to quit by
organisation size

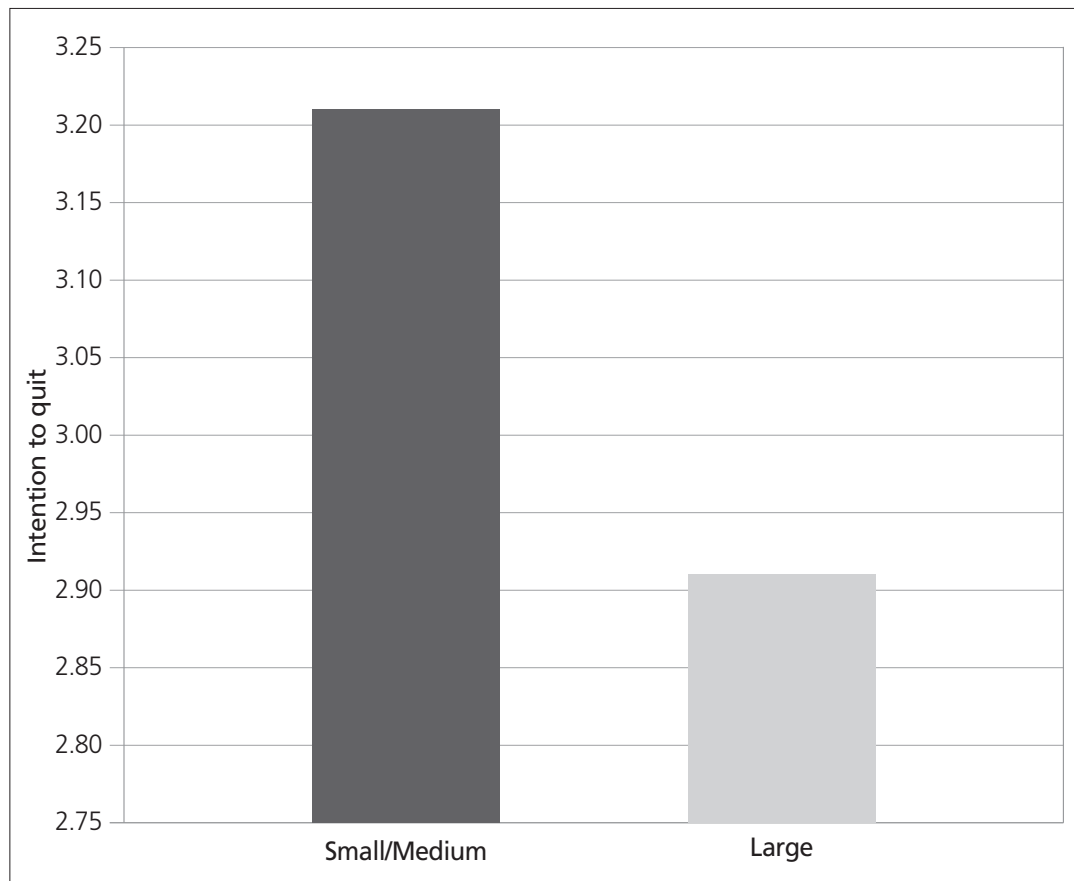
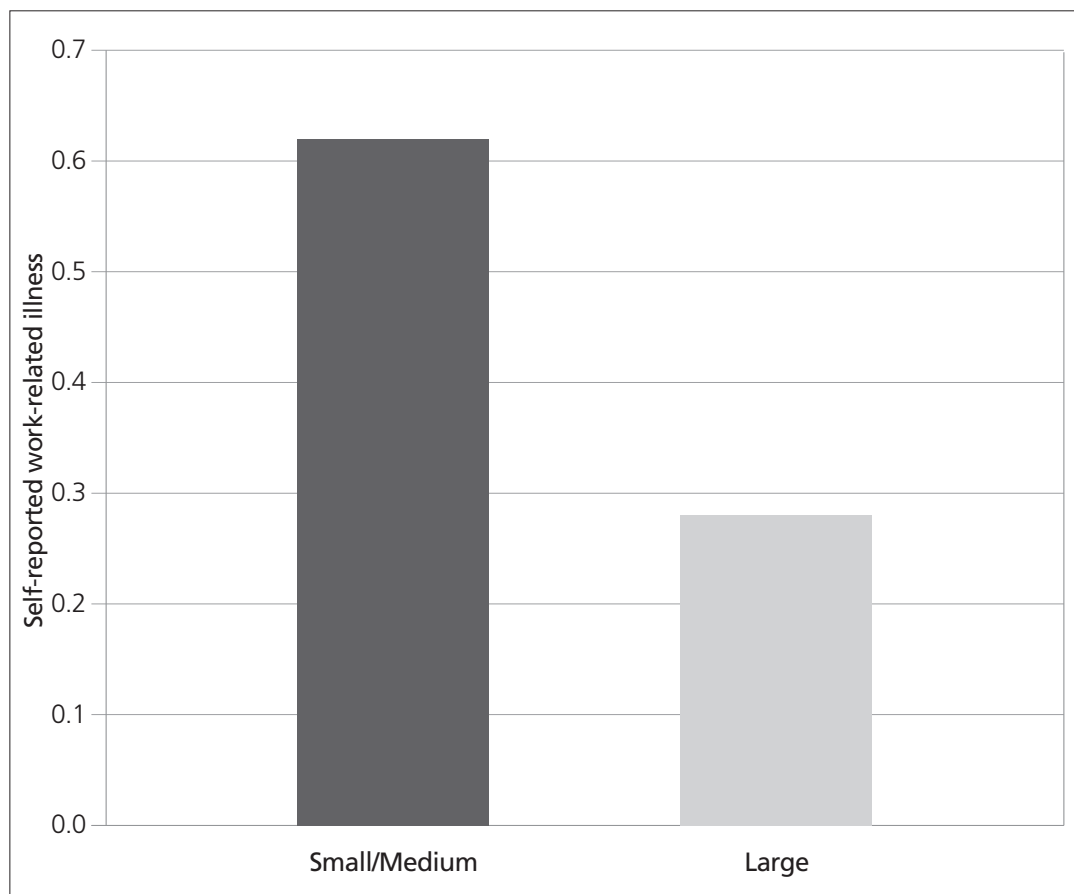


Figure 16
Average number of
self-reported work-
related illnesses per
employee per year,
by organisation
size



	Manufacturing	Electricity, gas and water	Construction	Property development, renting and business activities	Public administration and defence	Education	Health and social work	Other community/ personal activities
Mean score	71.14	73.46	76.00	74.08	70.11	72.08	62.75	71.85
Manufacturing								
Electricity, gas and water	NS							
Construction	NS	NS						
Property development, renting and business activities	NS	NS	NS					
Public administration and defence	NS	NS	$t(747) = 1.98$ $p < 0.05$	$t(1315) = 3.83$ $p < 0.05$				
Education	NS	NS	NS	NS	NS			
Health and social work	NS	NS	NS	NS	NS	NS		
Other community/ personal activities	NS	NS	NS	NS	NS	NS	NS	

Table 9
General health –
t-test results for
industrial sector
comparisons

Table 10
Mental health –
t-test results for
industrial sector
comparisons

	Manufacturing	Electricity, gas and water	Construction	Property development, renting and business activities	Public administration and defence	Education	Health and social work	Other community/ personal activities
<i>Mean score</i>	72.94	77.15	77.35	77.99	72.78	73.36	68.75	69.92
Manufacturing								
Electricity, gas and water	NS							
Construction	NS	NS						
Property development, renting and business activities	$t(708) = -2.9$ $p < 0.01$	NS	NS					
Public administration and defence	NS	$t(206) = 2.695$ $p < 0.01$	$t(61) = 2.15$ $p < 0.05$	$t(1301) = 5.51$ $p < 0.001$				
Education	NS	$t(496) = 2.17$ $p < 0.05$	NS	$t(675) = 4.20$ $p < 0.001$	NS			
Health and social work	NS	NS	NS	NS	NS	NS		
Other community/ personal activities	NS	$t(198) = 2.47$ $p < 0.01$	$t(112) = 2.44$ $p < 0.05$	$t(73) = 3.37$ $p < 0.01$	NS	NS	NS	

	Manufacturing	Electricity, gas and water	Construction	Property development, renting and business activities	Public administration and defence	Education	Health and social work	Other community/ personal activities
Mean score	58.08	62.03	60.46	63.10	55.14	55.60	40.62	56.25
Manufacturing								
Electricity, gas and water	NS							
Construction	NS	NS						
Property development, renting and business activities	$t(711) = -2.62$ $p < 0.01$	NS	NS					
Public administration and defence	NS	$t(210) = 3.77$ $p < 0.001$	NS	$t(1314) = 7.31$ $p < 0.001$				
Education	NS	$t(499) = 3.42$ $p < 0.05$	NS	$t(706) = 6.32$ $p < 0.001$	NS			
Health and social work	NS	$t(137) = 2.25$ $p < 0.05$	NS	$t(623) = 2.65$ $p < 0.01$	NS	NS		
Other community/ personal activities	NS	$t(199) = 2.02$ $p < 0.05$	NS	$t(685) = 3.09$ $p < 0.01$	NS	NS	NS	

Table 11
Vitality – *t*-test
results for
industrial sector
comparisons

Vitality also showed differences in the inter-sector comparisons. As with mental health, employees in the property development, renting and business activities sector reported the highest levels of vitality, and similar significant differences were found between this sector and manufacturing, public administration and defence, education, and other community, social, and personal service activities. Unlike with mental health, employees in the electricity, gas and water sector showed the next highest levels of vitality, but again similar significant differences were found, with employees in this sector reporting higher vitality than those in the public administration and defence, education and other community, social, and personal service activities sectors, as well as health and social work. No significant differences were found between the other industries.

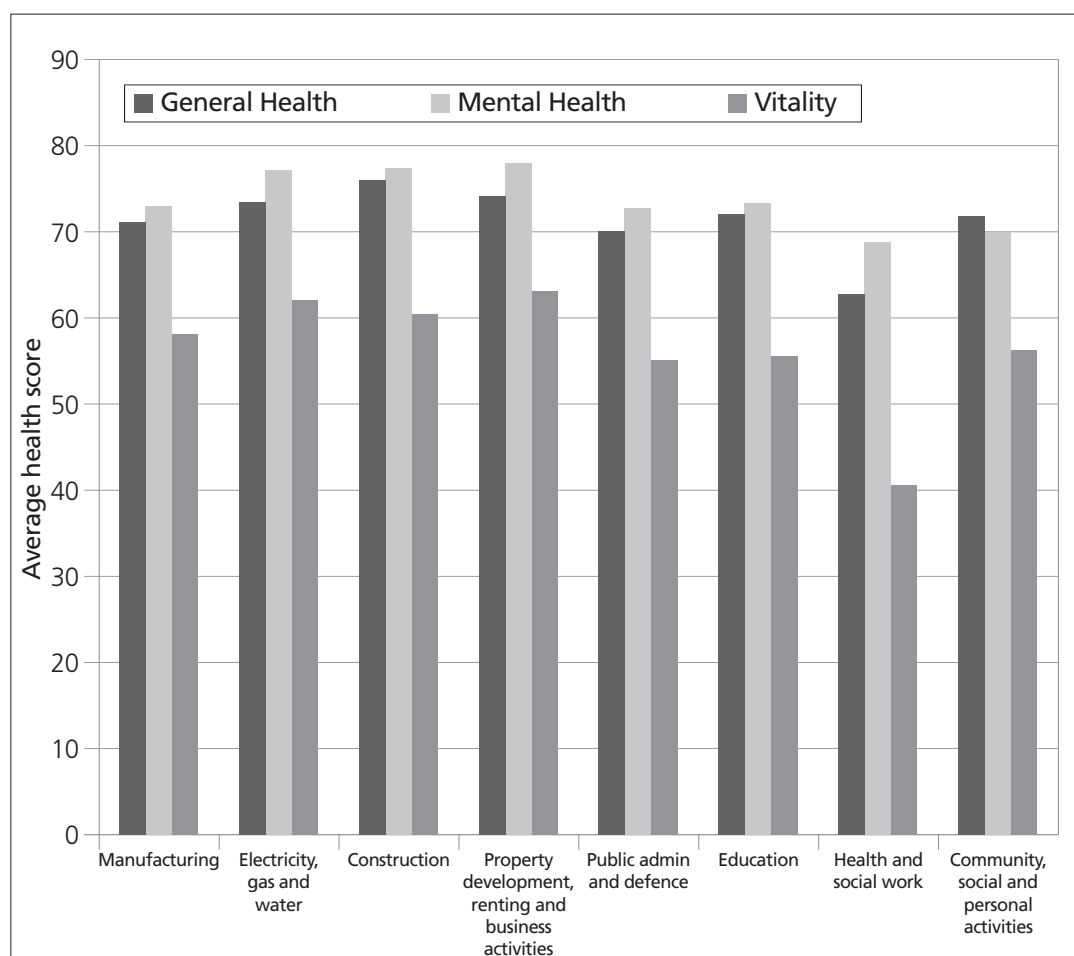
4.4.2 Safety climate

Before considering the differences in safety climate, it was necessary to reach an average of the scores on the nine facets. A further set of *t*-tests was run to analyse the differences between the industrial sectors. Table 12 summarises the results of the *t*-tests and Figure 18 details how the industries differed in terms of average levels of safety climate perceptions.

Across the nine safety climate facets, employees in the construction industry reported the most positive climate perceptions, which were significantly higher than those in manufacturing, property development, renting and business activities, public administration and defence, education and other community social and personal service activities. Employees in the electricity, gas and water sector showed the second highest safety climate scores, which were significantly higher than those in manufacturing, public administration and defence, education, and other community, social, and personal service activities.

The public administration and defence sector showed the lowest safety climate perceptions, significantly lower than all the other sectors except for health and social work. Education was second only to public administration and defence, with employees in this sector reporting safety climate perceptions significantly lower than those in manufacturing, property development, renting and business activities, and other community, social, and personal service activities. (See Table 12.)

Figure 17
General health,
mental health and
vitality scores by
industrial sector



	Manufacturing	Electricity, gas and water	Construction	Property development, renting and business activities	Public administration and defence	Education	Health and social work	Other community/ personal activities
Mean score	7.27	7.91	8.05	7.26	6.53	6.72	7.61	7.34
Manufacturing								
Electricity, gas and water	$t(225) = -3.87$ $p < 0.001$							
Construction	$t(137) = -3.49$ $p < 0.01$	NS						
Property development, renting and business activities	NS	$t(739) = 6.01$ $p < 0.001$	$t(651) = 4.62$ $p < 0.001$					
Public administration and defence	$t(769) = 4.91$ $p < 0.001$	$t(814) = 11.04$ $p < 0.001$	$t(726) = 7.53$ $p < 0.001$	$t(1277) = 10.50$ $p < 0.001$				
Education	$t(436) = 3.64$ $p < 0.001$	$t(481) = 9.35$ $p < 0.001$	$t(393) = 6.77$ $p < 0.001$	$t(650) = 6.54$ $p < 0.001$	$t(1025) = -2.15$ $p < 0.05$			
Health and social work	NS	NS	NS	NS	NS	NS		
Other community/ personal activities	NS	$t(198) = 3.26$ $p < 0.01$	$t(110) = 3.26$ $p < 0.01$	NS	$t(83) = -5.58$ $p < 0.001$	$t(409) = -3.61$ $p < 0.001$	NS	

Table 12
Average safety climate – t-test results for industrial sector comparisons

4.4.3 Organisational attitudes – organisational commitment

In order to examine how industries differ in organisational attitudes, organisational commitment was identified as an exemplar, and a further set of *t*-tests was run to analyse the differences between the industrial sectors. Figure 19 illustrates how the industries differed in organisational commitment scores.

Table 13 summarises the results of the *t*-test analyses. As with safety climate, it was found that workers in the construction sector reported the highest levels of organisational commitment. However, this was found to be significantly higher only than the public administration and defence sector. Electricity, gas and water sector employees reported the second highest levels of commitment to their organisation, and this was found to be significantly higher than in manufacturing, property development, renting and business activities, public administration and defence, education, and other community, social, and personal service activities.

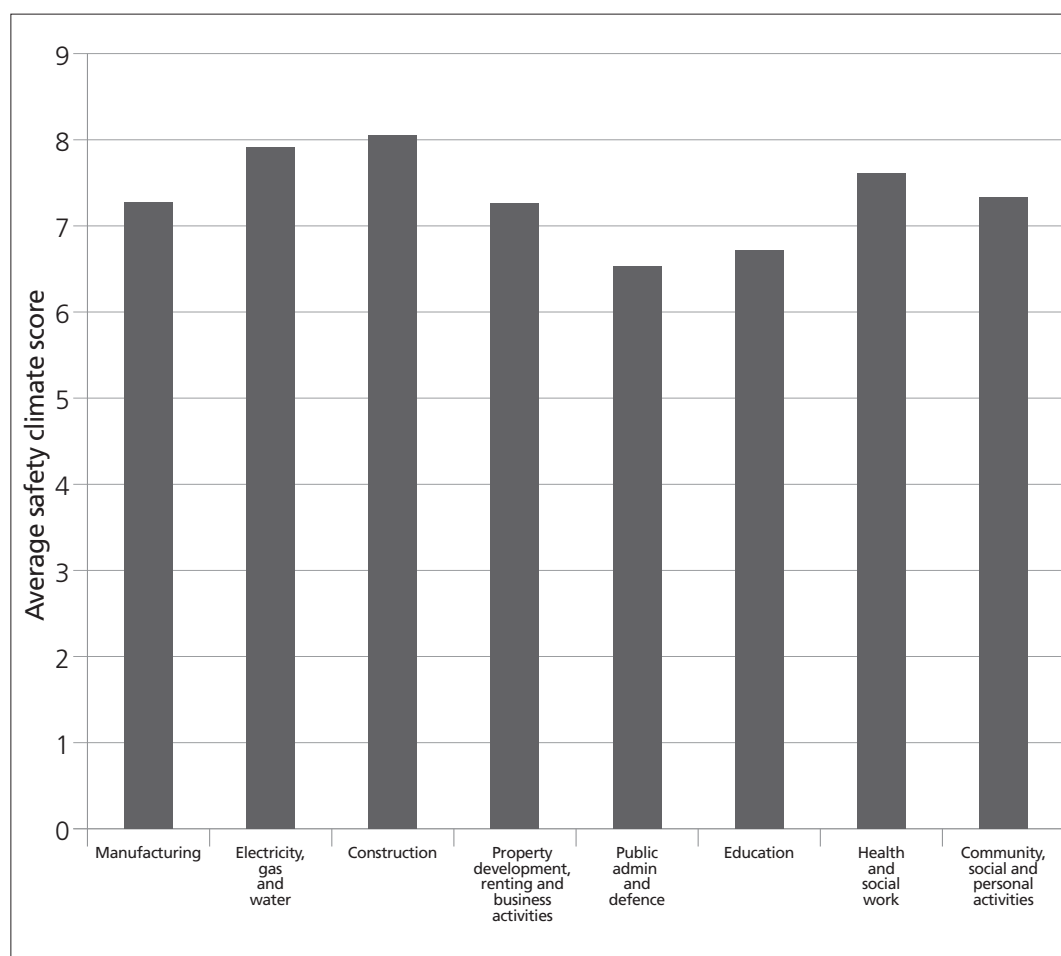
Workers in the property development, renting and business activities sector were also found to be significantly more committed to their organisations than those in the public administration and defence sector. As with safety climate, public administration and defence workers showed the lowest organisational commitment, with significantly lower levels than all but three sectors (electricity, gas and water; health and social work; and education).

4.4.4 Employee performance outcomes – overall performance

In order to examine how industries differ in employee performance outcomes, a set of *t*-tests was run to analyse the differences between the industrial sectors in terms of employees' self-reported overall performance. Figure 20 shows how self-reported overall performance assessments (over the previous four weeks) differed across industrial sectors.

Table 14 describes the results of the analyses. Fewer differences were found for self-reported performance than for the other variables analysed. Workers from the construction industry rated

Figure 18
Safety climate
scores (averaged
across the nine
facets) by industrial
sector



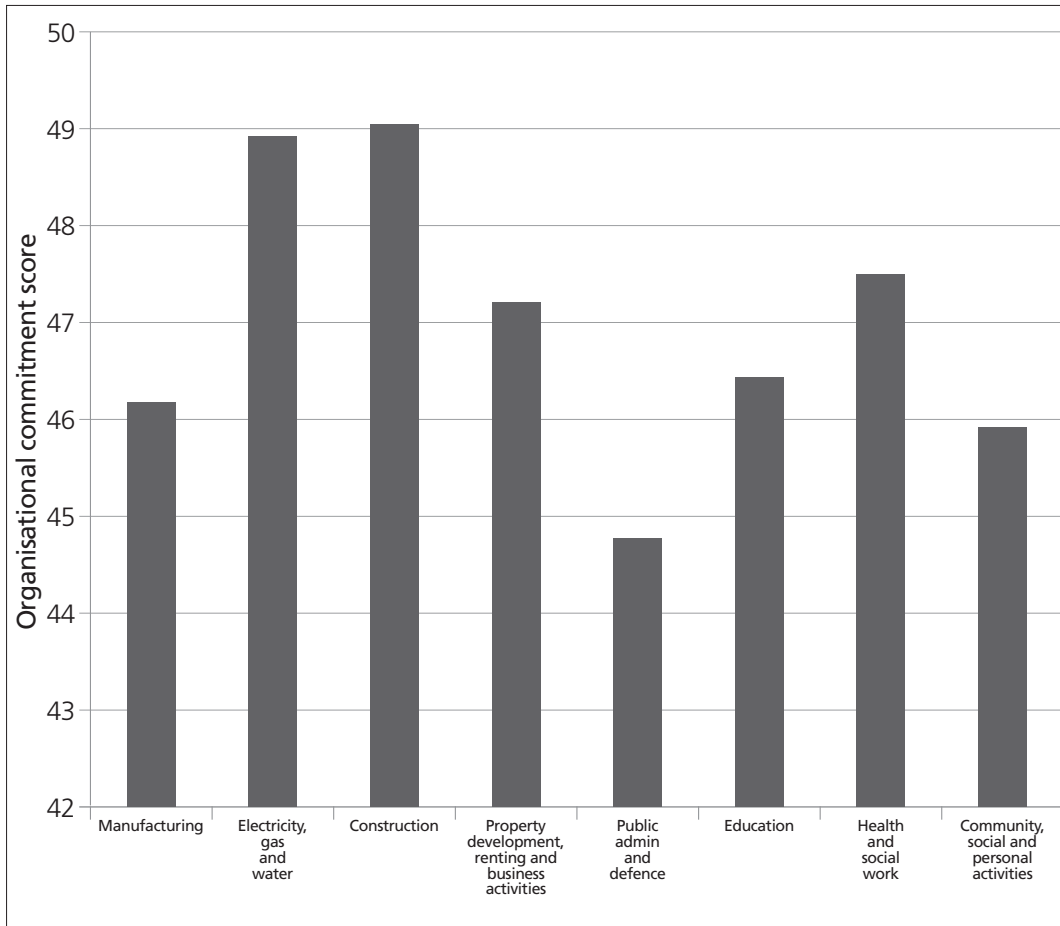


Figure 19
Organisational
commitment
scores by industrial
sector

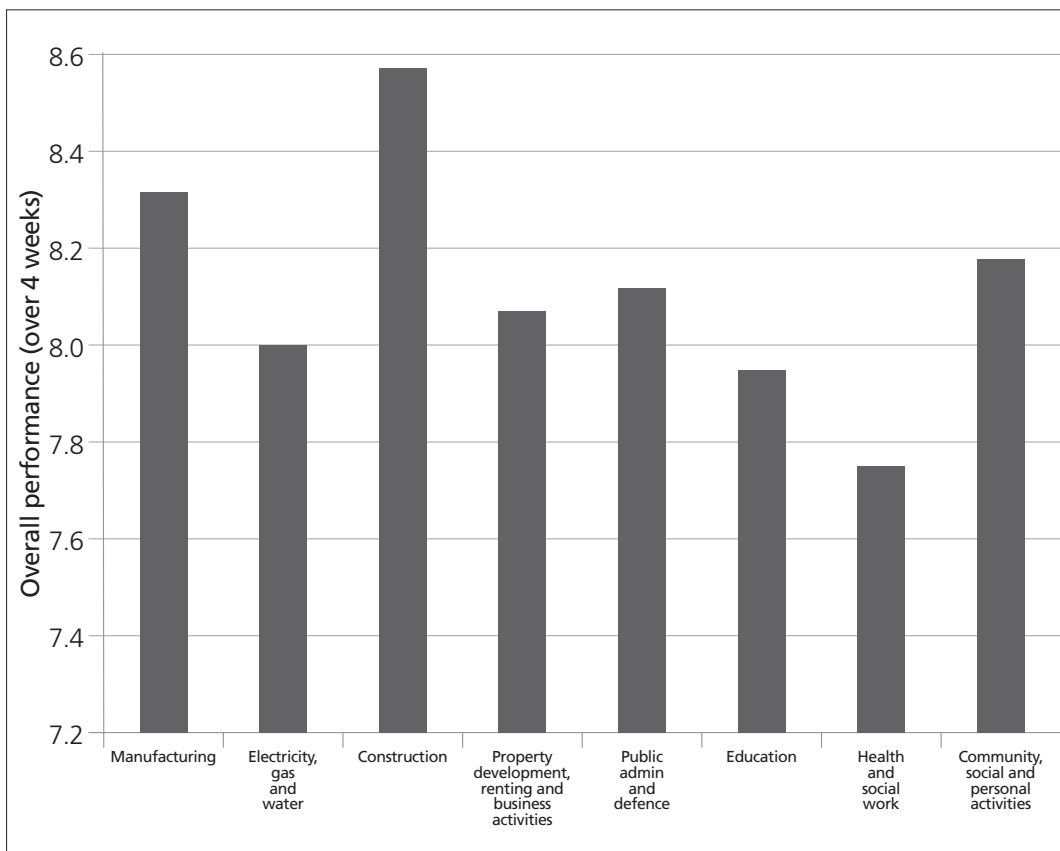


Figure 20
Overall self-
reported
performance over
the previous four
weeks, by
industrial sector

Table 13
Organisational
commitment –
t-test results for
industrial sector
comparisons

	Manufacturing	Electricity, gas and water	Construction	Property development, renting and business activities	Public administration and defence	Education	Health and social work	Other community/ personal activities
<i>Mean score</i>	46.17	48.92	49.04	47.20	44.76	46.63	47.50	45.92
Manufacturing								
Electricity, gas and water	$t(225) = -2.25$ $p < 0.05$							
Construction	NS	NS						
Property development, renting and business activities	NS	$t(746) = 2.14$ $p < 0.05$	NS					
Public administration and defence	NS	$t(826) = 4.45$ $p < 0.001$	$t(735) = 2.80$ $p < 0.01$	$t(1303) = 4.76$ $p < 0.001$				
Education	NS	$t(499) = 2.74$ $p < 0.01$	NS	NS	$t(1056) = -2.68$ $p < 0.01$			
Health and social work	NS	NS	NS	NS	NS	NS		
Other community/ personal activities	NS	$t(196) = 2.23$ $p < 0.05$	NS	NS	NS	NS	NS	

	Manufacturing	Electricity, gas and water	Construction	Property development, renting and business activities	Public administration and defence	Education	Health and social work	Other community/ personal activities
<i>Mean score</i>	8.32	8.00	8.57	8.07	8.12	7.95	7.75	8.18
Manufacturing								
Electricity, gas and water	NS							
Construction	NS	$t(185) = -2.77$ $p < 0.01$						
Property development, renting and business activities	NS	NS	$t(655) = 2.85$ $p < 0.01$					
Public administration and defence	NS	NS	$t(741) = 2.24$ $p < 0.05$	NS				
Education	$t(441) = 2.41$ $p < 0.05$	NS	$t(398) = 3.14$ $p < 0.01$	NS	NS			
Health and social work	NS	NS	NS	NS	NS	NS		
Other community/ personal activities	NS	NS	NS	NS	NS	NS	NS	

Table 14
Overall
performance –
t-test results for
industrial sector
comparisons

themselves as the highest performers, with significant differences found between their scores and those from the electricity, gas and water, property development, renting and business activities, public administration and defence, and education sectors. Manufacturing workers were second in self-rated performance and their scores were found to be significantly higher than those in education.

4.5 Summary of sector, size and industry comparisons

This section has illustrated how differences in both organisational and employee outcomes are evident across economic and industrial sectors, and different organisational sizes. Although the correlations for organisational performance outcomes were quite modest, one significant effect was found: large organisations reported higher levels of sickness absence per employee over the previous 12 months than small/medium organisations. With employee outcomes, there was a wide range of evidence for differences in health and wellbeing, safety climate perceptions and self-reported work-related illness across public and private sectors and organisation sizes.

Specifically, public sector workers reported lower levels of vitality, less positive safety climate perceptions and organisational attitudes, and more work-related illness than those in the private sector. A more interesting picture emerged for organisational size. Employees in large organisations reported better mental health and vitality, as well as lower intentions to quit and numbers of work-related illness, than those in smaller organisations. However, employees in larger organisations also reported less positive safety climate perceptions compared with those in smaller organisations.

One result which seemed somewhat contradictory involves absence and work-related illness in large organisations. The results showed that, while large organisations reported significantly higher absence rates per employee at the organisational level, at an individual level employees in large organisations reported less work-related illness than those in small/medium organisations. It is possible that this apparent contradiction is due to the provision of more wide-ranging sickness management policies and procedures in larger organisations. Small organisations are less likely to provide comprehensive sickness absence pay, thus encouraging staff to come into work when they might otherwise have stayed at home. This may have the dual effect of both increasing the incidence of work-related ill health (through employees working when not fit to do so) but conversely reducing the level of sickness absence.

It is clear that employees in different industries report varying levels of health and wellbeing, safety climate perceptions, organisational attitudes and self-reported performance. In particular, employees in the construction, property development, renting and business activities, and electricity, gas and water sectors seemed to report consistently higher levels across a number of employee outcomes, compared to those in other sectors. This is interesting, as these sectors make up the bulk of the private sector employee survey respondents, thus helping to explain the differences found between the public and private sector analyses detailed above. In particular, construction workers scored highest on four out of the six employee outcomes, with higher levels of general health and organisational commitment, as well as the most positive safety climate perceptions and top-rated overall self-reported performance. Employees from the electricity, gas and water, and property development, renting and business activities sectors also consistently reported organisational and safety attitudes and levels of health and wellbeing that were in the top half of the sector rankings. The health and social work, education and public administration and defence sectors all reported consistently lower averages across the employee outcomes.

It is important to understand these differences between industrial sectors both in the context of this research – where they clearly need to be controlled for when considering the effect of OSH approaches in different industries – and also more widely for their implications for future research examining the impact of health and safety on both safety-related and non-safety outcomes. This issue will be considered in more detail in Section 9.

The next section will focus on how the approach to OSH management, as determined by the Continuous Improvement Model, is related to organisational performance and employee outcomes.

5 Results: organisational and employee outcomes of the organisational approach to OSH management

5.1 Section rationale

This section considers how an organisation's approach to OSH management affects its performance – in accidents and absence figures – at an organisational level and the health and wellbeing, safety climate perceptions, organisational attitudes and self-reported performance at an employee level. It outlines the results of the analyses of the organisational and employee outcomes to determine whether being more proactive in OSH management is associated with commensurate benefits for both employers and employees.

5.2 Categorisation of organisations by OSH approach

As described in Section 2.7.1, the organisations were categorised according to their approach to OSH management on the basis of the drivers and key indicators outlined in the CIC model, which had been further developed as part of the template analysis of the stakeholder interview data. From the qualitative descriptions of the organisations' approach to OSH management given by the stakeholders, each organisation was categorised as 'yet to be fully engaged', 'complier' or 'very good'. A detailed account of this categorisation process is provided in Section 7, along with information from the interviews themselves.

Figure 21 shows the breakdown of the participating organisations by their CIC categorisation. It shows that there is a reasonable spread of organisations across the three categories: five organisations were categorised as 'yet to be fully engaged', with 13 organisations each in the 'complier' and 'very good' categories. Following the categorisation process, the organisational and employee data were analysed to establish whether a proactive approach to OSH management is associated with benefits for both employers and their staff.

The categorisation process revealed an unequal split in numbers of employee survey responses across the three categories – see Figure 22. The disproportionately low number of survey responses from organisations categorised as 'yet to be fully engaged' makes comparisons with the other categories statistically difficult to interpret, so it was decided to group the 'yet to be fully engaged' and 'complier' categories together. This would still allow a comparison between broadly proactive and broadly reactive organisations, while ensuring that the analysis is statistically sound.

Following the strategy adopted in the previous section, in order to maintain equivalence in analytical approach, the organisational performance data from 'yet to be fully engaged' and 'complier' organisations were combined and compared with those from the 'very good' organisations.

5.3 Organisational outcomes

The first set of analyses in this section concerned the organisational performance outcomes. A series of *t*-tests were run to determine whether there were differences between the 'yet to be fully engaged/complier' and 'very good' organisations in the objective performance indices. Table 15 details the results of the *t*-tests.

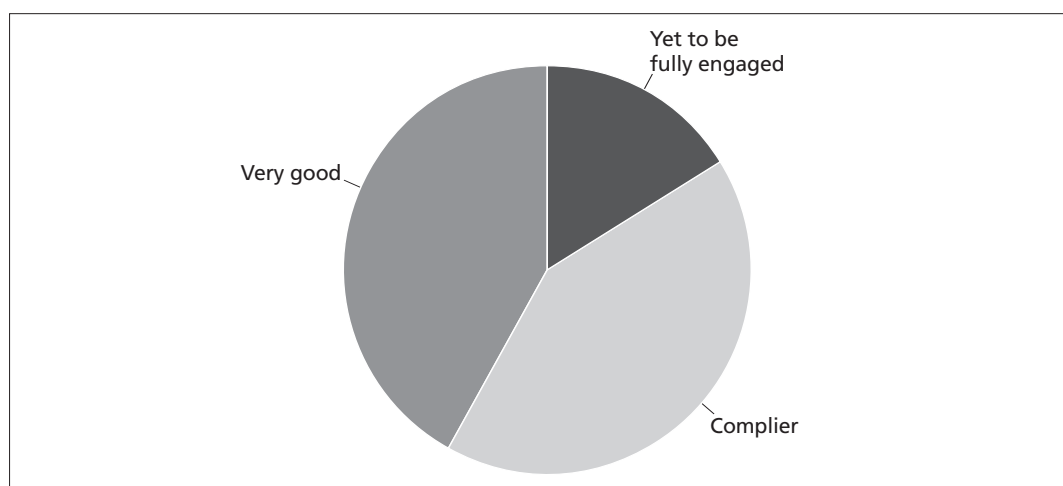


Figure 21
Participating
organisations by
CIC category

There were no significant differences between the ‘yet to be fully engaged/complier’ and ‘very good’ categories on any of the organisational performance outcomes measured here. However, there were some interesting non-significant trends across the three CIC categories that are worthy of discussion. Figures 23–29 display the mean values of the performance outcomes by CIC category.

The means across the three categories suggest that an organisation’s profit margin may be affected by its approach to OSH management, with an increasing positive trend across the three CIC categories. However, the relationship between OSH management approach and staff turnover appears to be more complex, although this may be due to the fact that the organisations in the ‘very good’ category were in sectors that tend to have more transient workforces.

While there were no significant differences in accident statistics between the groups, the mean values of the three categories show that in organisations ‘yet to be fully engaged’, employees have more reportable and non-reportable accidents than organisations in the other two CIC categories. There is also a demonstrable downward trend in numbers of reportable accidents and days lost due to accidents from ‘yet to be fully engaged’ to ‘very good’ organisations.

Total sickness absence reveals an interesting pattern across the three CIC categories, with the ‘yet to be fully engaged’ organisations reporting far less absence than the ‘complier’ and ‘very good’ ones. This will be discussed in greater depth later, but it is probable that this result is due to the lack of sickness absence policies, particularly sick pay, in some of the ‘yet to be fully engaged’ organisations.

Figure 22
Survey responses
by CIC category

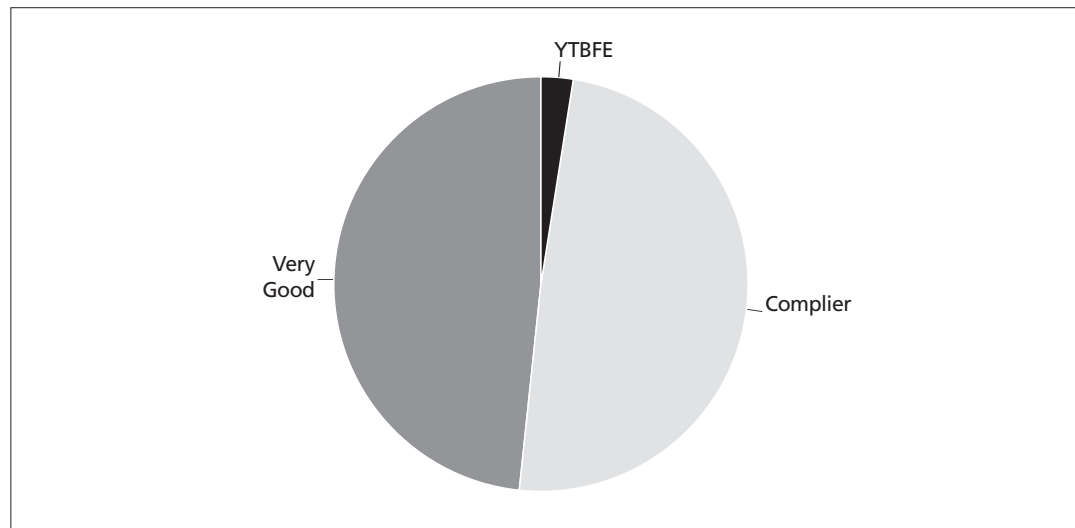


Table 15
Organisational
outcomes by CIC
category

Organisational outcome	<i>t</i>	df	<i>p</i>	Mean scores for CIC category	
				YTBFE/ complier	Very good
Profit margin (%)	0.906	10	NS*	10.71	13.34
Staff turnover (%)	1.223	26	NS	9.64	14.95
Reportable accidents (per head)	0.814	28	NS	0.02	0.01
Non-reportable accidents (per head)	0.321	26.23	NS	0.09	0.08
All accidents (per head)	0.602	25.35	NS	0.11	0.09
Days lost per head to accident or injury	0.804	23	NS	0.23	0.12
Days lost per head to sickness absence	−0.460	20	NS	4.21	4.87

* NS = not significant

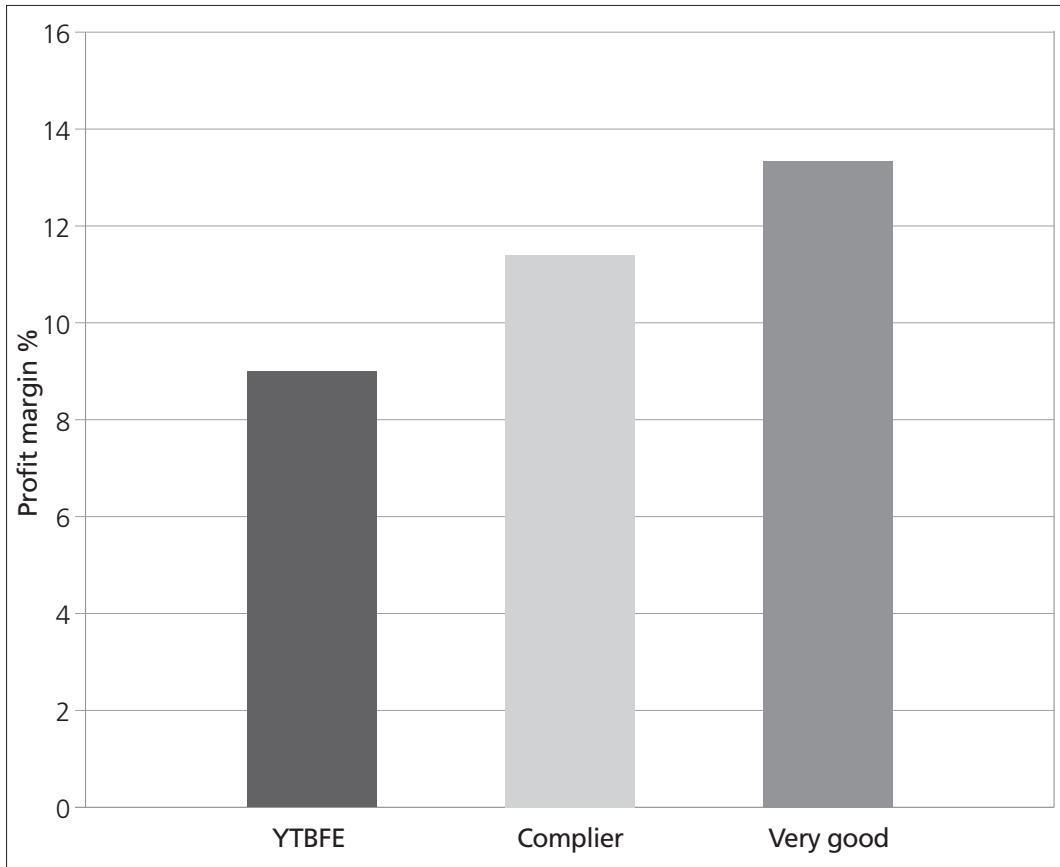


Figure 23
Profit margin (as percentage of turnover) by CIC category

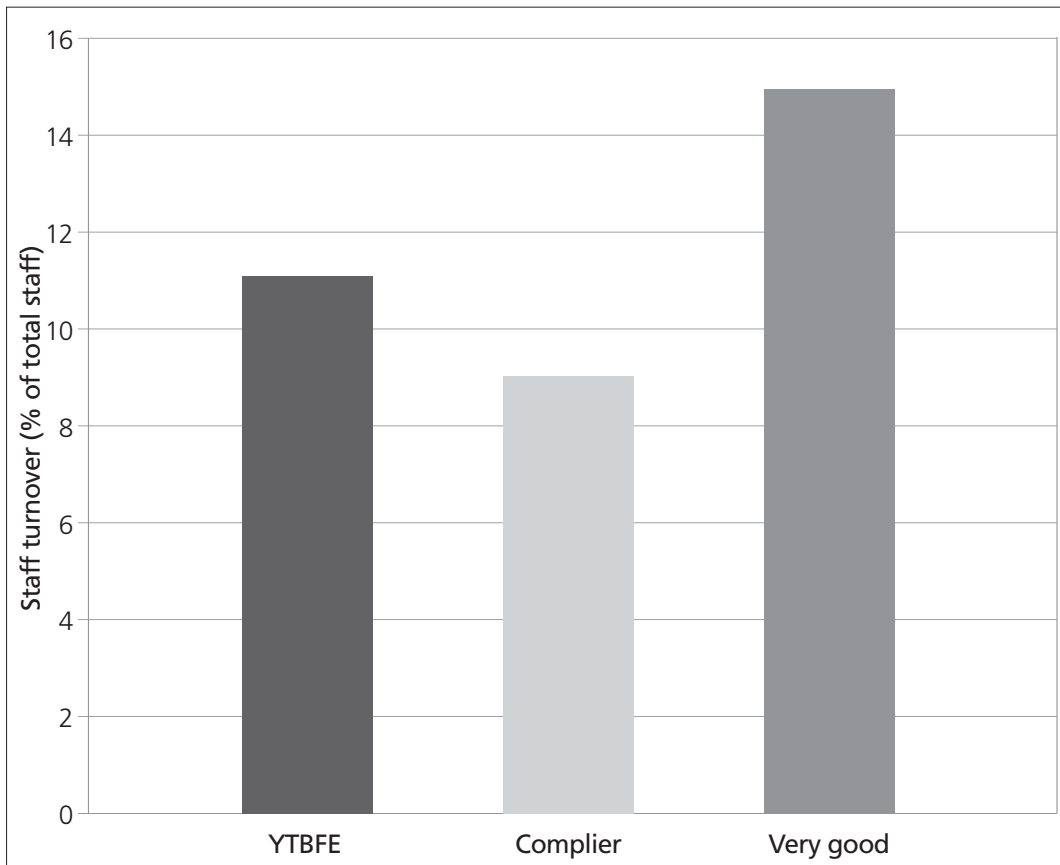


Figure 24
Staff turnover (as percentage of total staff) by CIC category

Figure 25
Number of
reportable injuries
per head by CIC
category

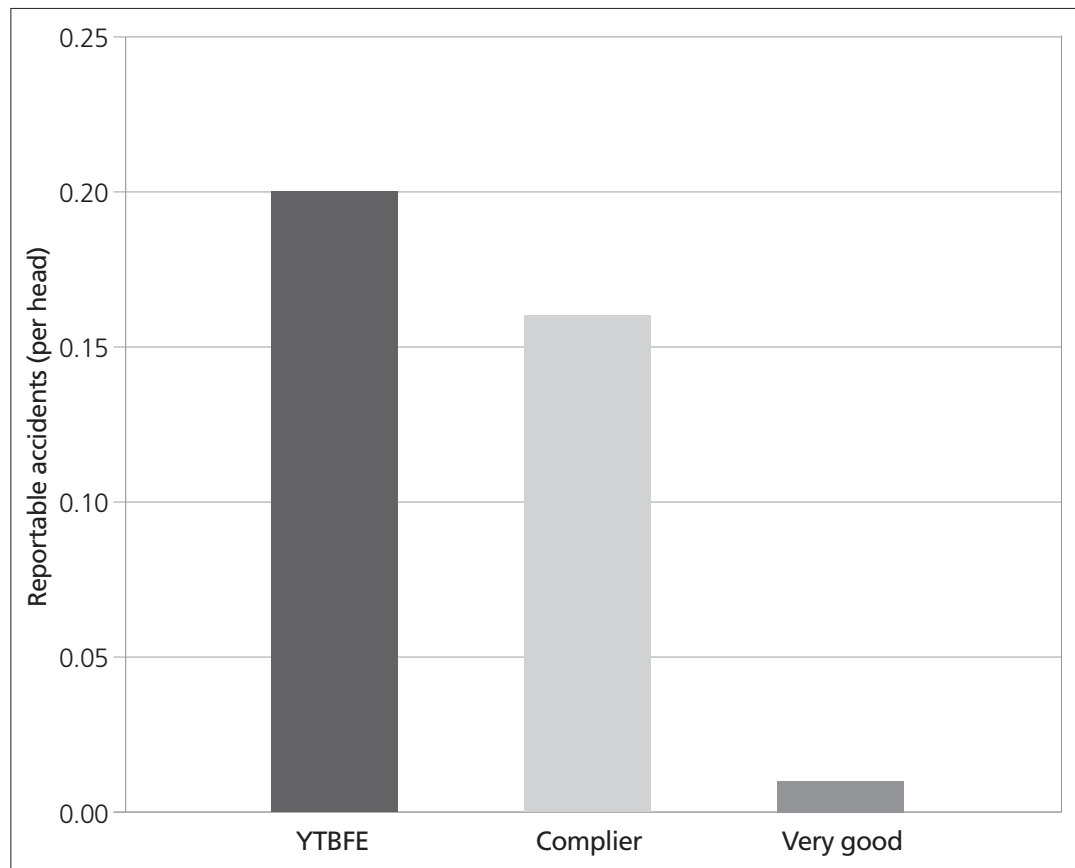
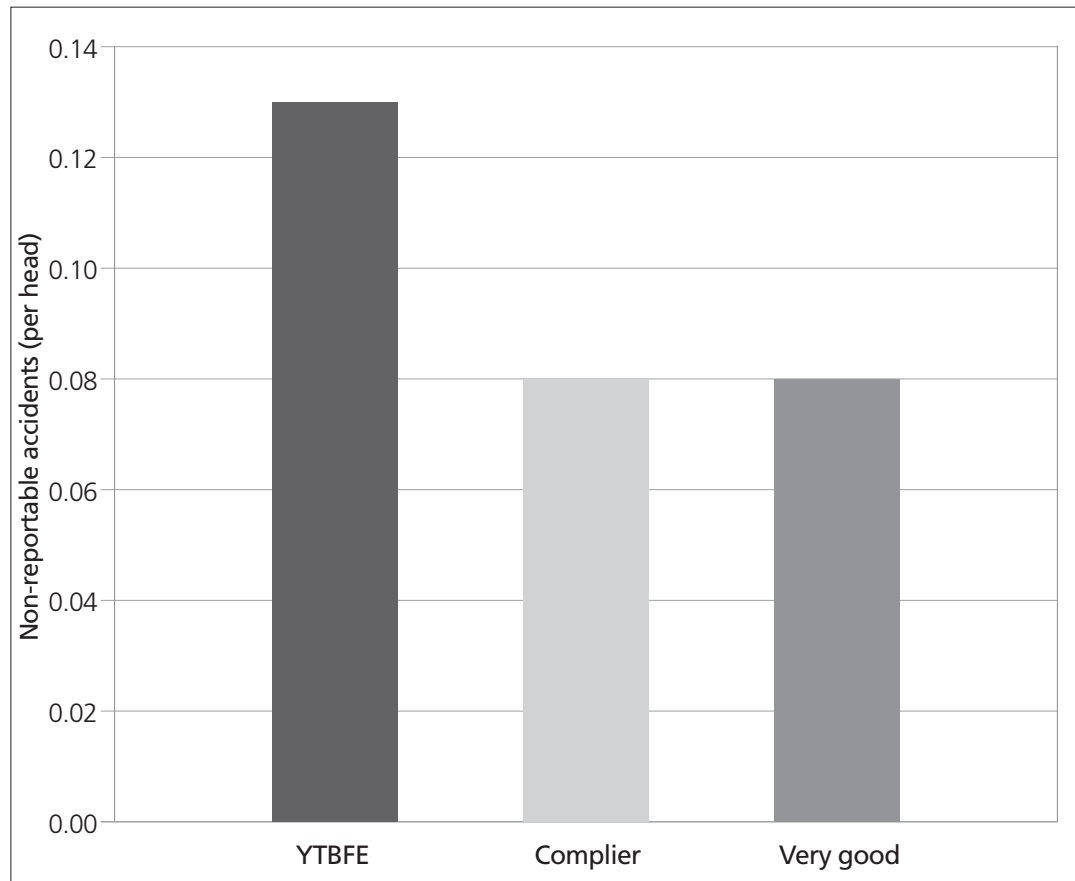


Figure 26
Number of non-
reportable injuries
per head by CIC
category



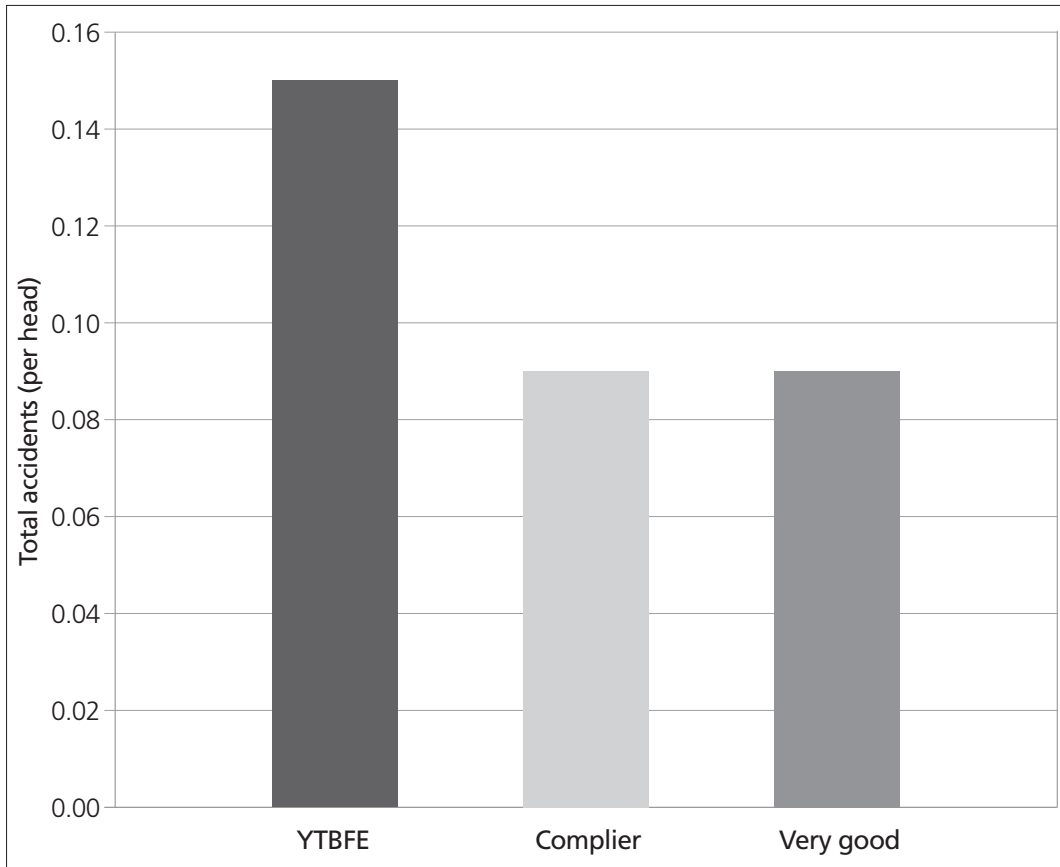


Figure 27
Total number of accidents per head by CIC category

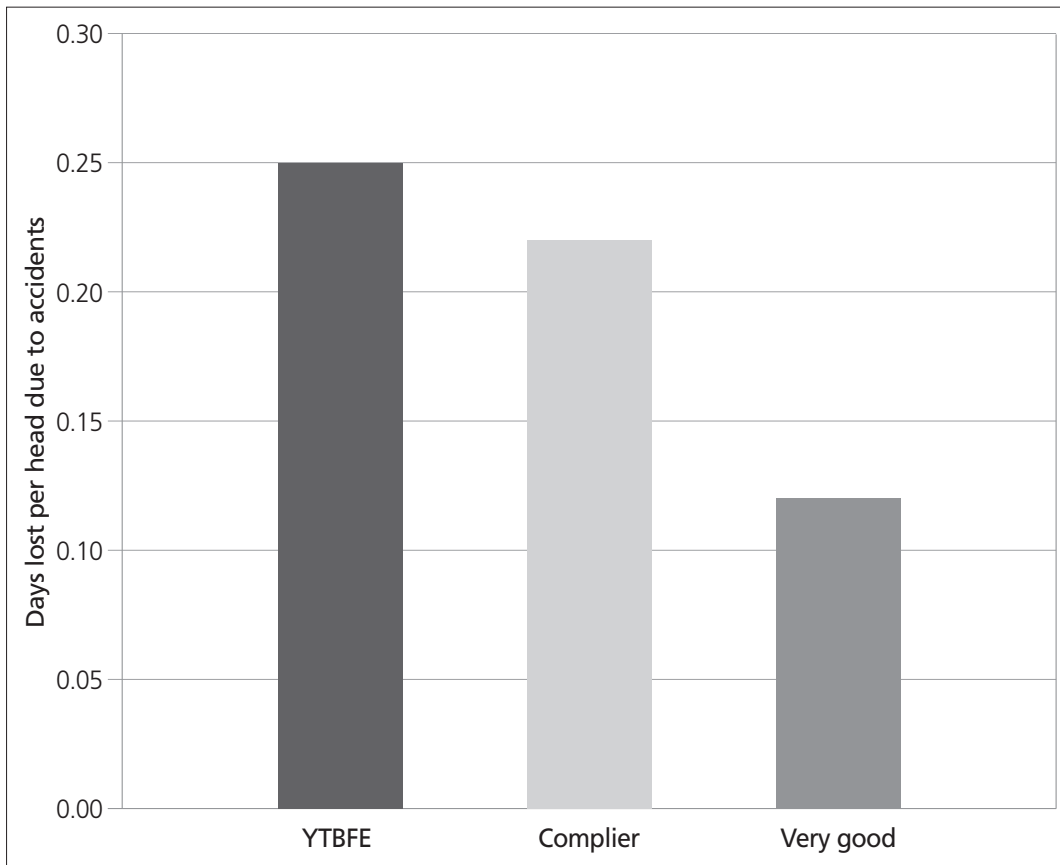


Figure 28
Number of days lost due to accidents per head by CIC category

5.4 Employee outcomes

The next stage of analysis involved the comparison of employee survey outcomes (eg job satisfaction, safety climate perceptions) between organisations categorised as ‘yet to be fully engaged/complier’ and ‘very good’. To do this, a further MANCOVA analysis was conducted, with the covariates held constant to control for their effects on the employee outcomes. In addition, to examine whether organisations across CIC categories differed in terms of the number of employees reporting an illness, disability, or other physical or mental problem that they believed was caused or made worse by their job, a chi-square test was conducted.

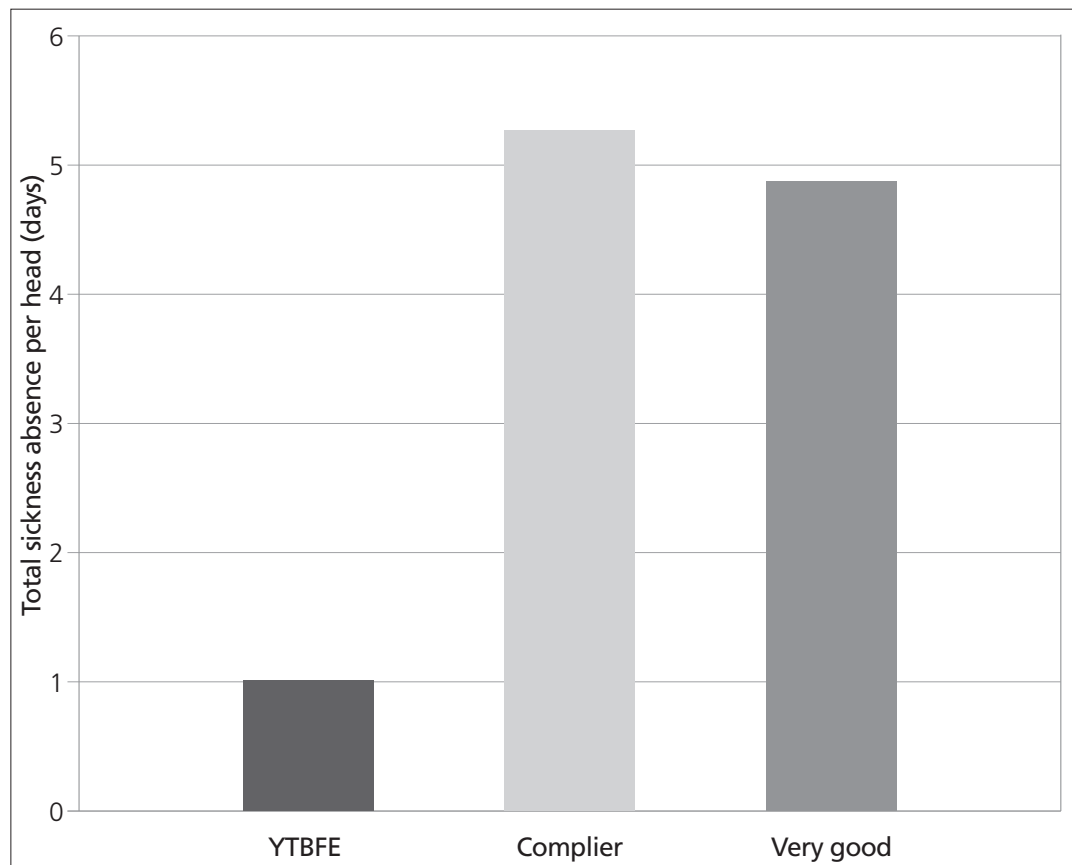
The multivariate test showed that the approach to OSH management had a significant effect on employee outcomes: $F(20, 1097) = 7.526, p < 0.001$. The test of between subject effects revealed a number of significant differences between ‘yet to be fully engaged/complier’ and ‘very good’ organisations, a summary of which is presented in Table 16. Figures 30–33 illustrate the significant results.

As can be seen from the between subject results, significant differences were found between CIC categories in safety climate perceptions and in two of the organisational attitudes in the predicted directions. ‘Very good’ organisations were found to have a more positive safety climate in eight of the nine climate facets.

Employees in organisations with more proactive OSH management are more committed to their organisation and show greater satisfaction with their job than employees in ‘yet to be fully engaged/complier’ organisations. However, there was one significant result in the self-reported performance outcomes that contradicted predictions. Incidence of self-reported work-related illness was found to be very slightly higher per head in the ‘very good’ organisations than in other organisations. No significant differences were found between the ‘yet to be fully engaged/complier’ and ‘very good’ organisations in any of the three health and wellbeing outcomes.

A chi-square test was conducted to establish whether there were significant differences between the categories in numbers of employees reporting an illness, disability, or other physical or mental problem that they believed was caused or made worse by their job. This test found no significant differences.

Figure 29
Total sickness
absence per head
by CIC category



5.5 What predicts health and wellbeing at an employee level?

Following the analysis of the effect of OSH approach on employee outcomes, the relationship between health and wellbeing and individual safety and organisational attitudes was examined. Analyses at the individual level examine the relationships between organisational attitudes, safety climate perceptions and reported health and wellbeing. In essence, this analysis considered how an employee's perceptions of their job, their organisation and its approach to safety were related to their self-rated health.

Figure 34 summarises how these variables are interrelated. Initially, a cross-level analysis of the data was undertaken, whereby an organisational variable was assessed for its impact on individual employee outcomes. Subsequently, the focus was limited to the individual level, with an examination of how individuals' own organisational attitudes and safety climate perceptions affect their health and wellbeing.

This involved a series of three regression analyses. These regressions tested the relationships between individuals' attitudes towards their organisation and job and their safety climate perceptions on the

Employee outcome*	F	df	p	Mean scores by CIC category	
				YTBFE/ Complier	Very good
Health and wellbeing					
General health	0.236	1	NS	73.54	71.69
Mental health	1.179	1	NS	75.89	74.75
Vitality	3.682	1	NS	59.25	57.94
Safety climate					
Management commitment	41.053	1	<0.001	6.98	7.31
Communication	54.514	1	<0.001	6.93	7.32
Priority of safety	71.002	1	<0.001	7.10	7.44
Safety rules and procedures	0.189	1	NS	6.71	6.44
Supportive environment	35.914	1	<0.001	7.45	7.55
Involvement	17.893	1	<0.001	6.69	6.71
Personal priorities/need for safety	20.571	1	<0.001	7.09	7.15
Personal appreciation of risk	38.155	1	<0.001	6.81	6.91
Physical work environment	65.337	1	<0.001	6.19	6.67
Job attitudes					
Organisational commitment	8.217	1	<0.01	46.17	46.55
Job satisfaction	12.517	1	<0.001	5.29	5.48
Intention to quit	0.911	1	NS	2.95	2.87
Intrinsic job motivation	1.810	1	NS	35.50	35.04
Performance measures					
Overall performance	0.168	1	NS	8.00	8.09
Self-reported absence	0.021	1	NS	0.31	0.32
Self-reported work-related illness	5.803	1	<0.05	0.33	0.34

Table 16
Employee
outcomes by CIC
category

* See Table 4 for detailed definitions of the outcomes

Figure 30
Safety climate
facets by CIC
category

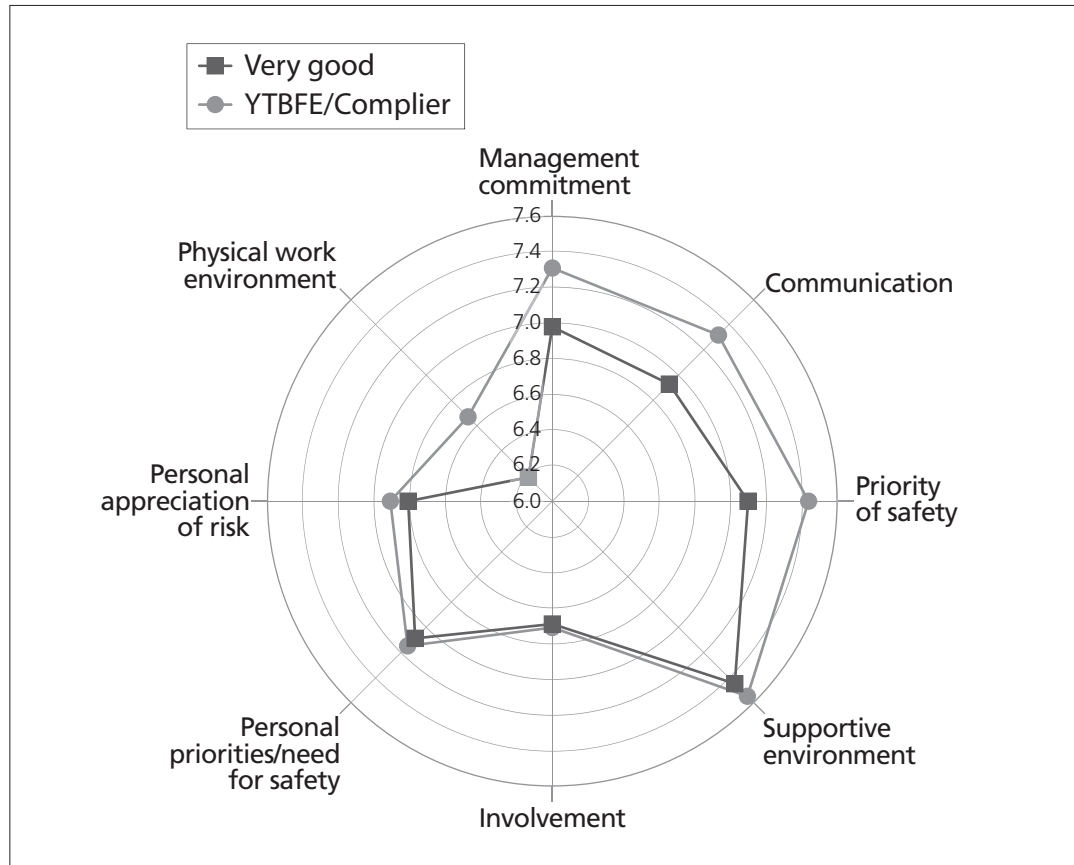
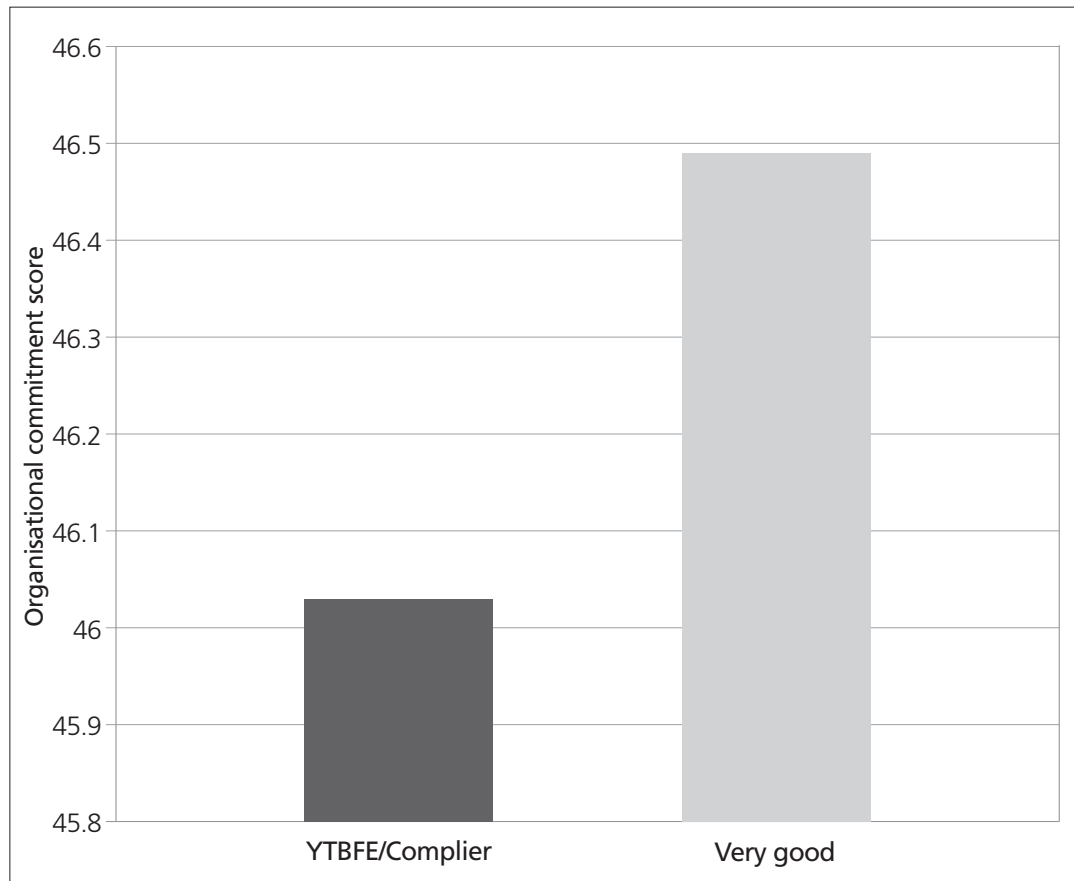


Figure 31
Organisational
commitment
scores by CIC
category



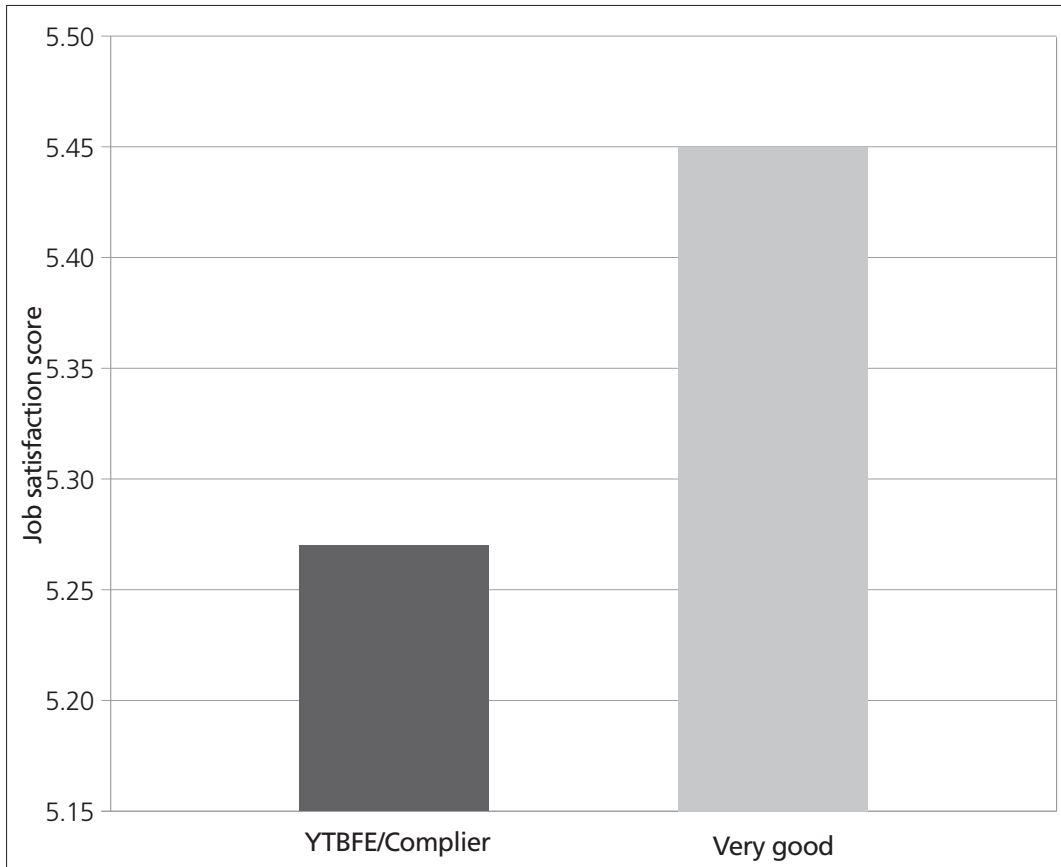


Figure 32
Job satisfaction
scores by CIC
category

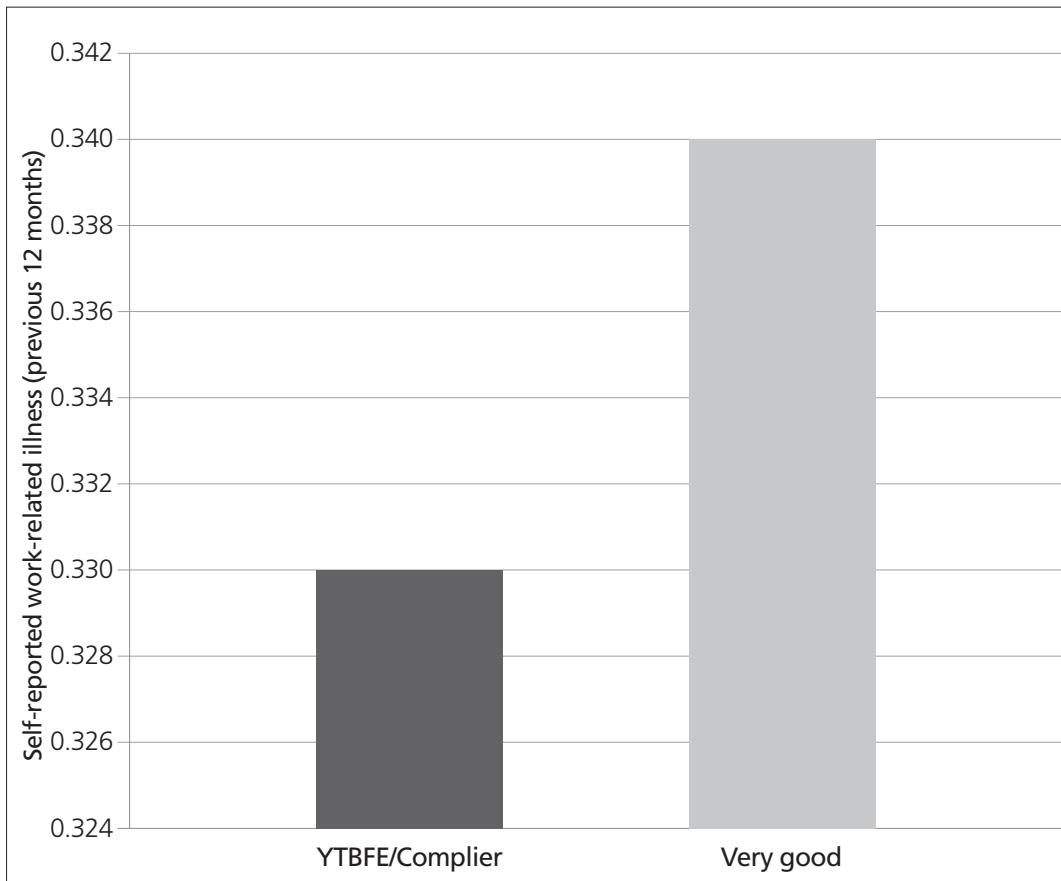


Figure 33
Self-reported
work-related illness
by CIC category

one hand, and the three health and wellbeing outcomes of general health, mental health and vitality on the other. For each regression analysis, the control variables used for the previous analysis were entered as the first step, with organisational and job attitudes entered at step two, and safety climate perceptions at step three.

Table 17 displays the results of the regression analyses. Each of the three health indices is associated positively with at least one organisational attitude and safety climate perception. The relationships between the health outcomes and the predictor variables are summarised in Figure 35.

Self-reported general health was positively associated with both job satisfaction and personal appreciation of risk. In other words, higher levels of general health were found where individuals were more satisfied in their job and felt less at risk of a workplace accident (a higher personal appreciation of risk).

Figure 34
Summary of the levels of analysis in the research

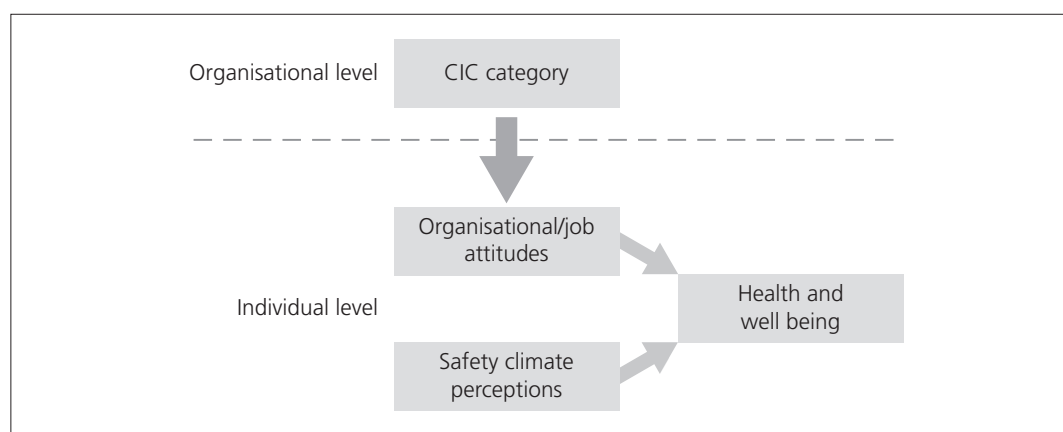


Table 17
Results of regression analyses for general health, mental health and vitality

	General health*		Mental health†		Vitality‡	
	β	p	β	p	β	p
Job attitudes						
Organisational commitment	-0.110	NS	-0.160	NS	0.190	NS
Job satisfaction	0.120	<0.01	0.319	<0.001	0.226	<0.001
Intention to quit	-0.021	NS	-0.980	<0.01	-0.280	NS
Intrinsic job motivation	0.000	NS	-0.063	<0.05	-0.066	<0.01
Safety climate						
Management commitment	0.040	NS	-0.620	NS	-0.034	NS
Communication	0.018	NS	0.042	NS	0.032	NS
Priority of safety	-0.013	NS	-0.810	<0.05	-0.016	NS
Safety rules and procedures	-0.016	NS	0.049	<0.05	0.019	NS
Supportive environment	-0.017	NS	0.105	<0.01	0.001	NS
Involvement	-0.031	NS	-0.018	NS	0.046	NS
Personal priorities / need for safety	0.017	NS	-0.023	NS	0.003	NS
Personal appreciation of risk	0.335	<0.001	0.217	<0.001	0.292	<0.001
Physical work environment	0.000	NS	0.036	NS	0.079	<0.01

NS = not significant

* Final step of regression with covariates accounted for 18% of the variance in general health

† Final step of regression with covariates accounted for 30% of the variance in mental health

‡ Final step of regression with covariates accounted for 28% of the variance in vitality

Self-reported mental health was associated with a number of organisational attitudes and safety climate perceptions in the predicted directions. Better mental health was reported by employees who also reported greater job satisfaction, less intention to leave the organisation, more positive perceptions of safety rules and procedures, a higher personal appreciation of risk and more support for their ability to work safely. However, somewhat unexpectedly, mental health was better where individuals reported lower intrinsic job motivation and prioritisation of safety.

Vitality was also found to be associated with organisational attitudes and safety climate perceptions. Those employees reporting higher levels of vitality also reported higher job satisfaction, more positive personal appreciation of risk and a better physical work environment. However, as with mental health, lower levels of vitality were reported as job motivation increased.

5.7 Section summary

From the analyses outlined in this section, it is clear that more proactive OSH management leads to better safety climate perceptions and more positive attitudes towards safety and the organisation. However, the association between proactive OSH management and health and wellbeing seems to be more complex. The results presented here showed no significant relationship between health and wellbeing and OSH management. However, at an individual level, those employees who were more 'engaged' with OSH issues reported better general and mental health and higher vitality levels.

No significant relationship was found between OSH management style and organisational performance indicators. However, some interesting trends emerged, which suggest that a more proactive OSH approach may be related to fewer accidents, fewer days lost through accidents and a better profit margin.

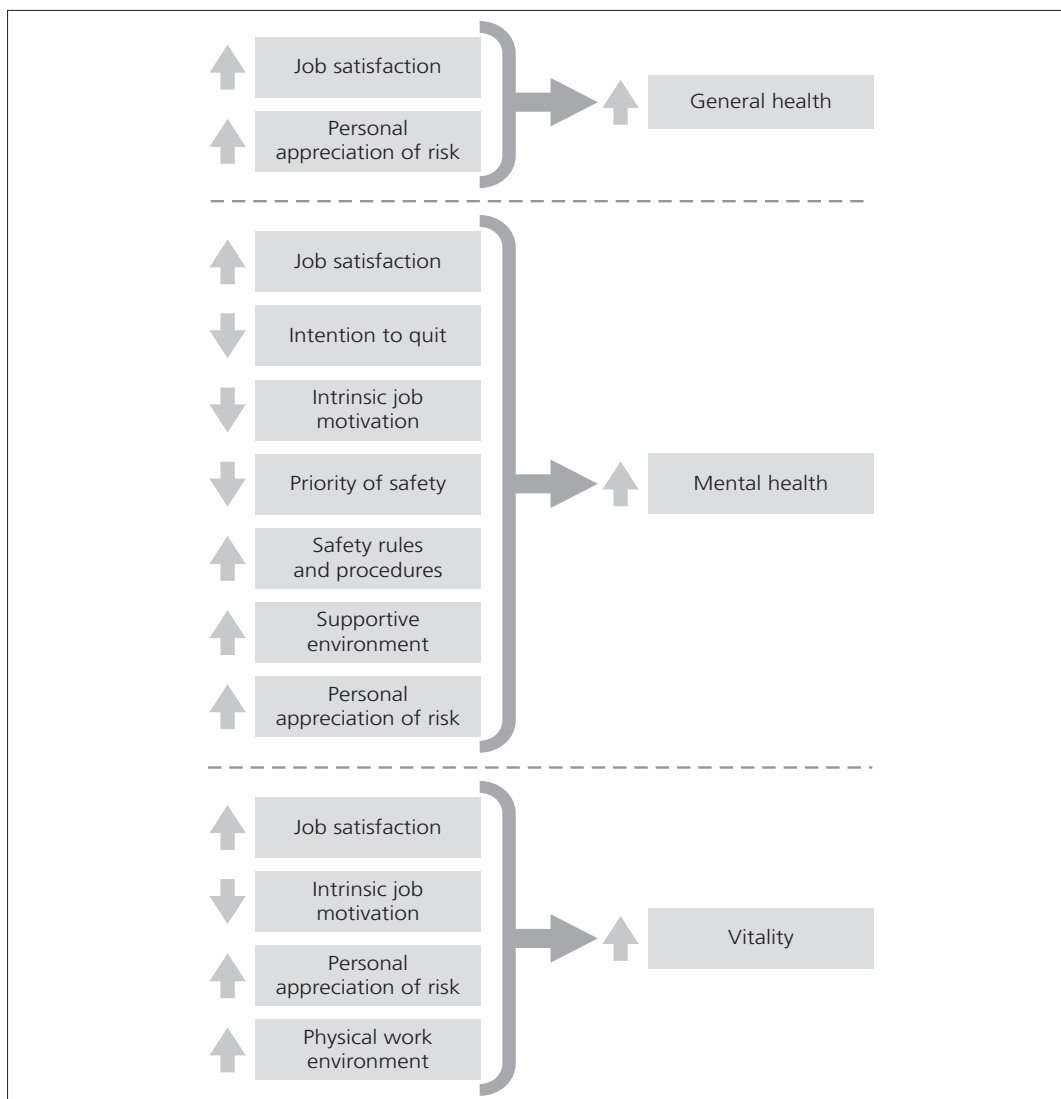


Figure 35
Summary of the regression analyses for general health, mental health and vitality

6 Results: case study examples – intra-industry comparisons

6.1 Section rationale

The results outlined in the previous section show that across economic and industrial sectors and organisational size, a proactive approach to OSH management is associated with benefits in terms of safety climate and organisational attitudes. However, while at an individual level health and wellbeing is related to safety climate and organisational attitudes, it would appear that the impact of a proactive OSH approach on average levels of health and wellbeing is limited. A possible reason for this is the focus of this research in examining OSH approach across economic and industrial sectors, and organisations of different sizes. This may serve to obscure patterns within industry, where organisations – employing a similar demographic cross-section of staff who work under similar conditions and within similar physical and cultural constraints – may differ in general employee outcomes, but more specifically health and wellbeing, as a result of their approach to OSH management.

With this in mind, this section will consider two intra-industry case study examples. Each case study will compare two organisations of similar size and from the same industrial classification, to establish whether the CIC categorisation process might be a useful discriminating tool within industries.

6.2 Case study 1

6.2.1 Brief description of case study organisations

The two organisations in this case study are large public sector organisations working in the public administration and defence industry. Company A employs approximately 2,600 staff and returned 189 survey responses. Company B employs approximately 850 staff and returned 88 survey responses. Company A was categorised as a ‘complier’ and Company B as ‘very good’.

6.2.2 Organisational outcomes

Table 18 details the organisational outcomes comparable across the two case study companies from the data they provided. Because they are public sector organisations, profit margin information was not collected. In addition, company B did not provide staff turnover or total sickness absence figures, so these are omitted from the analyses.

The ‘very good’ organisation appears to show better performance on accident figures than the ‘complier’ organisation, except that, interestingly, it has a higher number of days lost due to accidents per head. However, this may be due to the very physical nature of the principal occupation in company B.

6.2.3 Employee outcomes

A series of *t*-tests was undertaken to compare the average scores across the employee outcomes. The two companies’ scores were compared for the health and wellbeing measures, safety climate perceptions, organisational and job attitudes, and the self-reported performance measures.

Table 19 shows the results of the *t*-tests. Employees in the ‘very good’ organisation reported higher levels of health and wellbeing across all three subscales, and more positive safety climate perceptions in eight out of nine climate facets. Additionally, employees in the more proactive organisation reported less sickness absence during the four weeks preceding the survey. Figures 36–39 illustrate the significant differences between companies A and B.

Table 18
Comparison of
organisational
outcomes between
case study
companies A and B

	Non-reportable accidents (per head)	Reportable accidents (per head)	All accidents (per head)	Days lost due to accidents (per head)
Company A	0.08	0.018	0.10	0.24
Company B	0.06	0.01	0.07	0.41

Employee outcome*	<i>F</i>	df	<i>p</i>	Mean scores	
				Company A (complier)	Company B (very good)
Health and wellbeing					
General health	−3.845	208	<0.001	67.73	76.70
Mental health	−2.982	269	<0.01	69.62	77.04
Vitality	−4.792	208	<0.001	48.71	61.22
Safety climate					
Management commitment	−7.898	275	<0.001	5.40	7.55
Communication	−9.183	273	<0.001	5.58	7.71
Priority of safety	−11.384	271	<0.001	5.02	7.93
Safety rules and procedures	1.196	274	NS	5.98	5.69
Supportive environment	−8.321	199	<0.001	6.09	7.76
Involvement	−7.974	272	<0.001	5.22	6.99
Personal priorities/need for safety	−5.890	274	<0.001	6.00	7.25
Personal appreciation of risk	−7.549	274	<0.001	5.15	6.92
Physical work environment	−9.275	194	<0.001	4.60	6.48
Job attitudes					
Organisational commitment	−4.456	228	<0.001	42.56	47.86
Job satisfaction	−3.647	228	<0.001	4.94	5.56
Intention to quit	1.639	274	NS	2.88	2.51
Intrinsic job motivation	−0.604	272	NS	34.79	35.15
Performance measures					
Overall performance	−1.482	271	NS	7.82	8.07
Self-reported absence	3.143	184	<0.01	0.70	0.00
Self-reported work-related illness	0.941	236	NS	0.52	0.39

* See Table 4 for detailed definitions of the outcomes
 NS = not significant

Table 19
 Comparison of employee outcomes between case study companies A and B

Figure 36
General health, mental health and vitality scores for case study companies A and B

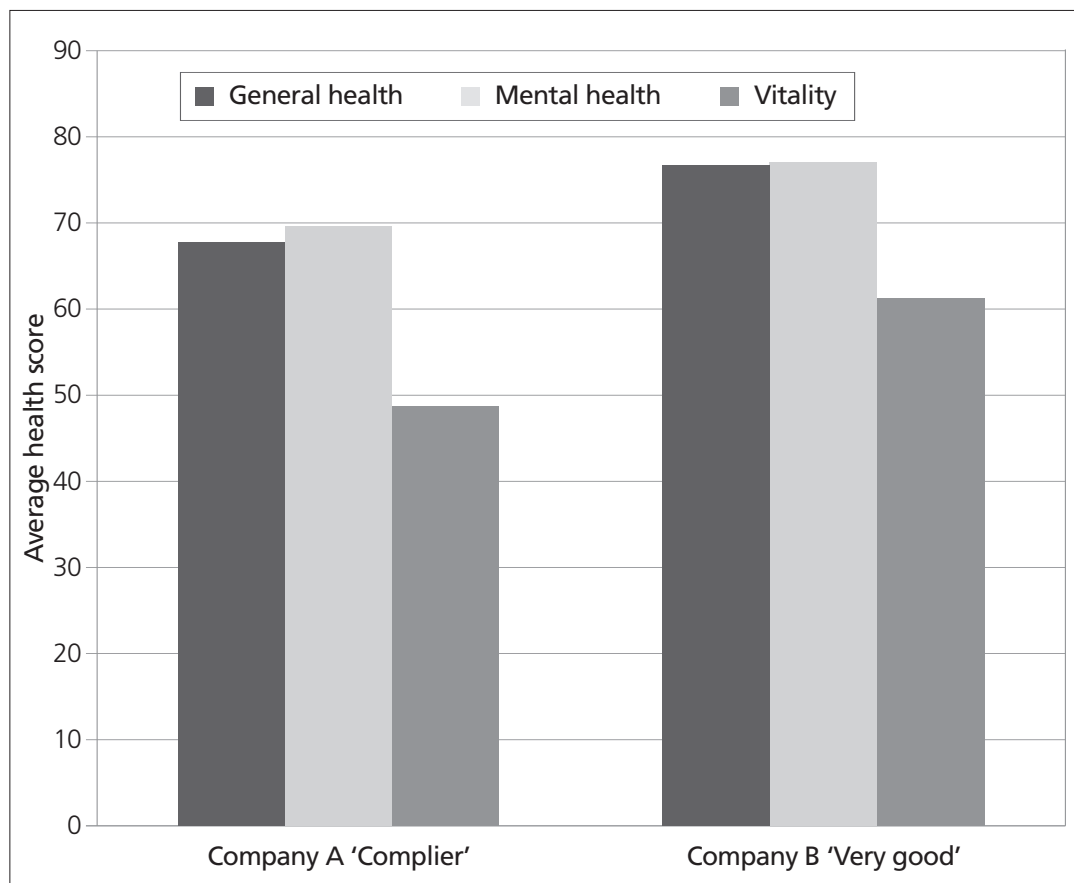
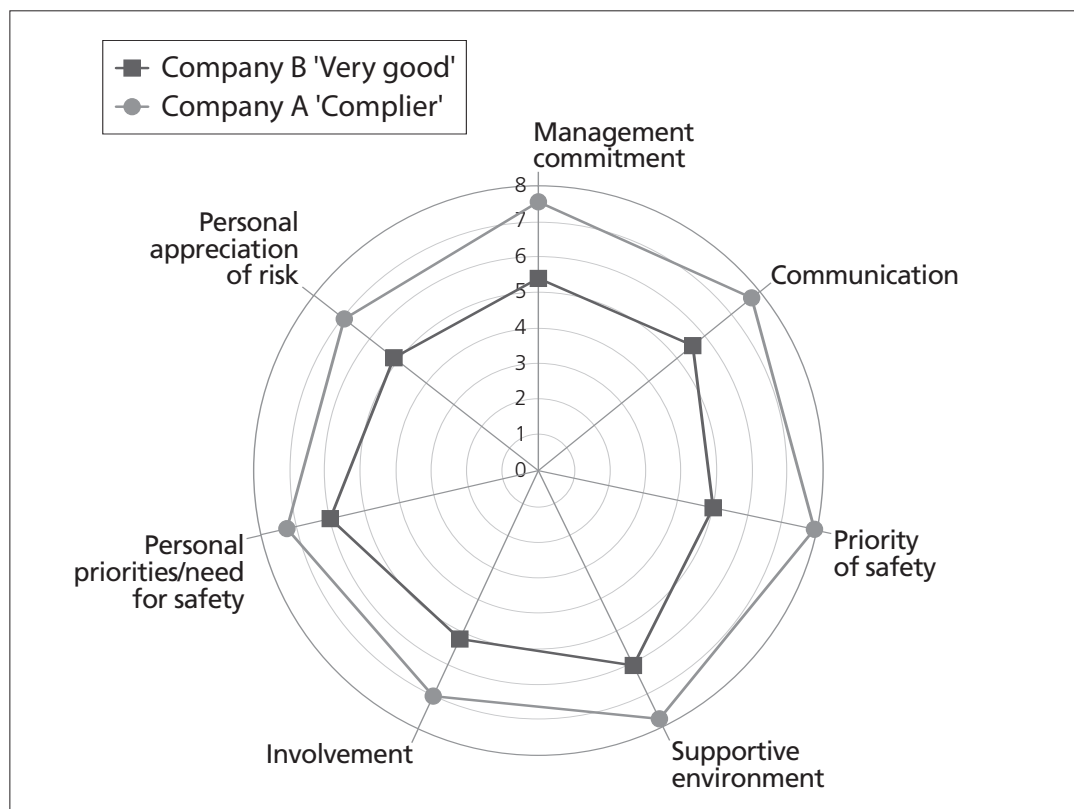


Figure 37
Safety climate scores for case study companies A and B (significant results only)



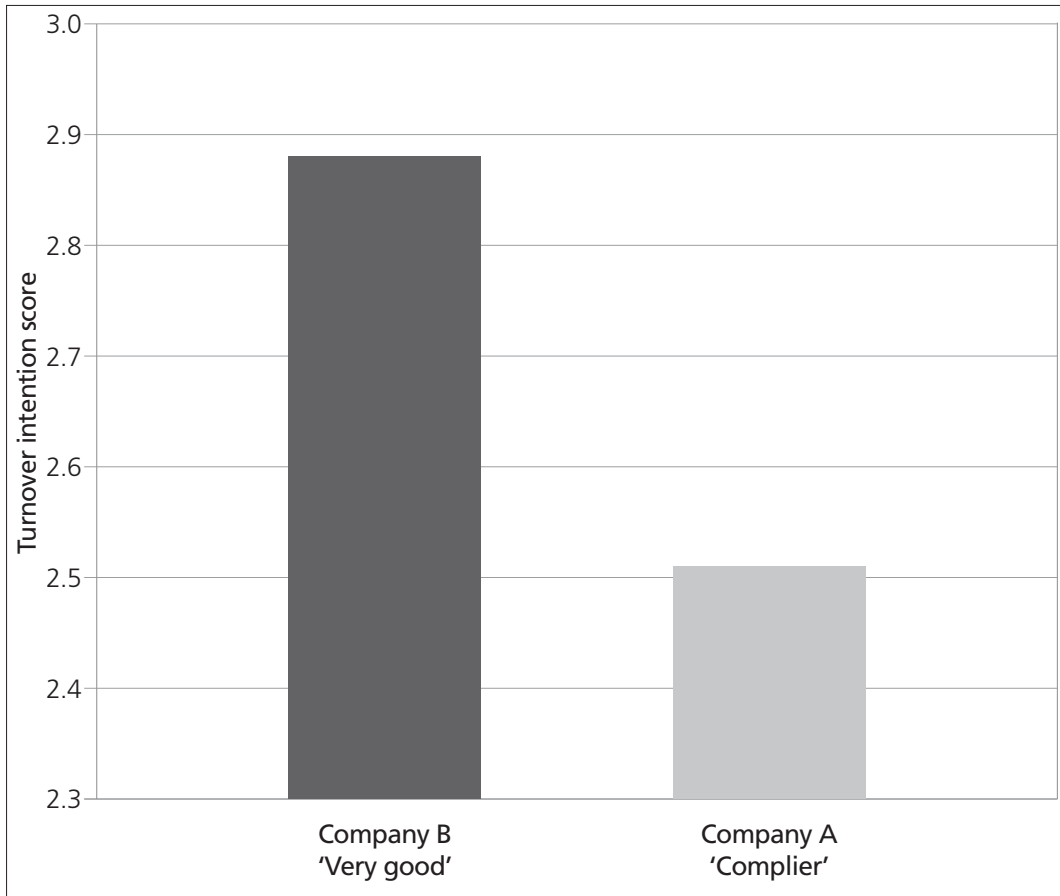


Figure 38
Intention to quit
scores for case
study companies A
and B

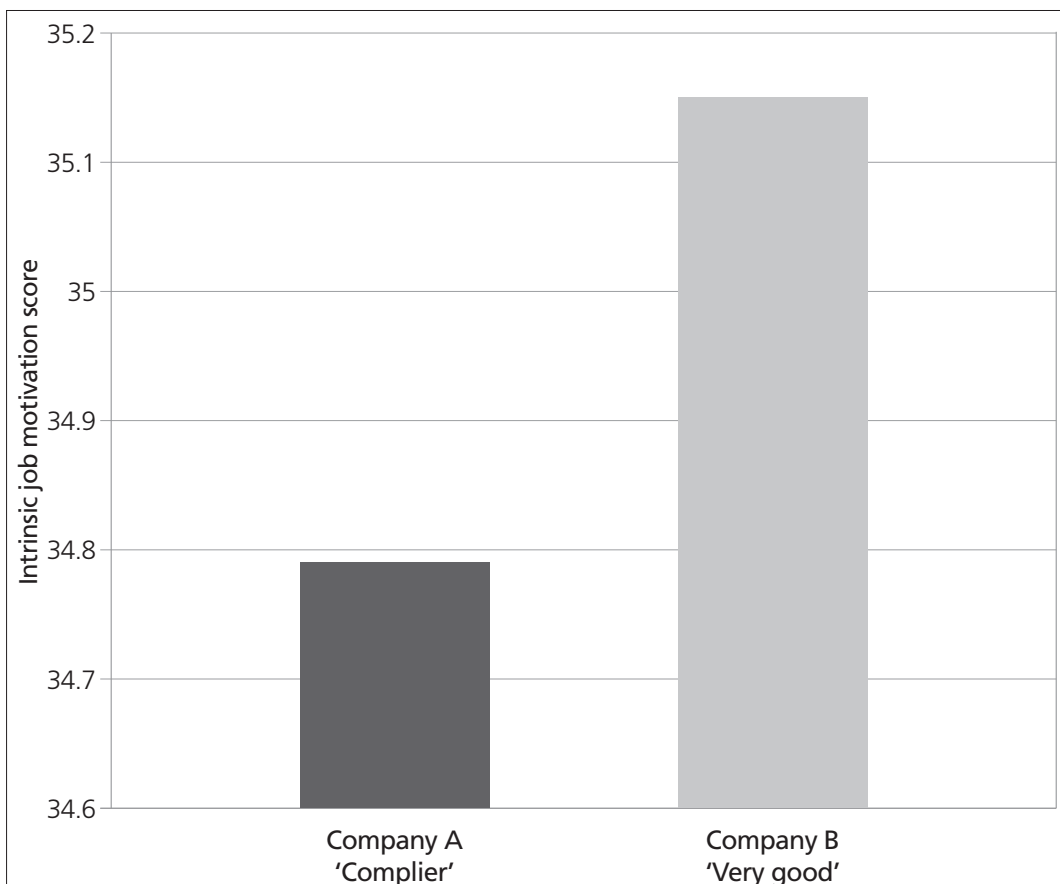


Figure 39
Intrinsic job
motivation scores
for case study
companies A and B

6.3 Case study 2

6.3.1 Brief description of case-study organisations

The two organisations in this case study are medium-sized manufacturing companies involved in the processing of materials. Company C employs 63 staff and returned 15 survey responses. Company D employs 105 staff and returned 19 survey responses. Company C was categorised as ‘yet to be fully engaged’ and company D was a ‘very good’ organisation.

6.3.2 Organisational outcomes

Table 20 details the organisational outcomes comparable across the two companies from the data they provided. Total sickness absence data were not available for company C and therefore could not be compared.

From this simple comparison it can be concluded that the ‘very good’ organisation shows higher profit, lower staff turnover, fewer accidents per staff member across all accident figures, and lower overall sickness absence.

6.3.3 Employee outcomes

A series of *t*-tests was undertaken to compare the average scores across the employee outcomes. The two companies’ scores were compared on the health and wellbeing measures, safety climate perceptions, organisational and job attitudes, and self-reported performance measures.

Table 20
Comparison of
organisational
outcomes between
companies C
and D

	Profit margin (% of turnover)	Staff turnover (% of total staff)	Non- reportable accidents (per head)	Reportable accidents (per head)	All accidents (per head)	Days lost to accidents (per head)
Company C	10	5.0	0.29	0.10	0.38	0.98
Company D	15	4.8	0.11	0	0.11	0

Figure 40
General health and
vitality scores for
case study
companies C
and D

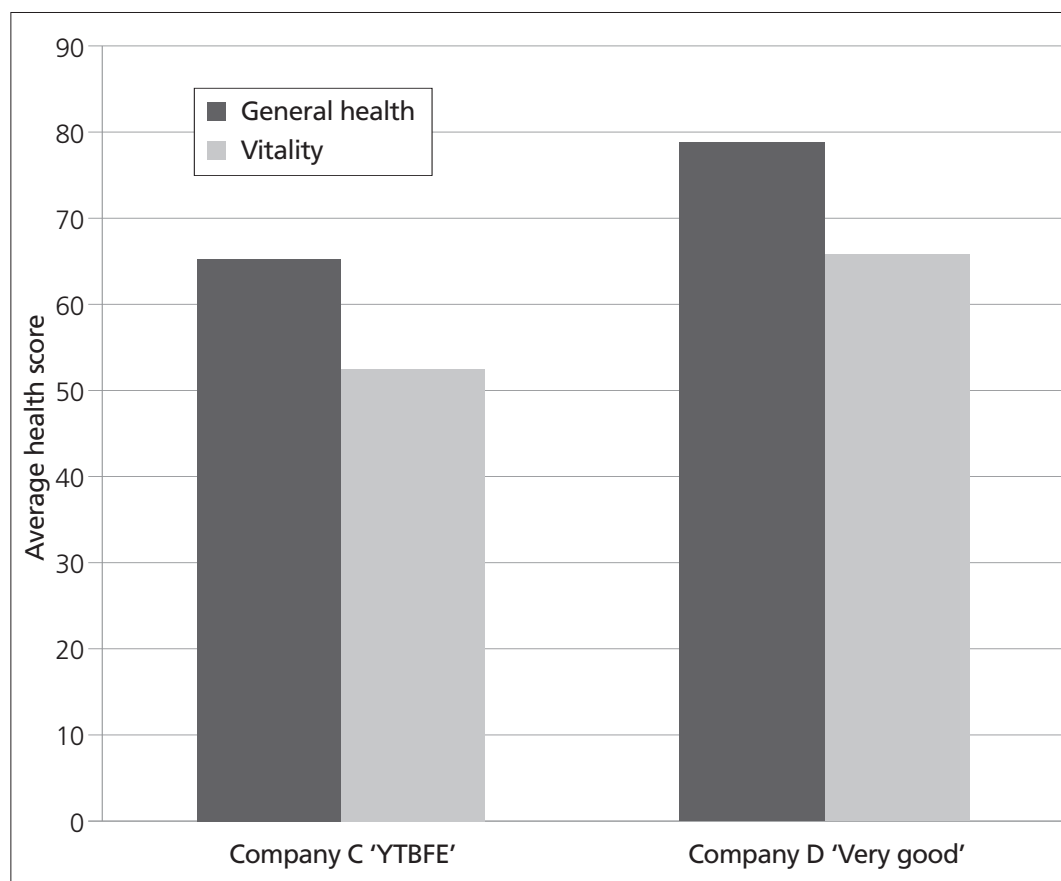


Table 21 shows the results of the t-tests. As can be seen from the table, the ‘very good’ company (D) had results in the predicted directions across health and wellbeing, safety climate perceptions, and organisational attitudes. Employees in Company D reported significantly higher general health and vitality, and higher scores in seven out of the nine safety climate facets. In addition, Company D’s employees were significantly more committed to their employer and reported lower intentions to quit. Figures 40–43 illustrate the significant differences between the companies in health and wellbeing, safety climate and organisational attitude outcomes.

Employee outcome*	F	df	p	Mean scores	
				Company C (YTBFE)	Company D (very good)
Health and wellbeing					
General health	2.298	32	<0.05	65.27	78.79
Mental health	1.914	30	NS	64.64	76.67
Vitality	2.110	32	<0.05	52.50	65.79
Safety climate					
Management commitment	2.501	32	<0.05	6.73	8.10
Communication	2.215	31	<0.05	7.07	8.33
Priority of safety	1.585	20	NS	7.33	8.21
Safety rules and procedures	2.929	32	<0.01	6.20	8.05
Supportive environment	2.321	32	<0.05	7.67	8.74
Involvement	0.847	31	NS	7.27	7.83
Personal priorities/need for safety	2.117	32	<0.05	6.73	7.89
Personal appreciation of risk	2.052	32	<0.05	6.87	8.16
Physical work environment	2.873	32	<0.01	6.60	7.84
Job attitudes					
Organisational commitment	2.174	22	<0.05	43.33	50.26
Job satisfaction	1.432	32	NS	4.80	5.58
Intention to quit	−2.619	19	<0.05	3.77	2.14
Intrinsic job motivation	−0.167	31	NS	35.28	35.05
Performance measures					
Overall performance	0.630	32	NS	8.20	8.42
Self-reported absence	−0.717	32	NS	0.33	0.10
Self-reported work-related illness	n/a [†]	–	–	–	–

* See Table 4 for detailed definitions of the outcomes

† Not calculated

NS = not significant

Table 21
Comparison of employee outcomes between case study companies C and D

Figure 41
Safety climate scores for case study companies C and D (significant results only)

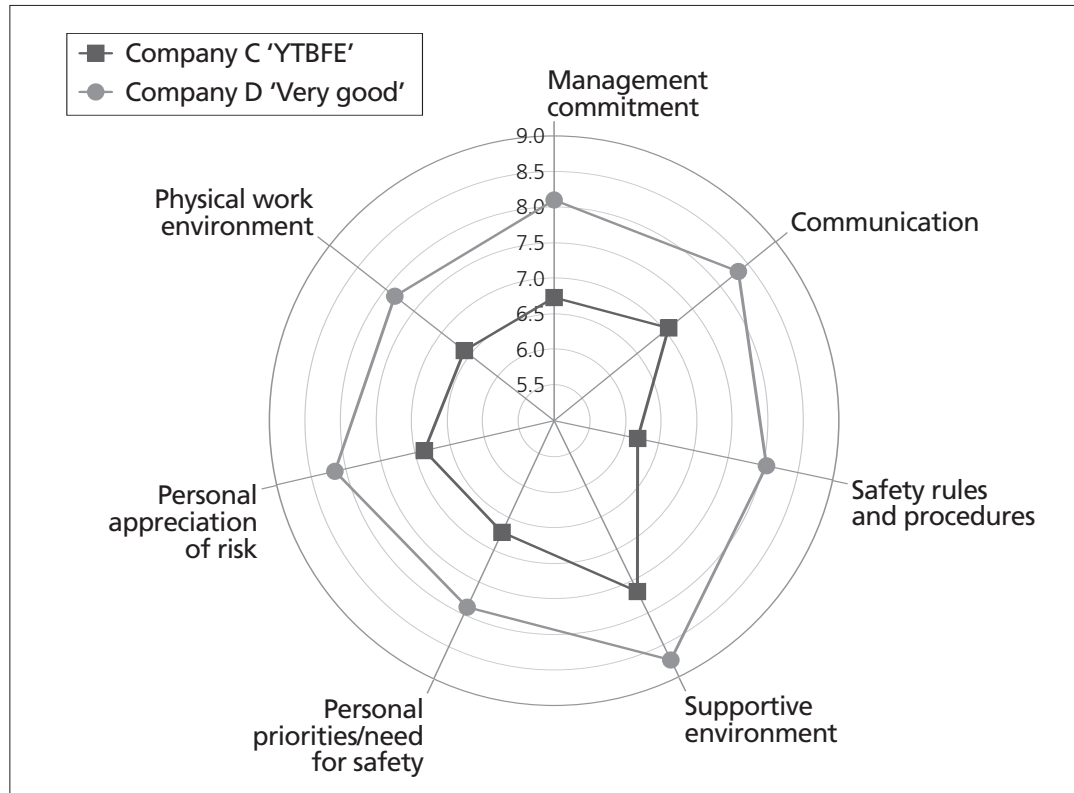
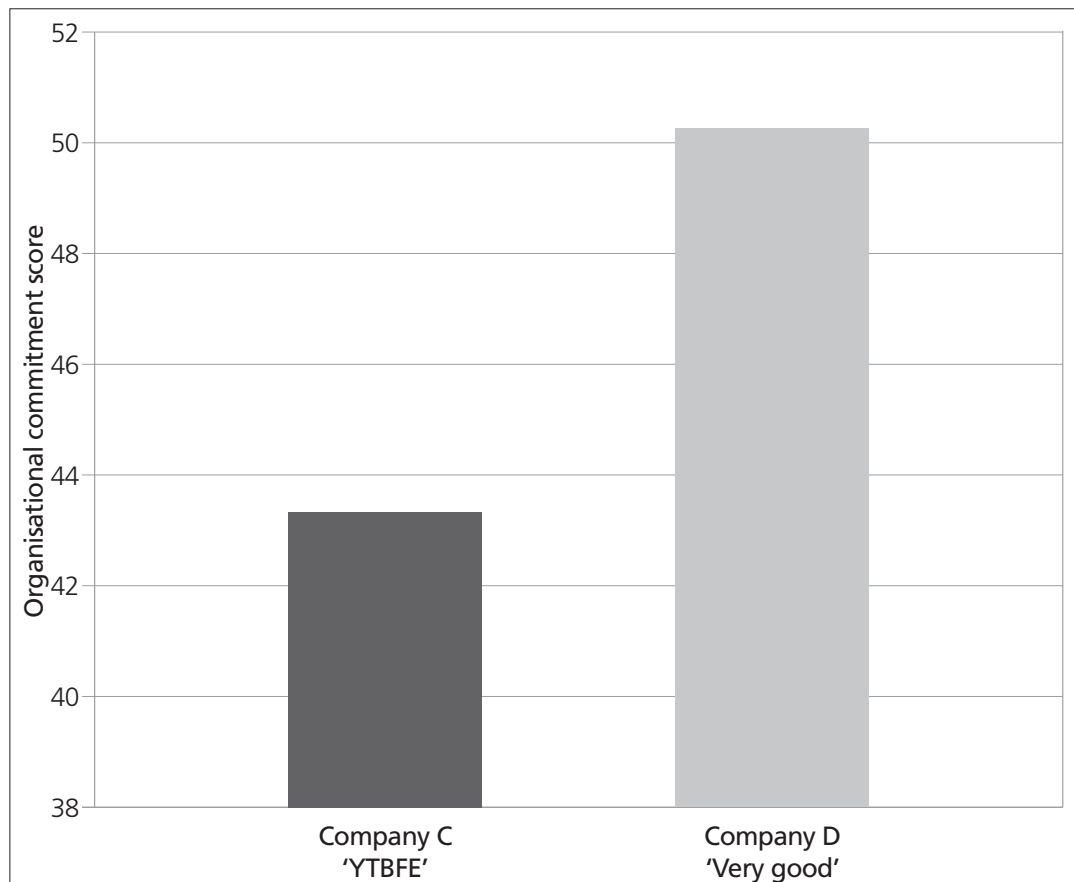


Figure 42
Organisational commitment scores for case study companies C and D



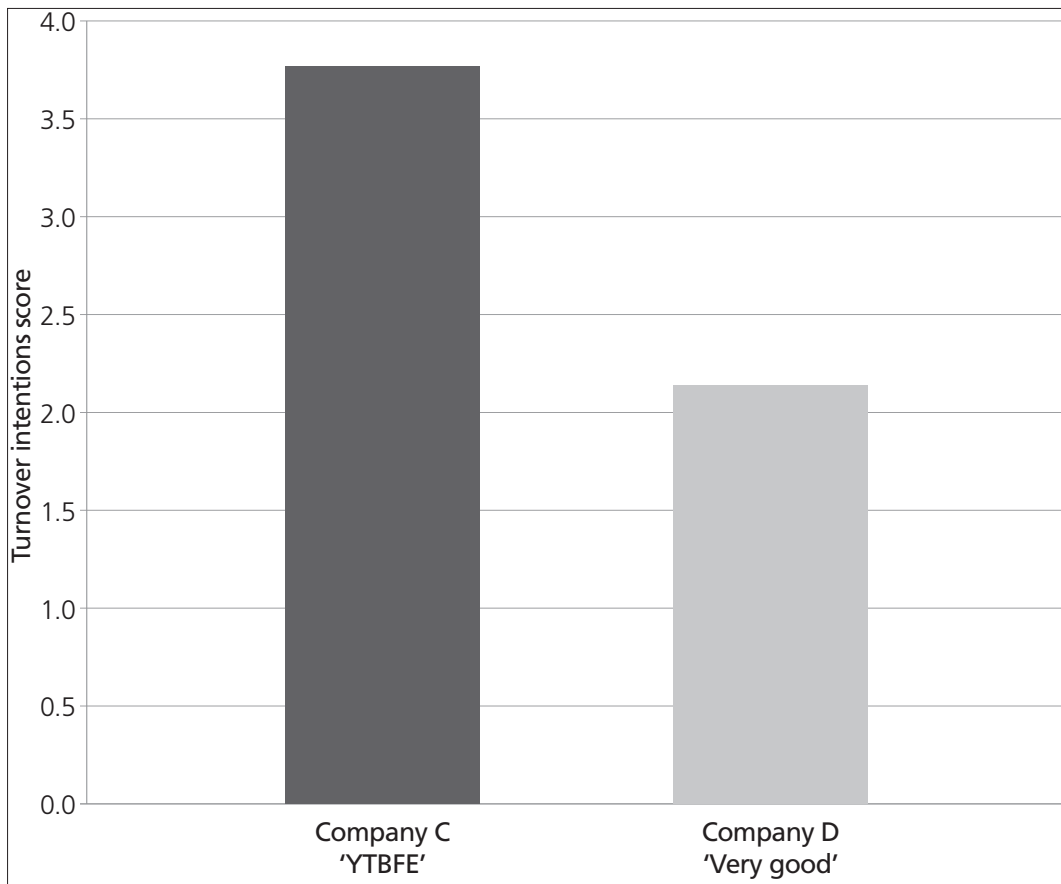


Figure 43
Intention to quit
scores for case
study companies C
and D

6.4 Summary of intra-industry comparisons

From these case studies, it would appear that when comparisons are made between organisations in the same industry, employees from organisations with a more proactive approach to OSH management generally report not only more positive safety climate perceptions and organisational attitudes, but also seem to experience better health and wellbeing. The implications of comparing organisations' OSH management within industrial sectors is discussed later in this report.

7 Results: qualitative analysis of stakeholder interviews

7.1 Section rationale

This section describes the qualitative analysis of the stakeholder interviews. These interviews were based on a semi-structured interview format, which covered a number of areas relating to OSH policy and procedures. The data from these interviews were analysed to develop the CIC model, before subsequently being used for categorising organisations by their approach to OSH management.

7.2 Categorisation of organisations using the CIC model

As described in Section 2, the qualitative analysis began with a template analysis of the interviews, which informed the further development of the CIC model. Table 22 outlines the final set of drivers, themes and key indicators identified from the template analysis. These will be explored further in the next section, where evidence from the interviews will be provided to support their inclusion in the model. As well as offering evidence for the drivers and themes used in the statistical analyses, this section will provide some additional information about issues or problems experienced by organisations in their management of health and safety. Furthermore, where cases of good practice were identified in participating organisations, these will be highlighted in the final section.

Once the first stage of the analysis was complete, the second stage could proceed, with the categorisation of each participating organisation according to the augmented CIC model. Table 23 shows the final list of organisations by size and CIC category. There was a good spread of organisations across the varying approaches to OSH management; in particular, there were SMEs in all three categories. However, there were no large organisations in the 'yet to be fully engaged' category.

7.3 CIC categorisation themes

The CIC framework was used to categorise participating organisations on the basis of their OSH management as demonstrated by a series of key indicators concerning the OSH policies, procedures and climate in the organisation. This section will describe how the categories can be distinguished according to the drivers and key indicators. Given that stakeholders from most organisations described indicators and drivers that spanned a number of categories, this descriptive analysis should be interpreted as a guide to a 'stereotypical' organisation in each category. The main themes for each category are illustrated using quotations from the stakeholder interviews.

7.3.1 The 'yet to be fully engaged' category

7.3.1.1 Drivers

The discriminating feature of drivers for this category was the focus on the economic outcomes of health and safety failures. This was often expressed in terms of costs associated with insurance premiums. The manager responsible for health and safety in a small manufacturing company articulated this concern:

[It's] the insurance aspect of claims, and fortunately we haven't any claims against us at present, but we have had in the past. Not many, but it does affect insurance premiums, so one of the big drivers is we know premiums are going to go up every year no matter what, but our aim is doing.... You know, [if] we've got zero claims against us, it helps in reducing the percentage increase each year.

Other drivers for this category include the need to comply with the law and avoid interventions by regulators. This was expressed particularly by smaller companies, as this OSH professional acting as a consultant for another small manufacturing company summarises:

Legal compliance is a very key driver, and I suppose coupled with that the fear that if something were to go wrong, that if we weren't doing the things we should be doing, we could become seriously at odds with the Health and Safety Executive, which might be very painful. It could be very detrimental to the company. So I think the fundamental driver, whether we like it or not, is fear and legislation.

The final key driver in this category was litigation and compensation payouts. An OSH manager from a medium-sized construction company identified this as one of its main drivers:

	Yet to be fully engaged	Complier	Very good
Main drivers	1 Legal	1 Legal and economic	1 Staff welfare seen as paramount
	2 Concern about costs of non-compliance	2 Moral concern for staff welfare	2 Zero accidents
	3 Insurance premiums	3 Reduction of accidents	3 Reputation and company image
		4 Reputation and company image	4 Raising standards – awards and accreditation
		5 Corporate social responsibility: - commercial drivers for social responsibility - aware of necessity to meet standards (eg ISO)	5 Corporate social responsibility: - desire to reduce negative impact on local communities - desire to have positive impact on and invest in local communities
Key indicators	1 Integrating occupational health with safety: - little focus on occupational health issues - no proactive monitoring or risk management	1 Integrating occupational health with safety: - awareness of the need to manage occupational health - safety is the key focus - basic health surveillance in line with regulatory requirements	1 Integrating occupational health with safety: - health seen as equally important as safety - proactive monitoring of occupational health issues - provision of a range of occupational health activities
	2 Learning and continuous improvement: no explicit desire to improve OSH management systems	2 Learning and continuous improvement: - may feel that they already spend enough or cannot improve - may recognise need to improve but lack resources	2 Learning and continuous improvement: - always looking to improve - desire to be excellent
	3 Management commitment and planning: - policy statement on OSH - senior management pay 'lip service' to OSH issues - no visible management commitment to OSH - discrepancy between management policy and how staff experience OSH issues - no role for OSH in management decisions	3 Management commitment and planning: - senior managers committed to the principles of good OSH management - senior management support OSH personnel and activities - OSH not always the priority in decisions - OSH not always integrated into management decision-making or planning activities	3 Management commitment and planning: - go beyond minimum compliance - OSH seen as a priority - OSH represented at senior management level - OSH seen to be owned by managers, not just OSH personnel - OSH is part of management decisions and design and planning processes

Table 22
The developed
Continuous
Improvement Cycle
model

Table 22
continued

	Yet to be fully engaged	Complier	Very good
Key indicators (continued)	4 Monitoring and audit • limited monitoring in line with statutory requirements • no auditing of OSH activity • no attempt to cost OSH failures or absence	4 Monitoring and audit • monitoring systems in place to ensure statutory compliance • focus on absence and accidents – lagging indicators • audits undertaken • some attempts to learn from monitoring and audit activity	4 Monitoring and audit • importance of understanding not ‘what happened’ but ‘why it happened’ • use of external indicators • lead indicators and near-miss reporting • benchmarking and accreditation • information fed back into OSH management • multiple layers of monitoring • costing of OSH failures and work-related ill health • assessing staff awareness, eg through surveys
	5 OSH expertise • no apparent access to OSH expertise • lack of awareness of OSH issues	5 OSH expertise • some access to OSH expertise • sometimes there are in-house staff with responsibility for OSH	5 OSH expertise • in-house access to professional OSH expertise • access to external OSH advice • expertise sometimes provided centrally with local OSH managers delivering policies
	6 OSH management systems • risk assessments and accident book	6 OSH management systems • informal management systems – collections of policies and procedures	6 OSH management systems • formal systems • focus on ‘plan, do, check, act’ • integration of OSH, quality and environmental management processes
	7 OSH training and communication • no structured OSH training • no regular or structured OSH communications	7 OSH training and communications • OSH is part of the induction process • structured OSH training • focus on professional competence – ‘on-the-job’ training • staff access to rolling programmes of OSH training in line with regulatory requirements • regular OSH communication with staff	7 OSH training and communication • focus on OSH as part of management skills • specific OSH training – eg <i>Working safely</i>, personal risk assessment skills • behavioural safety is a key training issue • staff OSH competence and understanding are assessed regularly and training is delivered according to the assessment • multiple methods of communicating OSH information • priority of OSH in regular communications

Key indicators (continued)			
	Yet to be fully engaged	Complier	Very good
8	Resources: no defined resources for OSH management	8 Resources: - resources provided to meet statutory requirements - resources allocated to OSH as part of contracting and tendering processes - safety is not always a priority in resource allocation	8 Resources: - OSH spending is prioritised - no budget – spending undertaken to ensure safe systems of work
	9 Safety culture: - lack of staff awareness of OSH issues - OSH not seen as important to the organisation - OSH not regarded as a priority for staff - operational pressures seen as more important than OSH	9 Safety culture: - staff aware of OSH issues and responsibilities - staff raise OSH issues with managers - staff may feel that responsibility for OSH lies with OSH personnel - there is sometimes a discrepancy between management policy and staff attitudes on OSH - operational pressures compete with OSH issues	9 Safety culture: - integration of OSH into management practice - open communication channels for OSH feedback - staff encouraged to take personal responsibility for OSH - operational pressures are secondary to the need to work safely – ‘if you can’t do it safely, don’t do it’
	10 Stakeholder involvement: - staff not represented in OSH decisions - staff apathetic about influencing decisions	10 Stakeholder involvement: - staff represented in OSH decisions - customers and suppliers involved in OSH decisions and planning	10 Stakeholder involvement: - multiple channels for staff consultation - multiple stakeholders (eg suppliers, customers, regulators, insurers) involved in OSH decisions and planning - importance of stakeholders in improving OSH standards is recognised and valued

Table 22
continued

This sounds a bit disparaging to the directors, but since corporate manslaughter came in, you will find that a lot of directors of companies now suddenly look into health and safety and want to know all about health and safety because they don't want to say 'Good morning, judge' and hear a clanging door.

7.3.1.2 Integration of occupational health with safety

Organisations in this category seemed to have little focus on occupational health issues. This was manifested by the acceptance that deleterious health effects were quite literally an 'occupational hazard', as expressed by a manager at a small company in the community, social and personal service activities industry:

You do get some that will get arthritis in their hands but there is not really much you can do to stop that. If it is going to happen, it is going to happen, unfortunately.

The lack of awareness of occupational health issues was also evident from the disregard shown by some organisations towards the negative health effects arising from the arrangement of work spaces. The problem of managing the temperature in a medium-sized manufacturing company was discussed by one staff representative:

In the past I've been in meetings where we've said... we have a floor plan and we say: 'Right, where are we going to put that?' The manager will say: 'Oh, it'll fit in there.' But they just put one of my guys in between two furnaces where he'd have to work in boiling hot conditions.

Implicit in the integration of occupational health into health and safety policies and procedures, is the need to assess, monitor and manage occupational health concerns proactively. Whilst some organisations in this category described a simple lack of any activities or procedures involving anticipating and managing potential negative health effects, other organisations did appear to have policies and procedures in place, but they were neither enforced nor monitored. One senior manager in a medium-sized company in the electricity, gas and water industry described its 'minimalist' approach to occupational health:

I don't know of any health surveillance. I've seen it mentioned in some of the old safety, health and environment files but I have not seen any real evidence.

A further indicator of the common approach to occupational health of organisations in this category was the lack of sick pay for staff. Clearly, despite the possible negative implications – for employee attitudes, performance and health – of a system which in effect encourages staff to go to work when

Table 23
Summary of
organisations by
size and CIC
category

CIC category	Size of organisation		
	Small (< 50 staff)	Medium (50–250 staff)	Large (> 250 staff)
Yet to be fully engaged	Hairdresser School Wind power developer	Asbestos management company Ceramics manufacturer	
Complier	Biotechnology consultancy Electronic components manufacturer Scaffolder	Construction company Construction component manufacturer Electrical power supply manufacturer Polymer manufacturer School Waste recycling company	Facilities management company (defence and logistics) Facilities management company (nuclear) Police force Students' union management company
Very good	Ceramics manufacturer Dental practice Site mixing company	Clay and synthetic additives manufacturer Housing association Housing developer Leisure centre	City council (North of England) City council (South East of England) Fire and rescue service Further education college Utility company University

they are unwell, a number of small organisations reported the lack of remuneration for sickness absence. A manager from the electricity, gas and water sector commented:

We don't get paid sick pay. Yes, we don't get paid sick pay. Even for long term you get statutory sick pay.

A senior manager in an SME in the property development, renting and business activities sector also outlined his approach to managing sickness absence:

I've got a great system: it's called 'don't pay them sick pay'. And it works brilliantly [as] it halves... it's halved the amount of sickness that is declared in the rest of the business... so people don't go that sick.

7.3.1.3 Management commitment and planning

While most organisations reported having some sort of OSH policy statement, the key issues in this theme were the apparent lack of commitment to OSH management shown by senior managers, and the lack of consideration given to OSH during business and planning decisions.

Two of the smaller participating organisations both described how OSH was not regarded as particularly important in the running of their businesses, and was therefore a low priority in their decision-making processes. A project manager in a small company in the electricity, gas and water industrial sector provided the following response to a question concerning the priority of OSH in management decisions:

Very, very low priority if at all. I mean, I am not the director of the company. I am sure they consider it. It's a small company. There is only sort of eight of us; two of those are the company directors. I am sure they know the legalities a lot more so have an opinion of it, but as far as I am aware and as far as the other staff are aware I don't think it's.... It's not a cornerstone for the growth of the company. There isn't a policy as I am aware and therefore I can't sort of expand.

Another manifestation of lower commitment to OSH management was the 'lip service' paid to OSH issues by organisations in this category. This was evident in a medium-sized company in the electricity, gas and water industry, whose manager for health and safety described how the owners regard the provision of OSH management as a 'tick-box' exercise:

The company who own us at the moment are very, very keen that we get the phraseology of this... the right ticks in the boxes, if you know what I mean. So to have a safety manager in place is a sellable commodity. That's pretty much the way they run with it.

7.3.1.4 Monitoring and audit

For organisations in this category, monitoring and audit appeared to be minimal, and where present, predominantly geared towards meeting statutory requirements. Some organisations reported no demonstrable auditing procedures, and there was little attempt to learn from what limited monitoring took place. This lack of a structured approach to even basic monitoring was articulated by a manager from a medium-sized manufacturing company:

... as for the monitoring, not really. Not really. It's something that isn't done. There's no framework for that monitoring to be done.

7.3.1.5 OSH expertise

Access to OSH expertise in organisations in this category appeared to be limited. While some organisations reporting on OSH expertise in this category were smaller, and therefore perhaps more likely to suffer from lack of professional input, this certainly wasn't the case for all small organisations, some of whom reported hiring the services of outside safety consultancies. Indeed, the lack of access to expertise was not limited to smaller organisations, with one senior manager in an educational establishment reporting no in-house OSH specialists:

We don't have an occupational health nurse but we have trained first aiders and we have a head first aider.

The issue of expertise was articulated as a problem area for some smaller organisations in this category. The manager of a small company in the community, social and personal service activities industry described how she uses personal networks to get access to OSH information:

...through the internet a lot of the time. One of the girls who works with us husband's in charge of most the health and safety in quite a big factory so he says: 'You should be doing this' or 'You should be doing that.' So he helps us out quite a lot. It is generally through that.

It is clear that in terms of OSH expertise in organisations 'yet to be fully engaged', access may be limited not just due to lack of interest in OSH issues, but also due to financial constraints or problems associated with the lack of awareness as to how or where to seek OSH information.

7.3.1.6 OSH management systems

Management systems for health and safety in organisations in this category were either basic systems which had fallen into disuse, or limited to accident books and risk assessments. An officer responsible for health and safety in education described how the management of OSH was generally through accident recording:

We record accidents and we've got accident books and we analyse the data but that's it really.

The other situation highlighted by stakeholders was one in which basic policies and procedures were in place, but there was no attempt to enforce or monitor them. A staff representative from the education sector described how risk assessments were carried out but not necessarily used or updated:

There's an issue that maybe the risk assessment then gets filed somewhere, and how much it is then referred to or used and how much is an ongoing process or something that is just done once, and then, I'm not saying forgotten about.... I'm sure people remember some of the things they've done as part of that process but I'm not sure how these things are used on a day-to-day basis or how the information gets communicated to new staff and that kind of thing.

7.3.1.7 OSH training and communication of information

Ensuring that staff are adequately trained in OSH issues and communicating OSH information regularly are both clearly important in maintaining staff safety and nurturing a healthy attitude towards OSH. Organisations in this category tended to describe very little information sharing. This was evinced by the lack of regular or structured OSH communications, as described by a staff representative from a medium-sized manufacturing company. When asked how general information was communicated to staff, she replied:

Just through word of mouth, really.... It is just by word of mouth.

When asked whether there was any other means of communicating information, for example through visual media (eg posters), she responded:

It's not really given.... I suppose if someone wanted to see it they would have to ask for it. There's nothing like for everybody to read because [the health and safety manager] keeps all the... but if somebody did purposely want to see something then, yeah, it would be available.

There was a similar lack of systematic training available or prescribed for staff in organisations in this category. For example, a manager from a medium-sized manufacturing company described how very little OSH training – either job-specific or general – had been made available to staff:

I'd say for us, there's nothing set down if I'm honest; in health and safety there is nothing, there was no action plan; there is nothing set out in objectives or targets, there's nothing in place.

7.3.1.8 Safety climate

Staff in some organisations appeared to have a somewhat limited awareness of OSH issues, with health and safety regarded as unimportant for their day-to-day work. This lack of 'ownership' of health and safety was described by a manager responsible for health and safety in a company in the electric, gas and water industry:

It's when we get down to the people physically doing the job, that's where we've got a bit less commitment, I think, and a little less ownership. People aren't that keen at the moment because they're busy – they've got a lot going on with the type of work they are doing.

Indeed, one of the defining features of safety climate in this category was the conflict between the need to work safely and 'getting the job done'. The priority of operational pressures was reported by

stakeholders from a number of organisations. One middle manager from a manufacturing company described how the requirement to meet production targets meant that staff sometimes felt that they had to cut corners:

But the problem I get, if I'm honest, is I have to balance my production against my safety. Now, I'm judged on my production... and as you know, sometimes good safety is not always well received because it means sometimes you want to get everything done, and you want to rush it all and cut corners but you have to do it properly. So there's that little bit of resentment about that.

A manager from a small company in the electric, gas and water industry described how, although staff were aware of OSH issues, they did not always change their behaviour:

As project managers, we do long distance driving. And we are driving tired, basically. For example, yesterday I started driving at six o'clock [in the morning] and was driving for the majority of the day and I got home, finished driving about eight o'clock in the evening, with a few meetings in between, hour breaks. But that's probably a typical day. That is probably once a week, once every two weeks. So in terms of the driving health and safety things... people are aware that it is dangerous to drive like that, but regardless we do it.

7.3.1.9 Stakeholder involvement

Organisations in this category tended to describe a general lack of stakeholder involvement in OSH policies, procedures, decisions and planning. This was demonstrated in some organisations by a lack of staff representatives, as reported by a senior manager from a medium-sized company in the electric, gas and water industry:

The general workforce are communicated with; I wouldn't necessarily say they're consulted with. I'm not sure that there's that many people who belong to trade unions within [the company]. I certainly don't know of any staff representatives."

In other organisations, the lack of stakeholder involvement was principally due to the highly regulated nature of the industry in which they operated, as explained by a senior manager in a medium-sized company in the property development, renting and business activities sector:

Do you know what, I don't think they're consulted at all, actually. And the reason they're not consulted is because we're so closely... tightly regulated.

However, while stakeholder involvement in this organisation appeared to be minimal due to the regulatory environment, a later comment indicated that the lack of consultation might be part of a wider view about the benefits of having OSH influence from the 'bottom up'. When asked about how the views of staff might affect OSH management, the manager responded:

It is top down, it's not driven from the bottom up. We don't have trade unions in the business. They are not frankly something that I would entertain as having, a body of individuals. It's top down.

7.3.2 The 'complier' category

7.3.2.1 Drivers

The drivers for this category shared some similarities with those of the previous category, but with an increased concern for the moral necessity to provide a safe working environment for staff. The managing director of a small company in the construction industry described how, for him, health and safety matters were focused on costs combined with concerns for the welfare of his staff:

The key driver is the insurance and also you want everyone to go home at night. You don't want an accident. You don't want a loss of reputation. Everyone needs to go home at the end of the night.

Another key driver for organisations in this category was the need to manage health and safety effectively to protect their reputation and image. This driver was very often expressed in terms of the potential negative business impact of a poor health and safety record. The concerns about reputation and image were linked to corporate social responsibility, which at this level focused primarily on the

commercial benefits of being seen to be a socially responsible employer. A senior manager in a large company within the property development, renting and business activities sector articulated these issues:

If you are in the business of delivering a service you need to be squeaky clean. Especially if you are asked prior to joining someone: 'How clean are you?' and you either A choose to tell lies or B tell the truth and don't get work. And so every time something does go wrong it affects your reputation and therefore you may not even be asked to tender, because of your reputation. You may not even get to the point of being asked the question in writing because you haven't been asked in the first place. So there is some strong motivators there.

One further driver in this category was the need to reduce accidents. In this category, organisations seemed to set realistic reduction targets. The manager responsible for health and safety in a medium-sized manufacturing company described her company's approach to accident reduction:

I don't think you'll ever get zero. But, you've still got to set some sort of target, which is what we do... and we do that year in, year out. Let's say we had 70 accidents last year, we want it down to 50 this year.

7.3.2.2 *Integration of occupational health with safety*

In the 'complier' category, organisations appeared to have a better awareness of the need to manage occupational health issues, but stakeholder responses indicated that safety was still regarded as the priority. Some organisations reported health surveillance procedures, but they appeared only to meet the requirements of statutory regulations. Others reported that occupational health was regarded as important, but that currently they hadn't got the policies and procedures in place to manage it effectively. This *ad hoc* approach to managing occupational health was outlined by a senior manager in a large company in the property development, renting and business activities sector:

Occupational health is again on the top list; it just requires a strategy. Occupational health at the moment is *ad hoc* – it's done when we have to fulfil mandatory requirements.... We talk health and safety when really we do safety. Health has been a poor relation to safety and quality in this company currently, but it won't be for long.

Organisations in this category were characterised by a reactive rather than proactive approach to managing occupational health. Most organisations, across different sizes and industries, reported using outsourced occupational health providers. This can inevitably create the impression that occupational health is just a 'bolt-on' to safety, with the data from the management of work-related health not necessarily used effectively by organisations. A senior manager from another large company within the property development, renting and business activities sector described this problem:

If there's a breakdown in the link somewhere, it is where perhaps existing information on individuals regarding occupational health issues [isn't] passed to ourselves.... But I think we need to ensure that the line management team are receiving this news via HR, who is actually assessing the risk accordingly to this person, the business risk. Check that link, check that process. See if it's there. My perception is that it is not.

7.3.2.3 *Management commitment and planning*

'Complier' organisations in general reported that managers were committed in principle to OSH management. However, stakeholders from some organisations questioned whether senior managers who expressed their commitment to OSH management actually understood what that meant, and whether this commitment was being translated into practice. A health and safety officer in a large company in the property development, renting and business activities sector articulated these concerns:

I think if I ask any of them, then they'll be totally committed to health and safety. Yeah, I think all the directors and senior management will say 'Yes, we're totally committed to it and we will do what we need to do.' If you ask them what they think that means – being totally committed – I'm not sure they would be able to answer you. I don't think they understand what it takes to get [ISO] 9000, 14000, and 18000 and to keep that commitment ongoing.... They'll show their clients the certificate but they don't really know what it means, I believe.

Other stakeholders described how the approach by senior management was committed but not overzealous, with the focus on ensuring compliance. The health and safety manager from a medium-sized manufacturing company described his company's view on the level of OSH provision:

I would say it's committed but not over-zealous, is probably the way I would describe it. Being a small company we try and do as much as we can, we try and stay within the law, but we don't go over the top, you know.... Obviously you've got financial restraints on what you are actually doing, all the time, so it's a [question of] need: if it's absolutely needed it's done, but if... we don't need it, then obviously we have to draw a line on whether it's practical.

The final key issue in this theme is the positioning of OSH issues in the hierarchy of management decision making or planning. Organisations in this category often expressed a concern about the lower priority OSH management may take during planning or financial decisions. This was outlined by a health and safety manager in the public administration and defence sector:

Health and safety can be one of those areas which is seen as not being included in management systems. I think in the past it has been seen as something that causes issues rather than seeing it in a proactive way.

7.3.2.4 Monitoring and audit

Organisations in the 'complier' category generally had basic monitoring and audit systems. These systems often contained regular inspections, internal audit procedures and sometimes the use of health and safety committees. An OSH professional acting as a consultant for a small manufacturing company summarised his approach to monitoring OSH issues:

...weekly inspections – look at the more obvious things, access to fire extinguishers, open access to fire exits, that fire exits are actually get-out able, they are not locked, they look for things that could fall on people, trip hazards. The health and safety committee obviously is a monitoring process in that we always discuss if there have been any accidents, and if there have been, then what happened and what we can do to stop it happening again.

7.3.2.5 OSH expertise

Organisations in this category seemed to demonstrate better access to OSH expertise than those in the preceding category, often reporting some sort of in-house provision with responsibility for (if not professional qualifications in) health and safety. However, one of the distinguishing features of this theme is the need for organisations to match the needs of the business with an appropriately staffed OSH function. In the complier category some larger organisations described how the expertise was not sufficient to meet the needs of delivering OSH management. A senior manager from the public administrative and defence sector stated:

Too many people have health and safety as an additional responsibility. So if you take myself as responsible for chairing our health and safety forum... that's one of X number of responsibilities I have. So it's an additional responsibility. Health and safety links very, very closely to the operational side but if we were to be more effective, there would be more people dedicated and specialised in those roles as opposed to reasonable managers who are specialists in other areas taking on that responsibility.... You can dedicate people to it much, much more than we do.

7.3.2.6 OSH management systems

Management systems for this category were often represented by informal collections of policies and procedures. Most organisations across the sample reported having 'systems' which were not based on structured 'off-the-shelf' packages, but rather on defined procedures for risk assessment, monitoring and review. When asked about the management system in her school, this senior manager responded:

We have a mechanism where issues can be raised and brought to the attention for action to be taken so, yeah, I think we do have one. Yeah, it's formalised by.... I issued a guidance to all staff on health and safety, on a good housekeeping guide of things that they should be doing and notifying them of what the health and safety committee has agreed, what they are, who they are and what action will be taken on health and safety issues.

7.3.2.7 OSH training and communication of information

Training in OSH and communication of general health and safety information for organisations in this category was more structured and regular than for those in the 'yet to be fully engaged' category. However, the OSH training made available to staff in 'complier' organisations tended to be embedded in training in job competence, with less focus on specific training for health and safety. A manager from a small manufacturing company described its structured approach to training, which was focused on developing task-related competence:

If somebody is asked to do a job that they've not done before, we have training matrices which are in each area, and what that shows is who's trained to be able to do a certain job. So if somebody is going to be asked to do a job people will look at the... or their department supervisors will look if they have done that role before. If not, then they will be given the specific training to be able to do it. It might be only training of how to put something together, not necessarily health and safety; there again, it might be something that they are using – specific glues, or hot melt or anything like that – so they will obviously at that point be trained how to use that piece of equipment before they are asked to use it.

Organisations in the 'complier' category reported basic systems for communicating health and safety information to staff. When asked how his company disseminated information, the manager responsible for health and safety from a manufacturing company described a number of means of communication:

Well, either through their own manager's team briefing... or it could be a notice on a notice board or it could be part of a letter which goes out with their payslips, or it would be more likely it would be through the monthly communications.

7.3.2.8 Resources

A significant issue in the 'complier' category was the allocation of resources to OSH management and activities. It seems that OSH is not always prioritised in spending, but rather takes a back seat in competition for resources. This was particularly acute in the public sector organisations, which regularly identified funding as a continuing problem in health and safety management. For example, a senior manager in education outlined that, while there is a buildings and maintenance budget allocated, more specific OSH issues are not always given a priority:

The main thrust is teaching and learning and... we have a school development plan which has various targets set as far as particularly teaching and learning [are concerned]. Health and safety would come in unfortunately at a lower level as it's not specifically included in the school development plan... so it does come lower down the pecking order in that respect.

In private sector organisations, the issue of resources was also felt keenly, with OSH spending often done in terms of 'what is practicable'. The health and safety manager from a manufacturing company summarised this view:

If it's felt that we need a resource for health and safety then obviously it's purchased. And we say that's against the backdrop of if it's reasonable and practicable within the costs – you know, if somebody comes along and says I want a guard on something and it's going to cost £30,000, you're going to have to seriously consider whether you put the guard on or you get rid of the machine.

7.3.2.9 Safety climate

In this category, organisations reported increased staff OSH awareness, but these reports were often accompanied by concerns that this awareness is not always matched with compliance to standards and procedures. This was highlighted by a staff representative from a medium-sized manufacturing company, who described a situation in which the approach to OSH management had improved over recent years, but staff were still sceptical and not necessarily following guidance. When asked about the approach to OSH management in the company, he replied:

Extremely professional, to be honest with you. Since I've been here, I have never known them try to cut a corner, from senior management. However, from a production point of view there are certain members of staff which will always try to cut a corner to make a job go faster.

Another problem for organisations in this category is staff who do not accept responsibility for their own health and safety, and see OSH management as 'someone else's problem', owned by managers or OSH personnel. The director of a medium-sized manufacturing company articulated this concern:

I think probably the biggest... improvement to be gained is getting this message over that we're all responsible for health and safety and this duty of care to each other. It is a difficult message to drive home to people because no matter how much you try, people, for whatever reasons, do see that it is a company problem.

One further issue concerns the lack of management understanding of OSH issues in organisations in this category. This was highlighted as a problem at both senior and middle or line management levels. A director in a large company in the property development, renting and business activities sector, expressed concerns that the OSH understanding at a senior management level was a stumbling block to making improvements in the safety climate. When asked to describe what the level of awareness was across the organisation, he responded:

I would think it's fairly good, but there are some important people within the business who are important roles in terms of being leaders in safety. And ironically those people, I don't believe their knowledge is fairly good like the rest of the organisation unfortunately, and therefore they are a target audience.

The issue of management capability of middle and line managers was also raised. The director of another large company in the property development, renting and business activities sector outlined his belief that OSH specialists need to work with managers to improve understanding:

Yeah, I think we... I think it's stifled, is probably the best word, where sometimes our line managers, or maybe first line supervisors, are caught up in the doing, getting the job out, and I think they need to have a lot broader awareness of safety issues, but that can only come by education and the people best served to educate are some of the specialists.

7.3.2.10 Stakeholder involvement

The distinguishing feature for stakeholder involvement in this category was that staff seemed to be increasingly invited to discuss OSH issues – perhaps via health and safety committees – and were more involved in decisions. A typical response from a stakeholder regarding the use of health and safety committees was by a health and safety manager in the manufacturing industry:

All the members on the health and safety committee apart from myself are part of the workforce.

It is clear from the interviews that the main means of involving staff was through staff representatives, who could filter information up to management through committees, or through less formal means. General consultation – by widespread distribution of new policies and procedures, climate or opinion surveys and so on – was not a feature of this category. Another health and safety manager in manufacturing was asked about the methods of communication and consultation for staff within his company:

I mean the workforce are [consulted], but that's sort of done via staff representatives usually. I am not aware of the general consultation since I have been here.

7.3.3 The 'very good' category

7.3.3.1 Drivers

The key drivers for this category are predominantly associated with the desire to minimise the possibility of accidents and injury, but additionally to realise the perceived benefits associated with a proactive approach to OSH management. Organisations whose representatives described drivers in this category often began by emphasising staff welfare as a paramount concern in the management of health and safety. A site manager in a construction company voiced his belief in the genuine motives behind the provision of OSH management:

A cynic would say profit, but I actually believe this company cares and there's one thing I'd like to say: it's not just health and safety they're interested in; it's also the other one, welfare.

This issue was demonstrated consistently by representatives from organisations in the 'very good' category, and across public and private sectors. It was related to another of the drivers – corporate social responsibility – and how organisations might not only wish to reduce the negative impact of their activities upon local communities, but also to have a positive effect on them. The desire to promote a positive working environment sometimes combined with a wider interest in community relations, as outlined by a senior manager in a large organisation in the public and administrative and defence sector:

Well we are in a risky business, so just being able to fulfil our business functions demands that we approach health and safety responsibly. But we are also committed to having this healthy happy

workforce, both in terms of the [company] and in terms of the county as a whole, where happy and healthy are two of our six themes in terms of the county council. So health and safety is health, safety and welfare.

The desire to reduce the negative impact on the environment was another theme identified. This desire was shared by a number of organisations, but is summarised here by a director in the education sector, who, while acknowledging the need to meet legislative requirements, widened this out to issues about the environment and the organisational culture:

Going beyond legal compliance to [the] environment, sustainability and other cultural issues about the way the organisation is are important drivers for us.

While a reduction in accidents was expressed as a motivator for 'complier' organisations, some organisations in the 'very good' category described their aim as zero accidents. When asked what the priority was for his construction company, a senior manager replied:

To have zero accidents. We do believe that. People should come to work in a safe environment and that is our driver – a zero accident culture.

7.3.3.2 Integration of occupational health with safety

The integrated management of both safety and occupational health was one of the most important themes in discriminating between organisations in the 'complier' and 'very good' categories. While most organisations across the sample admitted that occupational health was often a poor relation to safety, the majority of organisations in the 'very good' category reported positive and proactive approaches to managing work-related health. This was manifested in a number of ways. Firstly, organisations in this category seemed to provide a wide range of occupational health activities. This was not limited to larger organisations with more resources; some of the smaller organisations said that they used occupational health services both reactively and proactively, as described by a senior manager from a company in the property development, renting and business activities sector:

We offer all staff access to our occupational health advisers. It may be a service that we use because we refer individuals to occupational health. It may also be where the individuals themselves say: 'I'd like an appointment with...'. Now we use them for a whole range of things from workplace risk assessments to flu jabs, if people want them.

This organisation also employs a part-time clinical psychologist to provide support for emotional problems experienced by staff. The senior manager went on to describe how the organisation has invested money in providing this service:

[A] clinical psychologist ... initially came in to do some stress awareness training for us: stress awareness for managers so they could identify stressing in their staff. But then we extended it to stress management for individuals. Coping with stress – so it was finding coping strategies if they were wound up about something work-related or personal. What we found was that individuals would have liked a one-to-one service. So, about seven years ago we introduced this one-to-one service but it was on an ad hoc basis. In the last three years we have actually put, I think, about £12,000 in the budget for one day a month where individuals can actually ask for an appointment with her and have a one-to-one counselling session. Totally confidential. Nothing gets reported back to the organisation.

Another organisation showing best practice in this area was in the electric, gas and water industry, whose representatives reported a wide range of occupational health activities, with an emphasis on counselling and emotional support for staff. A manager in its health and safety function described how this worked:

As a business, we have a very good track record of things like medical referrals, stress management. I would say traditionally, up to probably three or four years ago, medical referrals tended to be done on something physical – you know, a guy gets a bad back, cracks his hand, cricks his neck or whatever.... So, we would send people away for medical referral, a bit of physiotherapy, that sort of thing. But, I think the use of occupational health has really broadened out over the past two or three years.... Things like stress counselling, cognitive behaviour therapies... – a strategy that we've used a heck of a lot in the past... for people who worked for me... – maintainers, electricians, fitters.

When asked to describe the motivation behind providing these services, the same manager responded:

They're the experts; they can deal with this much better than the local manager can blunder his way through it. So, we're very quick to refer now. Obviously we don't impose it, it's a process that we make available.... But all the people I've referred over the years, for both the physical and the emotional things I referred them for, have all benefited greatly. It's always difficult to unpick this business about how much stress and baggage and hassle people are bringing in to work with them, and how much we're actually making it worse at work. I've never spent too much time trying to unpick it. The bottom line is if I've got somebody on my team who is coming to work distracted, preoccupied... and it's not a physical thing like sleep deprivation from a screaming child or an illness in the family... – if this person starts to collect too much baggage, then there's only so much I, as a local manager, can do to help them. That's what the experts are there for. I've probably used it about six, seven times over the past five years... and I know other managers use it as well.

In addition to providing a range of services, a distinguishing feature of organisations proactive in occupational health was an attempt to nurture a positive culture on health. This was particularly highlighted by representatives from an organisation in the public administration and defence sector, whose occupational health function appears to have embedded itself across the organisation as a positive support for both managers and staff in managing work-related and non work-related physical and psychological health problems. This was articulated by a senior occupational health representative:

In other words, if I ring them when they're off sick, when I first started here, they thought I was a spy for the company and [asked] why would the nurse possibly be ringing them. Now if I don't ring them in a week, I normally get a phone call saying: 'I've been off all week and I haven't heard from you.'

Another key factor in identifying a proactive approach to managing occupational health was the integration of occupational health within the safety function. Representatives from the same organisation showed how dovetailing occupational health with safety has allowed a more holistic approach to 'staff welfare' to be managed effectively, as summarised by the OSH manager:

The system is integrated within the whole business planning aspect of the [organisation], and it is integrated not only in proactive occupational safety and health but management of the welfare and the health of its employees. It's not seen as a standalone issue. I think it is seen as a core part of the business and it is integrated in every policy that we look at.

However, positioning occupational health within the safety function was not the only method of achieving an alignment of health with safety. An educational establishment showed how placing both safety and health under the auspices of the human resources (HR) department had facilitated a number of improvements to the proactive management of occupational health across the organisation. When asked about the benefits of working as part of the HR department, this health and safety manager went on to say:

When we first started to work more closely with HR, I wasn't convinced that it would work. But it didn't take long for me to be convinced and I think a lot of the benefits that I see to our occupational health... and safety management have been a result of working closely with HR.

The benefits of such partnership working are further explored in the good practice examples at the end of this section.

While most of the above indicators were found in medium to large organisations, a proactive approach to OSH management was not limited to these organisations, with some examples shown by smaller companies. A small manufacturing company showed how size was no impediment to a commitment to staff welfare. Its health and safety adviser described how the company was about to roll out a basic healthcare scheme for its staff:

It's more welfare I would say rather than health and safety. From January we are implementing a health scheme for all the workforce. The company are actually paying the premiums and giving people access to counselling, extra treatments ... so you know, raising health. The idea is that if people are off sick or they've got a problem, they can see somebody quickly.... We don't get any of the information – it's not a sort of way to monitor them in any way. It's just a benefit we're giving them, issued to all the workforce.

7.3.3.3 *Learning and continuous improvement*

While an explicit wish to improve health and safety management was often notable by its absence in organisations in the lower categories, ‘very good’ organisations often expressly stated a desire for excellence and a culture of continuous improvement. This was summarised by the director of a company in the construction industry:

We are not perfect, but that is something we are striving towards.

Other organisations reported how a ‘continuous improvement culture’ in their OSH function had led to a recognition that managing, maintaining and improving health and safety takes time. This was both acknowledged and embraced, along with a scepticism of the ‘next best thing’ culture in which people tend to follow superficial fashions rather than proven techniques. The OSH manager from a company in the electric, gas and water industry described this:

You shouldn’t give up.... You’ve got to be patient, you know – the things you can achieve quickly are usually not sustainable. It’s a long game we’ve gotta play.

7.3.3.4 *Management commitment and planning*

The key issue for this theme was the visible prioritisation of safety by the organisation. This was often expressed as written commitments to health and safety, through business plans and mission statements, or through the positioning of safety at the top of meeting agendas. The manager for health and safety from a medium-sized manufacturing company described how safety was embedded from the corporate level through to weekly meetings:

There was a commitment from the top level within [the company] regarding health and safety. The top level board people in America, their view is that accidents are avoidable. There’s a corporate policy and each site is required to have a local policy. The company’s view is health and safety is a line management responsibility, so what we’re doing is, at the local site level, we’re implementing the philosophy of the board.... It’s on the agenda of almost every meeting that we have at different levels. So, if there’s a plant briefing, safety’s on the agenda. If there’s a weekly production meeting, that I go to, safety is the first item on the agenda. So, it’s there, it’s embedded in the things that we do.

This was not limited to larger organisations; some smaller companies made it clear that safety was a priority in the running of their businesses. This was articulated by the owner of a small company in the health and social work sector:

It’s number one in the values of the organisation. It’s in the business plan. We have to take it very seriously.

Another key indicator for organisations in this category was the integration of OSH into the ongoing development of strategy, business planning and decision-making processes. The managing director of a company in the electric, gas and water industry succinctly remarked:

It seems a key component of that strategy. We don’t do strategy without thinking about health and safety.

One last indicator identified in organisations in this category was the desire to go beyond minimum compliance with OSH standards, and rather aim for best practice. This was highlighted particularly by a construction company, which reported that the benchmark against which it measure its performance is above the industry standards. A site manager explained:

The whole ethos and the [company] ‘way’, from the company manual basically, [is that] what we should do is more than basic legal compliance. You know, if all we’re doing is legally complying then we’re not doing it the way we should be doing it; our standards are a bit better than that. And we have a scoring system on these monthly visits from the external consultant, and you get a 70 per cent bench score for legal compliance, but our minimum target is 80 per cent.... If you don’t score 80, you’re falling below the standard the company expects.

7.3.3.5 *Monitoring and audit*

Organisations in the ‘very good’ category often reported multiple layers of monitoring and audit. For large organisations, this was usually manifested in both informal and formal inspections and third

party or external audits. However, such layering of monitoring was not confined to larger organisations. For example, a manager in a small company in the construction industry reported that, in addition to regular informal inspections, an external health and safety consultancy was paid formally to audit the sites frequently across the year:

We have several plants and we like to get at least four or five of them done per year, so we'll just contact [the OSH consultancy] and tell them what we want... and they'll go around and do a safety audit. We don't tell the staff on site that anyone's... when they're going; we just say if [the OSH consultancy] come around they'll make themselves known, so they all know that now.... [The OSH consultancy] will go around and do an audit and then they'll send the paperwork to us and then [the managing director] has a copy of it and we ask if anything's been done and if there's any non-conformities as such.

One of the most distinguishing features of this theme was the evidence for a wider understanding of what monitoring health and safety standards means. For some organisations, this was expressed in the views of stakeholders that accident statistics should be considered just the starting point for understanding the impact of OSH management. This was highlighted by a senior manager from an organisation in the public administration and defence sector:

Monitoring accidents as an objective is a start but I've always, you know, in my own mind argued... that that's not the be-all and end-all of monitoring health and safety. That's just an indication.

In other organisations, this was identified through the use of lead indicators or near misses, which was sometimes part of a wider strategy of monitoring both reactively and proactively. A public administration and defence organisation appeared to employ a number of monitoring methods, including looking at accident trends and near miss reports, as well as using surveys and skills validation exercises to assess potential future areas of weakness. These were described by a staff representative and OSH manager:

We have got a near miss process. The near miss statistics will go out so people can learn from the type of injuries that we are encountering and work safer.

Every single accident that we look at, the statistics are considered at [the management group] to look for trends. So we monitor reactively.... Proactively, we monitor health and safety through skills validation exercises, trying to look at where weaknesses are through questionnaires etc. So we have got systems in place to reactively monitor and proactively look at what is going on and look for trends before they become a problem.

One further key issue was the feedback of information from the monitoring processes into the OSH management system, or 'closing the loop'. This was a feature of organisations in this category, as outlined by a manager for health and safety in the education sector:

The safety committee will discuss all issues relating to health and safety and there is evidence in the documentation trail that issues that have come out of the staff safety committee have actually been followed up and acted upon. So I would say that certainly the staff views are very well documented and acted upon.

This idea of an 'evidence' trail for following up OSH incidents or investigations was also identified by some other organisations in this category as a way of being transparent in the management of OSH. A staff representative from a medium-sized manufacturing company described the process in his company:

We have got an MO system so if something breaks down, you just go to the computer and you type in an MO and that gets a number, which is traceable. So say, you know, a pipe has been leaking, so you put an MO in and if nothing gets done with it you just get the number and chase it up and find out why.... So that is traceable.

7.3.3.6 OSH expertise

The primary feature of the OSH expertise within organisations in the 'very good' category was the provision of a multi-disciplinary function with access to a wide range of health, safety and environmental expertise. A good example of this was found in an educational establishment, whose health and safety representative described its provision of OSH expertise:

The occupational physician is not employed directly by us but is contracted to us. Occupational hygienist: again, we have access to someone that isn't a full-time contract but we bring in as and when required. We've got... a full-time occupational health nurse who works under me. Our occupational health nurse advises on ergonomics. We actually train environmental health officers. So we have specialists in-house. Previously we would've used the Fire Authority and we've worked with them in the past. [For] health physicists and radiation experts we contract out the role of the radiation officer, radiation adviser but we have supervisors.

While larger organisations were clearly more able to provide a multi-disciplinary OSH function, the OSH manager from a medium-sized construction company described how he gained access to information from experts via outsourced agreements:

[Other than me] we don't have any directly employed in these specialities but we have outsourced them. We have [an occupational physician], [an occupational health nurse] by extension, [an environment specialist], [a fire specialist] and we have external safety consultants as well.

7.3.3.7 OSH management systems

The management systems for these organisations tended to be formalised systems, based on the 'plan, do, check, act' principle. The two systems most reported were HSG65 and OHSAS 18001, with some organisations using formal systems aiming to integrate safety with parallel quality and environmental systems.

7.3.3.8 OSH training and communication of information

While OSH training in the 'complier' category was focused on a structured approach with an emphasis on job competence, one of the key features of the 'very good' category is the provision of more specific OSH training. For some organisations, this may have been in-house training on issues such as asbestos, fire regulations or working at height. Other organisations reported providing training accredited from safety bodies, such as IOSH. This was highlighted by several organisations in this category. The OSH manager from a public administration and defence organisation described how IOSH Working safely and Managing safely courses were being rolled out across the staff:

One of the main priorities is... the IOSH *Managing safely* course, because I think that's probably one of the best courses on the market, for all managers. The basic ethos is if there's any risks, if you deal with more than one or two people, then the potential is that you should be doing that course. The IOSH *Working safely* is... basically a risk assessment course; it's called *Working safely*, but it's really a risk assessment – how you perceive risks and hazards and things like this and what you can do about them. So... we're offering it [on a voluntary basis] to everybody at the moment and we're having full take-up. We're running a course every quarter and it's chock-a-block. In fact, it's booked up until, I think, early next year already.

Leading on from this issue of OSH-specific training, organisations in this category often reported structured training which was regular, continuous and focused specifically on health and safety. One of the best examples of this was the use of 'health and safety passports' by a company in the electric, gas and water industry. One of its OSH managers explained this initiative:

Every operator, apprentice, maintainer, manager, driver and technician has got a safety training passport now, which defines the basic health and safety skill profile that we would expect somebody doing that job to have. Training is delivered at two levels. It is delivered at what we call 'core competency training', which is delivered in a proper training environment with a qualified trainer... – accredited training usually delivered by... our training providers. Then we have something called 'awareness training programmes', which are delivered on a 12-month rolling programme usually as through team talks... – toolbox talks, basically. So, we've got a multi-level training core and awareness programme.

This training initiative, through its applicability to all levels of staff – including managers – picks up on another feature of training in this category. Organisations judged to be proactive in their approach to OSH management often reported the need to train and empower managers to undertake OSH as part of management practice. The OSH manager from the same company went on to discuss this:

We found ourselves in a situation last year that everyone had training passports except managers. That's when I started to bang the drum about, you know, do we really know what we expect

managers to do? So we've now defined the managers' skill profile for health and safety and we're now actively training against that skill profile.

Another feature of this theme was the provision of assessment tools to measure ongoing OSH competence. As mentioned previously, one of the organisations in the public administration and defence sector used skills validation exercises to identify areas of weakness in its operational staff's OSH skills and knowledge. More often, however, organisations in this category reported more individual-based methods of assessing training needs. A senior manager from one of the public administration and defence sector organisations detailed its approach:

It's driven right through from appraisals. Everybody has appraisals and training is identified through that, and obviously health and safety is key.

The final key issue with respect to training was the focus on behavioural safety in training programmes across a number of organisations in this category. Behavioural safety programmes were reported across both large and medium-sized organisations in our sample. It is clear that many OSH professionals see behavioural safety as the main challenge for OSH training, and that investment is being made in this area. This issue is explored in more detail in the good practice examples towards the end of this section.

With respect to communications in this category, the key feature was the provision of multiple layers of information sharing. This was demonstrated by a number of organisations. One of the public administration and defence organisations identified the need to provide different sources of OSH communication to ensure that information could be accessed by all staff across their disparate workforce, which included many lone workers. A senior manager from this organisation articulated the approach to communicating with the workforce:

We do it through the normal appraisal process. We have roadshows; we're doing that now... and health and safety is on that. We do two a year for everybody in the organisation, and we are just doing them now. We do the [staff newsletter], we do team briefings, we do appraisals where health and safety is key – everybody from me down, right through the organisation.

The need to be innovative in communicating OSH information was also recognised. A site manager from a construction company outlined the many ways the organisation attempts to get information to staff, including posting safety bulletins in the toilets:

We have all kinds of leaflets, pamphlets, posters, newsletters that we have weekly and quarterly.... Health and safety is the predominant factor in these newsletters, but there's all sorts of snippets in there – you know, good news factors, happy customers. It's not just the safety, there's other bits there, but the focus of it is safety. And then if there is an incident anywhere within the group we have like a bulletin sent out to every site.... We generally take them around the site and talk to the guys about it and then... we pin them up in the toilet. Believe it or not, they get read!

The last key feature of this theme was the recognition by stakeholders in proactive organisations that communicating OSH information is a continuous process, and that repetition is crucial in order to drive the safety message home. This was summarised by a senior manager in a public administration and defence sector organisation:

I think it's got to be a continuous process. You can't just do it once and forget about it. We give handouts at section meetings to operatives, for instance, and you can guarantee that half the handouts at the end of the meeting are left behind on the desk, so they're not going to go away and read it. So what we tend to do is go through these documents with individuals and we keep repeating it and hopefully the message eventually sinks in.

7.3.3.9 Resources

Organisations which reported a proactive approach to OSH management seemed to prioritise spending on OSH issues. The stakeholders from these organisations often described how they felt that resources, while never infinite, were not a problem when it came to OSH activity and interventions. This sense that resources were not a hindrance to managing health and safety was the opinion of the staff representative from a medium-sized company in the property development, renting and business activities sector:

We have never had any problems with it. If anything [arises] that we think is wrong, we come to management... and it is always dealt with. I mean, that's all I can say. As far as I can see, there is no cost involved, even though there is a cost. It doesn't seem to matter. I think there is a budget but I don't think it makes any difference.... It wouldn't put any blocks on the system, not that I have ever seen.

7.3.3.10 *Safety climate*

The first discriminating feature for this theme was the level of staff awareness of OSH issues reported by stakeholders. For proactive organisations, staff awareness was reported to be good, especially by staff representatives, who could perhaps better judge the prevailing staff view on health and safety than managers. A union representative from an organisation in the public administrative and defence sector best represented this opinion:

I believe, myself, that the culture has changed and there are people that now take the health and safety very seriously. You know, not at management level – at front line staff level.

This awareness may be related in part to the tendency of organisations in this category to promote a personal approach to health and safety. Many of the stakeholders interviewed from proactive organisations detailed an approach to maintaining OSH awareness that underlined each individual's responsibility to manage their own and others' safety. The staff representative from another public administrative and defence sector organisation, described how he felt they had nurtured a sense of personal responsibility:

I find that they have managed to get an ethos going now that you are responsible for not only your own health and safety but everybody around you.

Other organisations described how staff were encouraged to understand their role in OSH management from early in their employment. A manager in the community, social and personal service activities sector explained his organisation's approach:

Well, the responsibility lies with everybody and we try to say that straight from the start, from their induction.

Other organisations seemed to promote a personal responsibility through including OSH management as part of the formal roles and responsibilities for each staff member. This was articulated by the senior manager from a company in the property development, renting and business activities sector:

The responsibility of health and safety lies with every employee right across the board. It is in every job description.

It was also clear from the stakeholder interviews that this message was filtering down to staff, who in proactive organisations seemed to 'own' health and safety, and recognised the benefits for themselves. A senior manager in the public administration and defence sector outlined his views on this issue:

I think we've just adopted the culture that it's for everyone's long-term benefit, not something we have to do to comply. I think we've all realised now; even all the operatives realise it's for their benefit.

A further feature of the 'very good' organisations was the provision of open communication channels for staff feedback. In some organisations it was very clear that they tried to engender a open and listening safety culture, where staff felt able to bring issues to managers, and feel confident that they would be acknowledged, valued and acted on. This was demonstrated in the construction industry, where a senior manager explained:

I think we are very open about it and we do listen to the staff. You shouldn't rule by fear; you should be able to encourage staff. If they think there is an issue, they should be able to take it up to the next tier of management or – dare I say it – straight up to director level if they feel passionate about it, and I think that is something we have got in this organisation.... [It's] a good culture, and people aren't afraid to put their hand up and say: 'Wait a minute, we don't consider this to be right, we could do it an easier way.' And I think that is a big plus for us, that we have got that culture.

One last discriminating factor in identifying proactive organisations was in their integration of OSH into management practice. For these organisations, OSH management was not regarded as the responsibility of a few ‘experts’, but was rather seen as part and parcel of being a competent manager. This was often achieved by shifting the responsibility for maintaining OSH standards into the realm of senior, middle and line management. This was summarised by an OSH manager from the electric, gas and water industry:

I think we come from a place 20 years ago where the local safety officer was there to solve all health and safety problems. I’m happy to say that’s not why I’m here. There is an absolute understanding within [the company] that I’m here to help, to guide, to advise, to facilitate, but health and safety isn’t [just] my problem. It’s a management responsibility and our management teams accept that responsibility. There have been very few occasions where I felt I was put in the firing line of an issue to own it. Our management team is very, very good at owning the management of health and safety. I’m very much a back room boy, offline; very rarely does the spotlight come on me, which is the way it should be, I believe.

7.3.3.11 Stakeholder involvement

A particular feature of this theme for ‘very good’ organisations was that staff were consulted and not simply communicated with about the ongoing management of health and safety. While in the ‘complier’ category, information may have been shared with staff about various OSH issues, most organisations in the ‘very good’ category reported methods of active consultation with staff and their representatives. Stakeholders in one of the public administration and defence organisations described how they had agreed a health and safety partnership with the trade unions, and reported a number of benefits arising from this arrangement as a result of allowing more ‘joined-up’ working with groups representing staff views and interests. However, more generally, the organisation also reported employing a wide-ranging approach to staff consultation, as explained by its manager for health and safety:

As a general rule of thumb, if we’re introducing policy the workforce is – through the unions or sometimes through direct contact with ourselves – involved in [developing the policy] in terms of feeding information into us. ‘What do you think of this?’ ‘What have we done wrong?’ ‘What are we missing out here?’

It is clear that a good relationship with staff representatives can only aid the process of staff consultation. Organisations in this category – particularly those in the public sector, which are often more unionised – did report more instances where good relationships with trade unions were actively fostered. The staff representative from another public administration and defence organisation described how he felt very well supported in his role as an OSH staff representative:

Well the [company], it affords me time off to carry out my duties, to do any training that I need to do. Yes, it’s supportive that way. But it also... recognises that what we as union representatives... the issues that we are bringing forward are important. I am aware that there are firms who don’t have the same sort of relationship with the management and the union, so we’re quite fortunate really that we can discuss issues and take them forward.

A further feature of this category was the level of representation in health and safety committees reported from proactive organisations. In previous categories, where committees were present in organisations, they more commonly comprised OSH representation, workers and perhaps some middle management. In contrast, organisations in this category reported a more broad representation within the committee, from senior management through to staff. A senior manager in a construction company outlined their inclusive approach to organising the committee:

We do have a health and safety committee – I ought to have mentioned this earlier actually – which I think is pretty innovative. We have the [managing director], who is my boss, who’s the chair of the committee, we’ve got... the health and safety manager, then we’ve chosen representatives throughout the company – not just one region – my construction manager.... We have got site managers on there, I have even got one of my forklift drivers who is on the committee. So you’ve got a forklift driver sat on a committee, with the director of [the company] and also a main board director.

The last main feature of this category was the broad consultation of multiple stakeholders. While in large organisations this may be manifested in an attempt to achieve both forward and backward

integration of safety standards, the desire to include different stakeholder groups was not limited to large organisations. An OSH manager from the community, social and personal service activities industry described how his organisation regularly consulted with customers for their input on a variety of issues, but with health and safety a key factor:

We have user forums at every quarter and we have a representative from different user groups. So there might be badminton people, swimming pool users, regular gym users, but they get invited to a user forum and provide us with feedback.

7.4 Summary of the qualitative analysis

This section has described the outcomes of the qualitative analysis of the stakeholder interviews. First, it outlined how the interviews were used to develop the CIC model to allow for a more detailed discrimination of the organisations in terms of their approach to OSH management. Second, it outlined how the organisations were categorised according to the developed model. Third, it describes in more detail the main drivers and key indicators of each CIC category.

The developed CIC model contains a number of drivers and indicators that can be used to discriminate between organisations according to their OSH management. Organisations in the 'yet to be fully engaged' category seem to be driven principally by legal drivers, with minimal resources allocated to OSH management, little attempt to monitor or learn from OSH activity, and a subsequent general lack of awareness of OSH issues on the part of both managers and staff. 'Complier' organisations are more motivated towards OSH management, but their main driver is still legal compliance. OSH management in 'complier' organisations is often limited by lack of expertise, resources or management support, with only basic training, monitoring and stakeholder involvement undertaken. Organisations in the 'very good' category seem to be motivated more by the need to ensure staff welfare and safe systems of work. In these organisations, OSH management is visible, with spending and training prioritised, and OSH activity is widely monitored and audited, the outcomes of which are fed back into the OSH management process. Management commitment to OSH in 'very good' organisations is high, with good staff awareness, and a recognition of the need for continual improvement, with an emphasis on OSH as a line management issue.

It is clear that across the 10 themes identified in the developed CIC model, there are differences between organisations in terms of their approach to OSH management, which can be recorded and used as a way of discriminating between them. The academic and practical implications of using the model as a means of categorising organisational approach to OSH management will be discussed in the next section.

7.5 Examples of good practice

7.5.1 Good practice case study 1 – Integration of OH with safety

7.5.1.1 *Nurturing a positive OH culture*

Organisations with proactive OSH management sometimes not only provide OH services, but also try directly to nurture a positive health culture. This was demonstrated by one of the organisations from the public sector and defence industry in the sample, whose occupational health staff have worked hard to 'embed' their function in the consciousness of managers and staff as a positive support for both work-related and non-work-related physical and psychological health issues. The senior occupational health representative in the organisation described how this was manifested:

If I ring them when they're off sick, when I first started here they thought I was a spy for the company – why would the nurse possibly be ringing them? Now if I don't ring them in a week, I normally get a phone call saying: 'I've been off all week and I haven't heard from you.' It is much more accepted. Because we're out as well, what you find is that someone with a problem may not approach you in the big group but they will usually offer to carry your bags on the way out or find some way of speaking to you while you're in that venue. So... although I work in headquarters, they don't see us as being part of that kind of ivory tower scenario. They know us by name; they know how to get in contact with us.

When asked to describe how this positive attitude towards occupational health had been achieved, she went on to outline her organisation's provision of an ongoing programme of health promotion activities and health checks across operational and office-based employees:

I don't just sit in this office. We go to every station and we undertake health screening. We undertake health promotion talks. We hold regular clinics. We contact people by telephone, by letter when they're off sick. So we see them very regularly.... We just recently held a training day for admin staff where we had a programme of the day [with] things like personal safety, action at work. We had groups and we had things like stress awareness, relaxation.... We spoke about that. We had cholesterol testing during the lunch break. We had body composition analysis. That was just on the kind of average day that we put together. So we hold those once a year.

7.5.2 Good practice case study 2 – OSH training and communication

7.5.2.1 Behavioural safety – the big training challenge

A number of organisations in the study highlighted behavioural safety as a key focus in their OSH training. Representatives of an electric, gas and water company described how they were training managers through 'Safe and Unsafe Act' (SUSA) discussions, facilitated by external consultants. One of their health and safety managers outlined how the training of line managers was backed up by basic behavioural safety training for staff:

All our managers are trained in the SUSA technique now – the 'Safe and Unsafe Act' – but we're also putting every single one of our operators through a mini-SUSA between now and April as well, so they can start to understand what the hell the manager is talking about when he's got this little blue book out and he starts to talk to him.

Another organisation also reported employing outside consultants. This company sought external help to introduce a behavioural safety approach as a means of changing culture. A senior manager from a construction sector company explained this approach:

We are dealing with a company at the moment... and they deal with a different approach to health and safety; rather than a policing aspect, it is changing culture. They have done a lot of work on oil rigs, and had a lot of success where if something has gone wrong, you go out and meet people on the job and rather than giving them a bashing if they are doing something wrong, finding out why they are doing wrong. It is basically a different approach, so we are actively dealing with [outside consultants] at the moment, who are specialists in that sort of field. So it is a culture-based [idea], trying to get a step-change in culture.

A different approach to behavioural safety was demonstrated by a medium-sized manufacturing company. This example highlights how a focus on behavioural safety techniques doesn't necessarily require the use of expensive external consultants. They described their process of staff observation by in-house assessors – trained in behavioural safety – to identify 'unsafe behaviours' before they become 'unsafe acts':

We've been running the behavioural safety process now since 2000.... The reason why is that our health and safety performance went through a little bit of a shaky patch for a year or two and we realised that you can have procedures and systems but you also need to be doing other things. And the processes are very proactive – you're actually watching people doing jobs and giving feedback. So, you're watching them do things before there's any chance of getting hurt, really. If you think about accident investigation and near miss reporting, they're things that you do after the event. The observations of behaviour are while people are doing tasks normally.

7.5.3 Good practice case study 3 – Management commitment and planning

7.5.3.1 Partnership working

Across the key indicators in the further developed CIC model, where organisations were categorised as 'very good', there was often an emphasis on the importance of partnership working. This manifested itself in a number of ways. For example, in some organisations, the occupational health function was firmly embedded in the safety function. For other organisations, the alignment of health and safety with HR allowed a proactive approach to the management of potential OSH issues. The OSH adviser in an educational establishment explained how, through working with HR, they had developed a 'health flag system', which identifies potential health issues with each job role, and allows the proactive management of these issues:

It's something that we've developed here: what we call a health flagging system... an occupational health flag system. How it works is, any new member of staff, the job description

is passed on to our office. We look at the job description and then see what sort of activities they're engaged in and discuss it with the school or unit in which they're going to work. We try and identify the hazards and largely the health hazards associated with a particular job. So, for instance, if I give you an example, if it was one of our campus service attendants, porters by another name, and the job identifies they have to do a lot of manual handling, then we'd identify that there could be a health risk as far as musculoskeletal issues are concerned. Someone else may be identified as working with respiratory sensitizers, so we would identify the job as being a job in which the hazard could be that they're exposed to these respiratory sensitizers. Once we've identified these, we literally give them a tag, an identification code for those particular hazards. And then looking at all that as one, we then put a flag on them and the flag would be a red, an amber, or a green.

The red, amber and green flags denote the level of need for assessment of individuals before they start work and continually thereafter, in order to manage each role's occupational health needs:

If it's a red flag, then that individual would be seen before starting work. So these are largely those that are going to be engaging in working with respiratory sensitizers etc. That enables us to have a base level for them so we can monitor them then through health surveillance. If it's an amber flag, this could be somebody that perhaps is working with display screen equipment. Then the occupational health nurse would make contact with that member of staff within four weeks of them starting work, to make sure that the display screen equipment risk assessment is being conducted, for instance. And then, by and large, a lot of the jobs would be green flag, in which it would be that the hazards have been identified [but] there's no direct need for them to be seen by the occupational health nurse unless there's a specific issue identified.

The flag system is managed collaboratively between the job description and recruitment systems of HR, and the health and safety function:

[The health flag] is then attached to the job description. Then the health questionnaire and the job description is sent out to the individuals applying for the job. When they return the questionnaires, the health questionnaire can be read in conjunction with those flags by the occupational health nurse, so that then she can identify if there are any issues which would then mean that she needs to see them before they start work or follow the programme – as I say, see them within a month or whatever's required.

When asked whether the 'flag system' that was developed collaboratively with HR had brought about benefits for the organisation, the adviser outlined how the alignment with a 'business function' allowed him access to increased information and the ability to influence management more widely as an OSH professional:

In simple terms, the flag system that I've mentioned, I don't know how that could have worked as effectively if we weren't working closely with them [HR]. Training needs – because staff development is within HR, we work closely with staff development. As an occupational health and safety professional, I think my role is to sell the fact that occupational health and safety is good business. HR is about the business and so, being able to work closely with other HR professionals means that I can influence them and I'm also more aware of what the real issues are within the organisation. So it raises my profile. It also gives me a better indication of what the important issues are as far as the business is concerned so that I can then promote health and safety and the best way to improve the health and safety management and improve health and safety in the organisation. So, I've seen lots and lots of benefits. There have been various discussions within my professional body about where health and safety should be aligned. Some people don't think that it fits in nicely with HR and I can understand why, because perhaps it's down to individuals within HR in other organisations. But I can certainly say, as far as our organisation is concerned, it's a model. It's worked really well.

Another demonstration of positive partnership working was evident in organisations that had developed productive and supportive working relationships with trade unions or staff associations. This was evidenced particularly strongly in some of the public sector organisations, which generally have a more unionised workforce. This support for union input into OSH management appear to develop into active joint working with the unions in some organisations. A senior manager in the public administration and defence sector explained how, in his organisation, OSH staff worked alongside the union representatives as part of the monitoring and inspection process:

We also have joint inspections with the trade unions on a regular basis. We will walk around the site and see what is happening on the site alongside the trade unions, and we'll pick-up things that should be done.

8 Results: expert panel's validation of findings

8.1 Section rationale

The final part of the research was to bring together an expert panel, with the aim of validating the research findings, and collating opinion from OSH experts as to what the implications of the research are for theory and practice. This final results section will present the outcomes of the expert panel by outlining the main themes of the discussion and summarising the key contributions from the panel members.

8.2 Profile of the expert panel

An expert panel discussion was held at Loughborough University on 13 July 2007. The panel was hosted by the research team and comprised nine experts from the disciplines of occupational health, ergonomics, health and safety, and organisational behaviour. The profile of the expert panel is shown in Table 24.

8.3 Analysis of expert panel discussions

The expert panel discussion was recorded and fully transcribed. Following this, the main themes arising from the discussion were analysed to summarise and represent the thoughts and conclusions of the panel members. The themes arising from the discussion are detailed below, with each theme supported by verbatim quotes from panel members.

8.4 Discussion on the interpretation of the research findings

The expert panel began with a presentation of the main research findings by the research team. This was followed by an open discussion by the panel members about the results and how they could be interpreted and explained.

Panel members considered that one of the strengths of the research was in its combining of both qualitative and quantitative methods, which allowed a full representation of the wider OSH management picture. It was felt by some panel members that the key to engaging both practitioners and managers in the benefits of OSH management was through using qualitative, descriptive 'real world' examples, and relating them to quantitative outcomes within organisations, as this research has achieved:

I'm a massive believer in qualitative research as well as quantitative. And qualitative because... that actually says more than the statistics, and so in looking at your analysis – because it's usually sort of quantitative procedures – you're careful not to cut out the gems that you know... will be really useful in there. Because actually that's what's going to motivate the organisation.... If you can show this is a real story, this is a real situation, this is a real experience and you can back it up with quantitative data, great.

Table 24
Members of the
expert panel

Name	Job title	Affiliation
Neil Budworth	Corporate Health and Safety Manager	E.ON UK plc
Nikki Knight	Occupational Health Manager	E.ON UK plc
Doug Russell	National Health and Safety Officer	Union of Shop, Distributive and Allied Workers (USDAW)
Dr Alistair Cheyne	Senior Lecturer in Organisational Psychology	Loughborough University Business School
Dr Tim Marsh	Managing Director	Ryder-Marsh Associates
Peter Kelly	Occupational Health Psychologist	Health and Safety Executive
Paul Parry	Corporate Health, Safety and Emergency Planning Manager	Cambridge City Council
Howard Lewis	Safety Support Co-ordinator	Air Canada
Dr Joanne Crawford	Senior Ergonomist	Institute of Occupational Medicine

During the discussion of the main outcomes of the research, panel members suggested that essentially the findings support a more proactive OSH management approach:

It's essentially saying: if you've got a good occupational health and safety management it will have an impact in a number of areas.

A number of key points were made about some of the less intuitive findings. In particular, it was suggested by some of the panel members that the lack of a link between CIC category and employee health and wellbeing could be due to the greater importance of other organisational factors over OSH management:

The problem with general ill health and sickness in organisations is it's swamped by the organisational stuff – you know, your sick pay arrangements, [industrial] relations climate – so you [can do] pretty good interventions and have no effect.

Another panel member concurred with this, suggesting that it may be that local management is more of an important factor than overall OSH approach:

When you're doing this kind of research with a large-size organisation, you... the response you get at the particular site you go to could be coloured very much by the local management on that site.

8.5 Validation of the developed CIC model

Further discussion centred on the validation of the CIC model, which was further developed following the analysis of the structured stakeholder interviews. It was suggested that the research findings themselves actually validate the model, with the categorisation of organisations showing significant differences across a number of outcomes:

[You're] essentially validating two models against each other; you're using the climate survey and validating it against the [CIC] model.

The panel members also discussed the intuitive nature of the drivers and key indicators contained in the developed CIC model. One panel member described how the drivers matched very closely their own experience of the process of considering organisations' level of health and safety management:

I'm convinced, the more companies I come across, that a difference between the 'complier' and the 'very good' is very much that first bullet point you've got in the main drivers: that staff welfare genuinely is paramount in the 'very good', ... whereas [in] the 'compliers', it's not so high up the agenda.

8.6 Uses of the developed CIC model

One of the main focuses of the panel discussion was on the practical applications of the further developed CIC model. The first issue for OSH practitioners using the model involved the wider use of qualitative examples to back up the drivers and key indicators across the categories. It was felt that such real-world examples or case studies were key tools for practitioners, to allow them to engage managers and staff usefully:

You get much more colour and it's those quotes that seem to make a big, big difference.

I just think it's the real world. People relate to the real world, don't they?

The discussion also covered the use of the CIC model as an assessment tool, either for organisations to assess themselves, or for wider assessment between organisations. One panel member stated that the 'objective' indicators in the model – such as the use of auditors and management systems – are useful for those organisations which, when attempting to categorise themselves, may misrepresent the real picture:

But that's why some of the more objective sort of measures are in there, like do they actually know what their sickness absence figures are? Do they actually properly monitor and report accidents? Do they actually have external auditing of what they're doing, and obviously the visible measures to actually elevate people to that status rather than people thinking that they're already there and they're not?

A further use for the CIC model as a self-assessment tool was identified. It was suggested that the model would lend itself very readily to use in intra-organisational assessments, where different departments, sites or business units could be assessed to identify where each area fits into the model as well as the organisation as a whole:

If you were to do this in one organisation... if you applied this to one big organisation as an umbrella organisation essentially, ... with five or six business units, the board would probably feel they're in the 'very good' category... because they're investing and they're doing this and they're getting reports and it's all lovely. But actually when you apply it to all the different business units they probably sit in very different categories. And if you get down to team level where you've got twenty or thirty people, ... you would really see some significant issues.

The use of the model as a means of engaging managers and staff across units within organisations was identified as a key issue by another panel member:

That's the level that's interesting for me, because we do lots of large multi-site organisations, particularly on the retail side. And effectively that's like having a massive selection of small businesses, because any site is only as good as the site manager.

Another use for the model identified by panel members was the possibility of using the key indicators and drivers as a way of targeting advice or guidance to managers, depending on the category into which their organisation or area fitted. In other words, the message could be tailored so that the target audience would be as receptive as possible to it:

I think it's interesting again to look at the drivers, because I think one of the things that we wanted to pull out is that you actually have to motivate people in different ways. And what you've got with some of the findings are things that will motivate those who want to comply and those who are the 'very good'. [But they] will have no impact whatsoever on those guys that just aren't interested. And that has to be, you know, the coercive stuff.

The panel also considered that the CIC model needed to be developed further into a useful tool for practitioners:

One of the best ways to disseminate it is to put it into a useful tool.

It was also suggested that such a tool could be used by practitioners to circumvent the need for a full safety climate survey in circumstances where financial, time or other constraints made such a survey impractical. Such a view was expressed by a number of panel members:

But essentially I guess one thing we're saying is... through a structured interview with one or two people you can get the same discrimination and understanding of where an organisation is as you can by a more wide-ranging safety climate survey.

One of the really striking things for me is the kind of cross-validation between the client survey and the interview-based [work]. Just looking at the interview-based stuff that you've done: ... if you've done that right, it allows people to take a short cut. You still probably want to do the cultural assessment because you would get the engagement, but it allows you to take a short cut to understand exactly where you are, what you've got to do and the areas you need to take [action on].

8.7 Wider implications of the research findings

One of the first issues to be discussed on the wider implications of the findings was that at a general level, this research supports many of the key messages of the OSH industry. One panel member noted:

We've got to recognise that it really is good work that's good for your health... and this really does justify that – very strongly.

In particular, the focus in this research on occupational health as part of the categorisation process, and on health and wellbeing as one of the employee outcomes, further highlights the need for health to be central to health and safety:

Internally [this has] got quite an important message for [the OSH industry] as well, hasn't it? Because I mean it's only now that [the industry] is really beginning to get to grips with the occupational health side of stuff.

Indeed, one panel member outlined how occupational health and health and safety need to 'cross-fertilise' more at the level of training and education for practitioners:

I think, having taught on occupational health, there's definitely a need to bring in more of the safety so that you're giving [practitioners] these skills. I mean in the safety courses... they were getting lots of occupational health, but the occupational health [students] weren't getting an awful lot of safety.

Some of the panel members said that the CIC model should be combined with a practitioner 'toolkit', and underlined the importance of taking a stepped approach to implementing change. It was felt that, in keeping with the spirit of the original CIC model with its aim to move organisations onto the next 'level' of OSH management, any toolkit should emphasise this incremental approach:

I think it needs perhaps to be focused on a bit-by-bit approach as well, because if people try to move from here to there too quickly... it'll be, you know, a bit 'oh well, we've failed, so it's a complete disaster'. But actually if you know you've got to take a bit of time, it's like walking up to the top of a mountain, isn't it? I mean that walk is actually quite easy, isn't it, because you walk along the plains very slowly and then you go across the foothills of the mountains. And then you get to the top. So I think it's about... a step-by-step approach as opposed to... trying to leap to the top of the mountain and... trying to kill yourself on the way – and that doesn't benefit anyone.

The final part of the discussion concerned how future research might consider how the categorisation could be related to both organisational and employee outcomes over time:

It'd be really interesting to look at where an organisation is and the approach it's been taking to try and influence [the outcomes], and then the longitudinal impacts of that.

I'd love to see how the companies that are, you know, 'very good' are in ten years' time compared with the 'compliant' ones. And you'd hope that they'd kind of pulled away and got the message to senior management as – you know – to secure your future.

9 Discussion and recommendations

9.1 Summary of key findings

9.1.1 Size and sector comparisons

The analyses highlighted a number of differences between economic and industrial sectors, and across organisational sizes, in both organisational performance and employee outcomes.

9.1.1.1 Organisational performance outcomes

There was little evidence for significant effects of size or sector on organisational outcomes. However, a significant difference was found for sickness absence, with employees in large organisations reporting higher levels of sickness absence per employee over the previous 12 months than those in small/medium organisations. This is probably mainly due to better sickness absence management in larger firms, as some of the smaller organisations reported that staff who were absent due to ill health were not paid (see Section 7.3.1.2).

9.1.1.2 Employee outcomes

Multiple effects were found for differences in employee outcomes between sectors and organisational sizes for health and wellbeing, safety climate perceptions and self-reported work-related illness:

- Public sector staff reported lower levels of vitality, less positive safety climate perceptions and organisational attitudes, and more work-related illness than those in the private sector.
- Public sector staff more frequently reported experiencing an illness or physical or mental health problem that they believe was caused or made worse by work.
- Staff in large organisations reported higher levels of mental health and vitality, a lower intention to quit and fewer self-reported work-related illnesses than those in smaller organisations.
- Staff in larger organisations reported less positive safety climate perceptions compared with those in smaller organisations.
- Staff across different industrial sectors reported different employee outcomes:
 - construction workers reported the highest levels of organisational commitment and average safety climate, the best general health and highest self-rated performance
 - employees in the utilities and property development, renting and business activities sectors also consistently reported more positive safety climate perceptions, better health and wellbeing, more organisational commitment and higher overall self-reported performance than employees in other sectors
 - the public administration and defence, health and social work, and education sectors in general reported the lowest levels across the six employee outcomes.

9.1.2 Approach to OSH management

The analyses revealed no significant differences as a result of OSH approach in organisational performance outcomes, but several significant differences in employee outcomes.

9.1.2.1 Organisational performance outcomes

Although no significant effects were found for organisational performance outcomes, a number of interesting trends emerged from examination of the averages for each outcome across the categories. In particular, there seemed to be a demonstrable downward trend in the accident data from 'yet to be fully engaged' to 'very good' organisations. There was also a possible link between OSH approach and profit margin, with those in the 'very good' category reporting the highest average profit.

9.1.2.2 Employee outcomes

Employee health and wellbeing measures were not related to OSH approach across the full sample. However, a number of significant differences in employee outcomes were found between the three CIC categories:

- Organisations with proactive OSH management reported more positive safety climate perceptions, and higher levels of job satisfaction and organisational commitment.
- At an individual level, positive safety climate perceptions and organisational attitudes were significantly associated with better mental health, general health and vitality.
- Within industries, there may be a stronger association between the approach to OSH management and increased health and wellbeing, as suggested by the higher levels of health and wellbeing in the 'very good' organisations.

9.1.3 Development of the CIC model

Through analysis of the stakeholder interviews, the CIC model was developed to allow organisations to be differentiated on the basis of their approach to OSH management. Through the quantitative analysis, it is clear that the 10 themes outlined in the developed CIC model are associated with both safety-related and non-safety-related outcomes. As discussed in the analysis of the expert panel's comments (Section 8), this validation of the CIC model has implications for its further use as a practical discriminatory tool.

9.2 Implications for theory and practice

9.2.1 Is proactive OSH management associated with benefits for employees?

The findings of this research support the supposition that a proactive approach to OSH management is associated with a number of positive employee outcomes. Furthermore, where employees feel more positive at an individual level about the OSH climate, their job and the organisation, they tend to enjoy better health and wellbeing. These results can be interpreted as supportive of previous work in which a positive approach to safety has been viewed in terms of social exchange theory^{15,16} and perceived organisational support.¹⁷ This work found that where employees felt that management was committed to safety, they were also more likely to report outcomes beyond just improved safety performance, with positive associations found for management commitment to safety and job satisfaction, organisational commitment and job performance.¹²

The results of this research build on this previous work in a number of ways. Firstly, the findings span a number of different industries, sectors and organisational sizes. Secondly, the research employs multi-method measurements, with the approach to OSH management assessed using qualitative methods (via interview), and the employee outcomes assessed quantitatively (via questionnaire). This reduces problems associated with 'common method variance' (which is a common problem of cross-sectional work), and allows more confidence in asserting that there is indeed a relationship between how organisations approach safety and employee attitudes. Thirdly, this research also measures the impact on health and wellbeing, with safety variables (at an organisational level) found not only to predict organisational attitudes, but also health and wellbeing outcomes at an individual level. In summary, it would seem that this research – although not directly testing the theory of social exchange – provides further support that OSH management may be viewed as part of the psychological contract between organisations and their employees.⁶¹

It is possible that the lack of an association between health and wellbeing and the organisation's CIC category is due to the fact that the research was conducted across a broad range of industries and sectors. As can be seen from the size, sector and industrial comparisons, there were differences in outcomes in each of the three health and wellbeing subscales between different sectors, types of company and sizes of organisation. While these were statistically controlled for, it is possible that the differences serve only to confuse matters. As can be seen from the intra-industry case studies, it is possible that, if the subscales were used to discriminate between organisations doing comparable work, the benefits of good OSH management on health and wellbeing would be more apparent.

However, while at an organisational level safety did not affect health and wellbeing, the individual analysis suggested that it does affect the wellbeing of staff. The general finding that more positive safety climate perceptions and organisational attitudes were associated with better general health, mental health and vitality strongly implicates safety as a key component in promoting employee wellbeing. Only one of the nine safety climate facets (priority of safety) was negatively associated with health and wellbeing, and only on the mental health subscale. It seems, therefore, that in general when employees are more 'engaged' with safety in their organisation, they are more likely to report better health and wellbeing. To the authors' knowledge, no previous research has demonstrated health and wellbeing as an exclusive outcome of safety-related variables, and therefore this result is of key importance. As described above, it appears that safety may be part of an employee's combined perceptions of 'organisational support', and that it may be related to non-safety outcomes.

It is interesting to look more closely at the specifics of the relationships between safety climate and health and wellbeing. Personal appreciation of risk (the extent to which an employee feels at risk in the workplace) is related to each of the three health and wellbeing subscales, and was the most important safety climate facet (as identified by the beta weight) in predicting the health score for each subscale. This has some support in the literature, with one study finding that the extent to which employees feel disproportionately at risk compared to their colleagues was associated with increased stress symptoms.⁶² It is clear from such results that achieving a positive safety climate, where

employees feel that their risk of having accidents or developing work-related ill health is lower, is a key part of achieving better health and wellbeing in organisations across all types of industry, sector and size.

Other less intuitive aspects of the findings were the relationships between lower intrinsic job involvement and higher levels of mental health and vitality, and between a lower priority of safety and better mental health. These tend in the opposite direction to that expected and to many of the other results. However, such a result in the case of intrinsic job motivation is not unprecedented in the literature, with some authors suggesting that individuals who are highly 'involved' in their jobs may suffer negative social, psychological and physiological consequences.⁶³ Indeed, other authors have also found interesting interaction effects between job involvement and other work variables, with high job involvement linked to increased alcohol intake when work pressures are high, and lower physical health reports when role ambiguity is high.⁶⁴

9.2.2 Is proactive OSH management associated with benefits for employers?

While no statistically significant differences were found between approaches to OSH management and organisational performance outcomes, there are some interesting trends which suggest that organisations' CIC category is linked not only to employee outcomes but also to more objective organisational indices. Indeed, across the CIC categories, proactive organisations often reported fewer accidents and days lost due to accidents and bigger profit margins. It is possible that the lack of significance is simply due to the lack of statistical power to detect small differences between the CIC categories because of the size of the sample. Furthermore, given that performance outcomes such as profit, staff turnover, and accident and absence rates will be very closely linked to type of industry, size and sector, it is perhaps not surprising that differences between the CIC categories were not established. In summary, while the trends in the organisational performance outcomes are simply 'suggested' in this research, future research using the categorisation process may reveal statistically significant differences if they use performance data from a larger number of organisations.

9.2.3 The importance of understanding organisational size and industrial sector differences

The results presented here underline the differences in economic and industrial sectors as well as organisational sizes in both organisational performance and subjective employee outcomes. Indeed, this research has revealed some interesting differences in the study outcomes in terms of both size and sector. The finding that large organisations report more absence per employee at an organisational level but less self-reported work-related illness at the personal level is particularly interesting, as it appears to be contradictory. However, as discussed in the results section, this is probably due to the provision of sick pay and sickness management in large organisations that both manage ill health and allow individuals to take paid time off. Clearly, not receiving remuneration for sick days is a big motivator for employees to work when ill. Therefore, in smaller organisations where sick pay is not provided, sickness absence rates may be reduced, but over the longer term this may perhaps also create conditions where – as a result of employees working when unwell – work-related illness actually increases.

Another interesting finding was the dovetailing of the results from the economic and industrial sector comparisons. Public sector workers in general reported lower levels of vitality, less positive safety climate perceptions and organisational attitudes, and more work-related illness than those in the private sector. In the industrial sector comparisons, the sectors that generally score the highest in organisational attitudes, safety climate and health and wellbeing cover the majority of the private sector employee survey respondents. This provides further support for the finding that public sector workers trail behind their private sector colleagues in terms of their experience of work and health.

Of particular note was the finding that construction workers scored highest on general health, when it is well recognised that workers in this industry are at greater risk of developing certain health disorders than both the general population and employees in other industries.⁶⁵ However, in interpreting these findings it is important to remember that some of these industry sector groupings comprised either one organisation whose employees dominated the survey responses for that sector (as with construction), or were represented by one organisation only (as with health and social work). The construction sector is represented in the sample almost entirely by one organisation, categorised as 'very good', and therefore this finding may reflect the approach to OSH management of that specific company, rather than representing the industry as a whole.

More robust, however, are the findings from the larger groups – the utilities, property development, renting and business activities, public administration and defence, and education sectors. Employees

from the property development, renting and business activities sector reported consistently high levels of health and wellbeing in particular, with those from the utilities sector reporting average organisational attitudes, safety climate perceptions and health and wellbeing scores that fell in the top three positions. The public administration and defence and education sector both consistently reported levels of employee attitudes and wellbeing at the lower end of the sector averages.

These differences not only have implications for the present research (in that they must be statistically controlled for when examining the impact of OSH approach); they also highlight the importance of considering sector and size differences in future studies looking at non-safety outcomes in safety research. Clearly, one strength of this research is that the results can be generalised across organisations irrespective of sector and size. However, doing this may also obscure effects specific to organisations of different sizes and sectors. Future research may benefit from looking at the effects of OSH management in organisations both within and between size and sector groupings. The case studies presented in this research provide a good example of this, highlighting how associations between safety ‘inputs’ and non-safety ‘outputs’ may differ depending on whether the focus is on different types of organisation or similar organisations.

9.2.4 The CIC model as a tool for future OSH interventions and research

This research has further developed, and in part validated, the CIC model as a tool for differentiating between organisations on the basis of their approach to OSH management. The results presented here show that through using the drivers and key indicators in the model, organisations can be categorised into ‘yet to be fully engaged’, ‘complier’ and ‘very good’ groups. Analysis of organisations’ scores based on these groupings across different industries, sectors and sizes showed that a proactive OSH approach was related to more positive safety climate perceptions across eight out of nine facets. This not only shows that organisations in which time, energy and resources are invested in OSH management may experience commensurate benefits in terms of improved safety climate, but it also effectively validates the model by suggesting that it can reasonably discriminate between organisations according to their espoused safety culture as well as their demonstrable safety climate.

The usefulness of self-diagnostic tools is evident across both academic⁶⁶ and practitioner arenas, as discussed by the expert panel (Section 8). While other models using key indicators across categories of safety culture have been developed for the purposes of self-diagnosis, some of these are specific to a particular industry (eg offshore oil and gas).³⁹ The strength of the developed CIC model is that it was developed on the basis of interviews conducted in organisations spanning a variety of sizes and sectors. This not only has benefits for practitioners looking to use a generic self-diagnostic framework, but also for academics who may wish to undertake inter-industry safety-related research.

9.3 Recommendations

9.3.1 Practice

The main recommendation for practice concerns the future development of a self-diagnostic tool based on the CIC model. Although the original framework was designed to be used by practitioners, the drivers and key indicators further developed here may lend themselves to being used by practitioners alongside more traditional safety climate assessments. Indeed, as discussed in the expert panel, for some organisations, using a standardised stakeholder interview process based on the CIC model instead of a safety climate survey may be a short-cut to understanding their positioning in the model and what they need to do to move on to the next level. Clearly, such an approach would not remove entirely the need for surveys, but it would certainly be a useful addition to the OSH practitioner’s toolkit.

The second recommendation concerns the use of both the research outcomes and the CIC model in training for OSH practitioners. This issue was raised by the expert panel, whose members felt that the model might usefully be employed as a means of underlining to practitioners the benefits of not just achieving compliance – which may result in an organisation getting stuck in the ‘complier’ category – but, rather, aiming higher in order to achieve the benefits associated with ‘very good’ performance.

Thirdly, the CIC model can be useful in managing OSH interventions. It is clear from the model that there are stages of OSH management, and to move from the ‘yet to be fully engaged’ category to the ‘very good’ in one step might be impractical and counterproductive. By using the model in its revised format, practitioners can clearly identify how they can improve with an emphasis on a stepped approach to change.

The fourth recommendation concerns the need to engage staff in safety as a means of promoting health and wellbeing. This research has suggested that achieving improvements in employees' wellbeing can be assisted by ensuring that staff take on board the safety message. This clearly mirrors the advice to involve staff in initiatives in order to achieve improvements in safety climate.

9.3.2 Research

Future studies would benefit from undertaking longitudinal research to establish whether an organisation's approach to OSH management is related to its organisational outcomes and its employees' organisational and safety attitudes, as well as their health and wellbeing, over time. It is possible that proactive employers are having a positive impact on health and wellbeing, but this is so far a prospective relationship, and only longitudinal studies would be able to confirm such an association.

It is recommended that research using the CIC model and focusing exclusively on organisational performance outcomes should also make use of a larger sample at the organisational level, so that the trends suggested here can be more robustly tested.

9.4 Conclusions

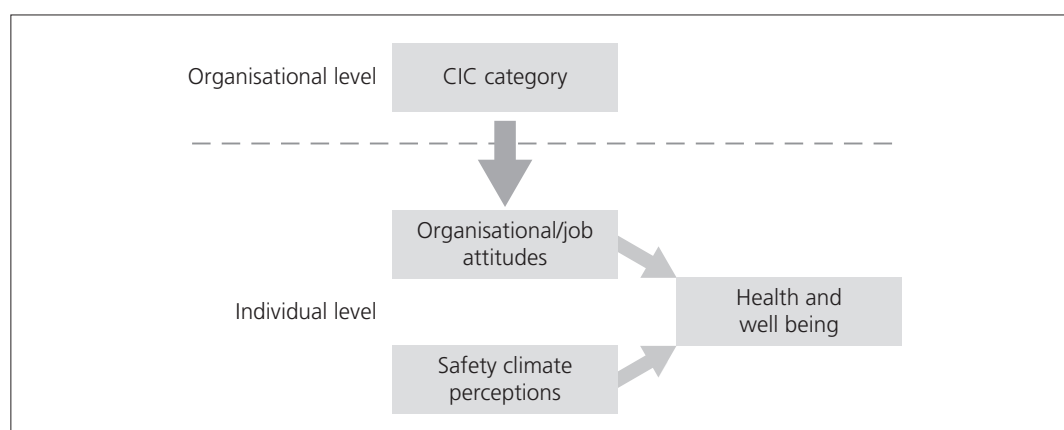
The results presented in this report provide strong support for the adoption of a proactive approach to OSH management. At an organisational level, a proactive approach is associated with more positive organisational attitudes and safety climate perceptions. At an individual level, where employees report more positive safety perceptions and organisational attitudes, in general they report better health and wellbeing. These research findings are integrated in Figure 44.

These results provide support for the premise that where organisations are proactive in OSH management, their employees may value this and view it as part of 'perceived organisational support'. Clearly, the positive impact of such a view is improved organisational and safety attitudes, which are in turn related to better health and wellbeing at an individual level. These effects may also be felt more widely by the organisation: there are established links in the literature between both organisational attitudes and safety climate and a number of indices which have bottom line implications for employers, such as absence and accident rates.

The Continuous Improvement Model used to distinguish between organisations on the basis of their approach to OSH management has been subjected to a preliminary validation in this project. The model in its developed form as outlined in this report could form the basis of a useful self-diagnostic tool for practitioners and of a discriminatory research tool for academics.

Finally, these results are important as they are drawn from data spanning organisations of different sizes and sectors. That proactive OSH management is linked to positive outcomes irrespective of these differences is a powerful message for employers, employees and OSH professionals, as it above all underlines the need to invest in the health and safety of every workforce.

Figure 44
Integration of
research findings:
how OSH
management at an
organisational level
affects health and
wellbeing at an
individual level



Appendix 1: Interview schedule

I Background details of OSH personnel and activities

1 Background

- a What is your job title?
- b What is your role in health and safety?
- c How long have you held this job?
- d How long have you been involved in health and safety?
- e What are your professional qualifications in health and safety?
- f Are you a member of any professional bodies?
- g Approximately how many people are covered by your health and safety responsibilities?
- h Which description best describes the main process of your organisation or company?

- | | |
|---|--|
| 1 Agriculture or forestry | 15 Furniture and woodworking |
| 2 Fishing | 16 Recycling and waste |
| 3 Mining and quarrying | 17 Electricity, gas, water |
| 4 Food, drink and tobacco | 18 Construction |
| 5 Textiles, leather and clothing | 19 Retail trade |
| 6 Paper and printing | 20 Hotels and catering |
| 7 Oil and coal | 21 Transport, post, communications and storage |
| 8 Chemicals | 22 Financial services |
| 9 Rubber and plastics | 23 Property and land |
| 10 Glass, ceramics and cement | 24 Defence |
| 11 Metal manufacture and products | 25 Education |
| 12 Machines and other technical | 26 Health and welfare equipment |
| 13 Electrical, electronic and optical instruments | 27 Other services (please specify) |
| 14 Cars and other transport vehicles | 28 Other (please specify) |

- i Are there any other health, safety or environment specialists working in your organisation? If yes, how many of the following?

- | | |
|------------------------------------|-------------------------------------|
| 1 Occupational physician | 6 Environment specialist |
| 2 Occupational hygienist | 7 Fire specialist |
| 3 Occupational health nurse | 8 Health physicist/radiation expert |
| 4 Work and organisation specialist | 9 Other |
| 5 Ergonomist | |

- j What are the main OSH activities or interventions in your organisation?

- | | |
|--|---|
| 1 Problem identification and risk assessment | 8 Influencing management |
| 2 Developing and implementing solutions | 9 Management/financial responsibilities |
| 3 Health and safety awareness campaigns | 10 Knowledge management |
| 4 Co-operative working | 11 Legal issues/emergency management |
| 5 Health surveillance | 12 Service provision |
| 6 Safety inspection and monitoring | 13 Training and communication |
| 7 Regulatory safety tasks | 14 Other |

II General OSH approach

2 Attitudes towards health and safety

- a How would you describe your organisation's general approach to health and safety management?
- b What do you feel is the general level of awareness of OSH issues across your organisation?
- c Has your organisation done anything that extends beyond meeting minimum health and safety regulations? Can you give examples?

3 Priorities for OSH management

- a In your opinion, what are the key drivers in your organisation for the provision of OSH management?
- b What are the OSH priorities for your organisation?

4 Management commitment to OSH management

- a Does your organisation have a specific OSH policy statement?
- b Is OSH management considered as part of the overall business strategy for your organisation?
- c What resources are made available for OSH management?
- d How does your organisation support you in your management of health and safety?
- e Do you think that your organisation would benefit from greater investment in OSH? Why?

5 Stakeholder involvement

- a In your opinion, who are the key stakeholders for OSH management in your organisation?
- b Which of the following groups are consulted or communicated with in the process of OSH management?
Please give examples:
 - workforce
 - senior management
 - trade unions/staff representatives
 - external stakeholders, such as:
 - customers
 - regulators
 - insurers
 - investors
 - international bodies.
- c How are stakeholders communicated with? Is this formalised?
- d How do stakeholders' views influence OSH management?
- e What is your organisation's view on corporate social responsibility? How does this affect health and safety management?

6 Training and communication

- a What are the main OSH training priorities for your organisation?
- b How is training in health and safety made available to:
 - the workforce
 - OSH professionals
 - managers?
- c How is OSH information communicated to:
 - the workforce
 - managers
 - senior managers?

7 Improvements to health and safety

- a Do you think your organisation could improve its approach to OSH management? How?
- b What would motivate your organisation to improve its OSH management?

III Formalisation of OSH management

9 OSH management system

- a Does your organisation have what you would describe as an OSH management system?
- b Is this system formalised and explicit?
- c How long has the system been in place?
- d How is occupational health integrated with safety management in your organisation?

10 Monitoring OSH activities

- a How does your organisation monitor its OSH activities?
- b What are the systems for reporting non-compliance?
- c What are the systems for investigating non-compliance?
- d What are the systems for dealing with non-compliance or emergency situations?
- e How is the information from monitoring and investigation used by the organisation? Does it feed back into future OSH management? Please give examples.

11 Audit and benchmarking

- a Does your organisation have a specific audit process for OSH activity?
- b Does your organisation undertake specific benchmarking exercises?
- c How do you feel your organisation compares with others on OSH management?
- d Does your organisation have systems in place to estimate the costs associated with OSH failures (eg accidents)?

- e Does your organisation have systems in place to estimate the costs associated with general sickness absence and work-related ill health?
- f Does your organisation attempt to assess the benefits or value of its OSH activities or management system?

Appendix 2: Employee survey

Loughborough University and *Organisation Name*

Staff safety, health and wellbeing questionnaire

Please read this before starting the questionnaire

This questionnaire is part of a project undertaken by *Organisation Name* in collaboration with Loughborough University. The research is part of a nationwide study, funded by the Institution of Occupational Safety and Health (IOSH), looking at the benefits of good occupational safety and health management.

Taking part in this study is **voluntary**. You are under no obligation to complete this questionnaire, and are free to withdraw from the study at any point up until you return your questionnaire to us. If you do wish to take part, the questionnaire should be returned directly to Loughborough University, using the **freepost envelope** enclosed in your pack.

All information contained in this questionnaire will be **anonymous**. All information will be held by Loughborough University and used only for the purposes of research, and its storage and usage will conform to the requirements of the Data Protection Act. All feedback to *Organisation Name* will be on general outcomes from the questionnaire and **no individual will be identifiable**.

If you have any questions or concerns about the questionnaire, please contact Jane Ward, Research Psychologist at Loughborough University, on 01509 228485 or j.k.ward@lboro.ac.uk.

This questionnaire is likely to take a maximum of 20 minutes. Please read each question carefully before answering, but don't take too long for any one question. There are no right or wrong answers, and your first reaction is usually the best. Please try to answer all the questions and remember to complete the back page of the questionnaire.

Thank you.

Jane Ward
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Loughborough University
Loughborough
Leicestershire
LE11 3TU
01509 228485
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1 Background information

Before starting the main questionnaire, we would appreciate it if you would provide the following background information.

- a Age years
- b Sex (please circle) male / female
- c How long have you worked for *Organisation Name*? years
- d How long have you worked in your current job? years
- e Is your job: (please tick one)
- | | | | |
|---------------------|--------------------------|----------------------------|--------------------------|
| Permanent full-time | ☐ | Permanent job-share | ☐ |
| Permanent part-time | ☐ | Fixed-term contract/casual | ☐ |
- f Please describe your ethnic or national origin:
- g Do you have supervisory or managerial responsibilities? Yes ☐ No ☐
- h What is the highest educational qualification you hold?
- | | |
|--|---|
| CSE or equivalent / GCSE grades D–G | ☐ |
| O Level or equivalent / GCSE grades A*–C | ☐ |
| A Level or equivalent | ☐ |
| Degree or equivalent | ☐ |
| Postgraduate degree or equivalent | ☐ |
| Vocational qualifications (please state) | ☐ <input type="text"/> |
| Other (please state) | ☐ <input type="text"/> |
| No formal qualifications | ☐ |
- i What is your current salary? (Please give the full-time equivalent if you work part-time.)
- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| £1–£81 per week | ☐ | £81–£180 per week | ☐ |
| £52–£4,160 per year | ☐ | £4,160–£9,360 per year | ☐ |
| £181–£260 per week | ☐ | £261–£360 per week | ☐ |
| £9,361–£13,520 per year | ☐ | £13,521–£18,720 per year | ☐ |
| £361–£540 per week | ☐ | £541 or more per week | ☐ |
| £18,721–£28,080 per year | ☐ | £28,081 or more per year | ☐ |

2 Your feelings towards your organisation

To what extent do you agree or disagree with the following statements about your job? Please circle one number per question.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
a I am proud to be able to tell people who I work for	1	2	3	4	5	6	7
b I sometimes feel like leaving this employment for good	1	2	3	4	5	6	7
c I'm not willing to put myself out just to help the organisation	1	2	3	4	5	6	7
d Even if the organisation were not doing too well financially, I would be reluctant to change to another employer	1	2	3	4	5	6	7
e I feel myself to be part of the organisation	1	2	3	4	5	6	7
f In my work I like to feel I am making some effort, not just for myself but for the organisation as well	1	2	3	4	5	6	7
g The offer of a bit more money with another employer would not seriously make me think of changing my job	1	2	3	4	5	6	7
h I would not recommend a close friend to join our staff	1	2	3	4	5	6	7
i To know that my own work had made a contribution to the good of the organisation would please me	1	2	3	4	5	6	7

3 Your feelings towards your current job

To what extent do you agree or disagree with the following statements about your job? Please circle one number per question.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
a All in all, I am satisfied with my job	1	2	3	4	5	6	7
b In general, I don't like my job	1	2	3	4	5	6	7
c In general, I like working here	1	2	3	4	5	6	7

4 Your plans to change jobs

Please circle one number per question.

	Not at all likely		Somewhat likely		Quite likely		Extremely likely
a	1	2	3	4	5	6	7
How likely is it that you will actively look for a new job in the next year?							

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
b	1	2	3	4	5	6	7
I often think about leaving my job							
c	1	2	3	4	5	6	7
I will probably look for a new job in the next year							

5 Your job satisfaction

To what extent do you agree or disagree with the following statements? Please circle one number per question.

	Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
a	1	2	3	4	5	6	7
I feel a sense of personal satisfaction when I do this job well							
b	1	2	3	4	5	6	7
My opinion of myself goes down when I do this job badly							
c	1	2	3	4	5	6	7
I take pride in doing my job as well as I can							
d	1	2	3	4	5	6	7
I feel unhappy when my work is not up to my usual standard							
e	1	2	3	4	5	6	7
I like to look back on a day's work with a sense of a job well done							
f	1	2	3	4	5	6	7
I try to think of ways of doing my job effectively							

6 Absence from work

In the **past four weeks**, how many **entire** working days did you miss because of problems with your mental or physical health?
(Please include only days missed for your own health, not someone else's.)

7 Work-related illness

a Over the **past 12 months**, have you suffered from any illness, disability or other physical or mental problem that was caused or made worse by your job? (Please circle one.)

Yes No

b Over the **past 12 months**, how many illnesses have you had that were caused or made worse by your job?

8 Your overall job performance

On a scale from 0 to 10, where 0 is the worst performance anyone could have in your job and 10 is the performance of a top worker, how would you rate your overall job performance on the days you worked during the **past four weeks**? (Please circle one.)

Worst performance Top performance

0 1 2 3 4 5 6 7 8 9 10

9 Your views on safety in your organisation

To what extent do you agree or disagree with the following statements about your job? Please circle one number per question.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a Management acts decisively when a health and safety concern has been raised	1	2	3	4	5
b In my workplace, management acts quickly to correct health and safety problems	1	2	3	4	5
c Health and safety information is always brought to my attention by my line manager or supervisor	1	2	3	4	5
d There is good communication here about health and safety issues which affect me	1	2	3	4	5
e Management here considers health and safety to be equally important as productivity	1	2	3	4	5
f I believe health and safety issues are assigned a high priority	1	2	3	4	5
g Some health and safety rules and procedures don't need to be followed to get the job done safely	1	2	3	4	5
h Some health and safety rules are not really practical	1	2	3	4	5
i I am strongly encouraged to report unsafe conditions	1	2	3	4	5
j I can influence health and safety performance here	1	2	3	4	5
k I am involved in informing management of important health and safety issues	1	2	3	4	5
l I am involved in the ongoing review of health and safety	1	2	3	4	5
m Health and safety is the number one priority in my mind when completing a job	1	2	3	4	5
n It is important to me that there is continuing emphasis on health and safety	1	2	3	4	5

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
o I'm sure it's only a matter of time before I develop a work-related health problem	1	2	3	4	5
p In my workplace the chances of developing a work-related health problem are quite high	1	2	3	4	5
q Performance targets rarely conflict with health and safety measures	1	2	3	4	5
r I am always given enough time to get the job done safely	1	2	3	4	5

10 Your views on health

These questions relate to how you feel and how well you are able to do your usual activities. (Please tick the relevant boxes.)

- a In general, would you say your health is:

Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor ☐

- b Compared to **one year ago**, how would you rate your health in general now?

Much better ☐ Somewhat better ☐ About the same ☐ Somewhat worse ☐ Much worse ☐

- c The following questions are about activities you might do during a typical day. Does your health **now** limit you in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	☐	☐	☐
Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling or playing golf	☐	☐	☐
Lifting or carrying groceries	☐	☐	☐
Climbing several flights of stairs	☐	☐	☐
Climbing one flight of stairs	☐	☐	☐
Bending, kneeling or stooping	☐	☐	☐
Walking more than a mile	☐	☐	☐
Walking several hundred yards	☐	☐	☐
Walking 100 yards	☐	☐	☐
Bathing or dressing yourself	☐	☐	☐

- d During the **past four weeks**, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your **physical health**?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Cut down on the amount of time you spent on work or other activities	☐	☐	☐	☐	☐
Accomplished less than you would like	☐	☐	☐	☐	☐
Were limited in the kind of work or other activities you did	☐	☐	☐	☐	☐
Had difficulty performing the work or other activities (eg it took extra effort)	☐	☐	☐	☐	☐

- e During the **past four weeks**, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of **emotional problems** (eg feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Cut down on the amount of time you spent on work or other activities	☐	☐	☐	☐	☐
Accomplished less than you would like	☐	☐	☐	☐	☐
Did work less carefully than usual	☐	☐	☐	☐	☐

- f During the **past four weeks**, to what extent have your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours or groups?

Not at all ☐	Slightly ☐	Moderately ☐
Quite a bit ☐	Extremely ☐	

- g How much bodily pain have you had during the **past four weeks**?

None ☐	Very mild ☐	Mild ☐
Moderate ☐	Severe ☐	Very severe ☐

- h During the **past four weeks**, how much did pain interfere with your normal work (including work outside the home and housework)?

Not at all ☐	Slightly ☐	Moderately ☐
Quite a bit ☐	Extremely ☐	

- i These questions are about how you've felt and how things have been with you during the **past four weeks**. For each question, please tick the answer that comes closest to the way you have been feeling. During the past four weeks, how much of the time:

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Did you feel full of life?	☐	☐	☐	☐	☐
Have you been very nervous?	☐	☐	☐	☐	☐
Have you felt so down in the dumps that nothing could cheer you up?	☐	☐	☐	☐	☐
Have you felt calm and cheerful?	☐	☐	☐	☐	☐
Did you have a lot of energy?	☐	☐	☐	☐	☐
Have you felt downhearted and depressed?	☐	☐	☐	☐	☐
Did you feel worn out?	☐	☐	☐	☐	☐
Have you been happy?	☐	☐	☐	☐	☐
Did you feel tired?	☐	☐	☐	☐	☐

- j During the **past four weeks**, how much of the time have your physical health or emotional problems interfered with your social activities (like visiting friends and relatives)?

All of the time ☐	Most of the time ☐	Some of the time ☐
A little of the time ☐	None of the time ☐	

- k How true or false is each of the following statements for you?

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
I seem to get sick a little more easily than other people	☐	☐	☐	☐	☐
I am as healthy as anybody I know	☐	☐	☐	☐	☐
I expect my health to get worse	☐	☐	☐	☐	☐
My health is excellent	☐	☐	☐	☐	☐

Thank you for taking the time to complete this questionnaire.

Please return the completed form to Jane Ward at Loughborough University using the freepost envelope provided.

Appendix 3: Participating organisations by SIC code

Table 25
Participating
organisations by
SIC code

SIC code	SIC description	Participating organisations
D	Manufacturing	Ceramics manufacturer Clay and synthetic additives manufacturer Construction component manufacturer Electrical power supply manufacturer Electronic component manufacturer Polymer manufacturer
E	Electricity, gas and water	Utilities company Waste recycling company Wind power developer
F	Construction	Construction company Housing developer Scaffolder Site mixing company
K	Property development, renting and business activities	Asbestos management company Biotechnology consultancy Facilities management company (defence and logistics) Facilities management company (nuclear) Housing association
L	Public administration and defence	City council (North of England) City council (South East of England) Fire and rescue service Police force
M	Education	Further education college School School Students' union management company University
N	Health and social work	Dental practice
O	Other community, social and personal service activities	Hairdresser Leisure centre

Appendix 4: Correlation matrix

Covariates	1	2	3	4	5	6	7	8	9	10	11
1 Age	1.000										
2 Sex	-0.177*	1.000									
3 Organisational tenure	0.396*	-0.115†	1.000								
4 Job tenure	0.356*	-0.060†	0.526*	1.000							
5 Job hours	-0.052†	0.214*	-0.082*	-0.022	1.000						
6 Supervisory responsibility	-0.164*	0.213*	-0.167*	0.005	0.202*	1.000					
7 Socio-economic status	-0.044	-0.174*	0.005	-0.101*	-0.207*	-0.326*	1.000				
8 Ethnic/national origin	-0.161*	0.032	-0.072*	-0.120	0.024	0.027	0.061*	1.000			
9 Size	0.147*	-0.117*	0.064*	0.048†	-0.020	0.034	0.067*	0.010	1.000		
10 Economic sector	-0.156*	0.388*	0.086*	-0.003	0.245*	0.210*	-0.144*	0.149*	0.049*	1.000	
11 Industry	-0.125*	0.372*	-0.083*	-0.046†	0.226*	0.143*	-0.069*	0.122*	0.236*	0.750*	1.000
12 General health	-0.011	0.022	-0.067*	-0.036	0.017	-0.089*	0.036	-0.012	0.007	-0.072*	-0.035
13 Mental health	0.117*	0.047†	0.005	0.003	0.046†	-0.084*	0.037	-0.047*	0.045*	-0.131*	-0.081*
14 Vitality	0.143*	-0.099*	0.003	0.037	0.034	-0.086*	-0.009	-0.048†	0.046†	-0.176*	-0.107*
15 Organisational commitment	0.080*	0.008	0.024	-0.051†	-0.004	-0.211*	0.072*	-0.013	-0.019	-0.107*	-0.070*
16 Job satisfaction	0.054†	0.077*	0.007	-0.010	0.055†	-0.105*	0.008	-0.020	-0.018	-0.042	-0.030
17 Intention to quit	-0.127*	0.008	-0.100*	-0.057†	0.040	0.057†	0.041	0.038	0.011	0.076*	0.106*
18 Intrinsic job motivation	0.199*	0.034	0.003	-0.038	-0.028	-0.180*	0.168*	0.043	0.005	-0.059*	-0.010
19 Average safety climate	0.133*	-0.067*	0.035	-0.006	0.013	-0.278*	-0.015	-0.099*	-0.083*	-0.282*	-0.208*
20 Overall performance	0.110*	-0.007	0.045†	0.097*	0.073*	-0.008	-0.164*	0.000	-0.039	-0.022	-0.033
21 Self-reported absence	-0.018	0.019	-0.001	0.006	0.024	0.029	-0.042	0.025	-0.037	0.028	0.023
22 Number of work-related illnesses	-0.037	0.078*	0.028	0.005	-0.042	0.050	0.001	0.000	-0.147*	0.143*	0.075*

Table 26
Descriptive statistics and correlations for the individual and organisational covariates, and employee survey outcomes

Table 26
continued

	Covariates	12	13	14	15	16	17	18	19	20	21	22
Individual covariates	1 Age											
	2 Sex											
	3 Organisational tenure											
	4 Job tenure											
	5 Job hours											
	6 Supervisory responsibility											
	7 Socio-economic status											
	8 Ethnic/national origin											
Org. covariates	9 Size											
	10 Economic sector											
	11 Industry											
Employee survey outcomes	12 General health	1.000										
	13 Mental health	0.465*	1.000									
	14 Vitality	0.586*	0.711*	1.000								
	15 Organisational commitment	0.252*	0.388*	0.336*	1.000							
	16 Job satisfaction	0.276*	0.463*	0.378*	0.737*	1.000						
	17 Intention to quit	-0.200*	-0.373*	-0.300*	-0.637*	-0.650*	1.000					
	18 Intrinsic job motivation	0.122*	0.140*	0.101*	0.431*	0.368*	-0.203*	1.000				
	19 Average safety climate	0.257*	0.328*	0.366*	0.534*	0.434*	-0.326*	0.283*	1.000			
	20 Overall performance	0.235*	0.271*	0.291*	0.205*	0.250*	-0.183*	0.195*	0.179*	1.000		
	21 Self-reported absence	-0.109*	-0.114*	-0.125*	-0.035	-0.050†	0.022	0.014	-0.034	-0.090*	1.000	
	22 Number of work-related illnesses	-0.271*	-0.276*	-0.287*	-0.176*	-0.198*	0.191*	-0.022	-0.198*	-0.182*	0.076*	1.000

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