

Translating into Practice the Recommendations of a Safety Climate Theory-Based Evaluation of Services Provided by Disability Support Workers

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Abstract Disability support workers (DSWs) psychosocial work safety was evaluated using a work safety climate measure that included two theoretical components: perceptions of management and co-worker safety behaviours and attitudes. Based on findings, recommendations were identified to improve DSW safety, with seven recommendations translated into practice. Intervention outcomes varied from organisation-wide to limited worksite implementation. An 18-month post-intervention safety climate evaluation with 129 DSWs and 20 interviews showed DSWs were significantly less concerned about psychosocial safety hazards, with no differences for physical safety hazards. DSWs viewed management safety attitudes and behaviours slightly more favourably. Repeated health and well-being measures showed fewer DSWs experiencing burnout, more DSWs with health scores at or above norms and fewer at risk of depression. Post-intervention findings suggest the work safety climate measure with manager and co-worker attitudes components can be used with management efforts to address workers' safety concerns and positively impact safety perceptions and well-being.

Keywords Organisational psychology · Psychosocial safety · Burnout
Work safety climate

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1 Introduction

This study involved a follow-up of psychosocial-related aspects of work safety for disability support workers (DSWs) working for an Australian disability organisation, following an earlier investigation and subsequent translation into practice of seven work safety interventions. The initial investigation into DSW work safety (DSW safety study 1) was undertaken at the organisation's request and aimed to identify factors contributing to high rates of DSW compensation claims and safety incident reports. Whereas most claims involved musculoskeletal injuries that were experienced by DSWs associated with their manual handling duties, of concern for the organisation were the increasing numbers of psychological or mental stress incidents that were being reported by DSWs. The most commonly reported mechanism of the mental stress safety incidents was exposure to workplace or occupational violence, an event that carries the risk of assault-related physical injury claims and also mental stress or psychological injury claims, which are generally recognised as the most expensive form of workers' compensation claims (Safe Work Australia, 2013a). Other causes of the mental stress safety incidents reported by DSWs included work pressure and work-related harassment and/or workplace bullying (Kirby et al., 2014).

Surveys and interviews were used in the first investigation to determine the organisational factors impacting DSW psychosocial well-being and work safety, and in particular to understand the relationship between DSW assessments of their health and well-being and DSW ratings of their work conditions and safety in the organisation (Kirby et al., 2014). Health and well-being findings for the DSWs were consistent with findings in the literature for staff working in disability support roles (e.g. Lin et al., 2009; White, Edwards, & Townsend-White, 2006). Estimates in the literature of the number of staff working in disability services who experience stress levels indicative of mental health concerns range from 25 to 40% (Hatton et al., 1999; Kozak, Kersten, Schillmoeller, & Neinhaus, 2013; Robertson et al., 2005). Although not all DSWs involved in the first DSW safety study were experiencing health and well-being concerns, when group results were considered, the DSW workforce sample were found to be experiencing significantly more personal and work-related burnout and had poorer physical and mental health than the normative samples of the instruments used (Harries, Ng, Wilson, Kirby, & Ford, 2015; Kirby et al., 2014).

Impaired psychological well-being related to work has been widely reported in the literature to be associated with detrimental consequences for workers and thus for their employers. Worker consequences can include adverse outcomes for their physical health (e.g. fatigue, headaches, cardiovascular disease, lowered immunity and risk of developing musculoskeletal disorders) (Blewett, Shaw, LaMontagne, & Dollard, 2006; Devereux, Rydstedt, Kelly, Weston, & Buckle, 2004; Hauke, Flintrop, Brun, & Rugulies, 2011; Way, 2012), mental health (e.g. anxiety, depression, sleep disturbances and suicide) (Blewett et al., 2006; Chan & Huak, 2004; Stavroula Leka, 2010) and behaviour (e.g. accident proneness, increased work errors, reduced motivation, drug and/or alcohol abuse, violence) (Blewett et al., 2006; Quick, Horn, & Quick, 1987). These physical, mental and behavioural

worker impairments have been shown to be related to diminished work performance and increased work safety concerns for employers (e.g. high absenteeism and/or turnover, increased accidents and work errors) (Dollard, Winefield, & Winefield, 2001; Harnois & Gabriel, 2000; Pfeffer, 2010). Furthermore, research has shown that those workers suffering burnout are more likely to engage in unsafe work behaviours (Nahrgang, Morgeson, & Hofmann, 2011) and that worker psychological distress is predictive of accident rates (Siu, Phillips, & Leung, 2004).

In the initial study of DSW safety, a measure of safety climate was included in the survey to investigate the relationship between health and well-being and work safety performance for DSWs. The safety climate of an organisation is considered to represent the collective view of workplace safety—which is influenced by recent safety events—and has been shown to be related to, and a leading indicator of safety incidents and accidents (Nahrgang et al., 2011) and to workplace stress (Oliver, Cheyne, Tomas, & Cox, 2002; Siu et al., 2004). The safety climate measure used in the DSW safety study, the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50; Kines et al., 2011), differs from other measures of safety climate in that it incorporates questions to capture respondents perceptions of both management and co-worker (workgroup) safety attitudes and behaviours. This contrasts with other safety climate measures in which only perceptions of management safety attitudes and behaviours are assessed, as safety is considered to be a “top down” phenomenon determined by the organisation’s management (e.g. the Psychosocial Safety Climate measure developed by Hall, Dollard, & Coward, 2010).

The association reported in the literature between workplace stress and the work safety climate was confirmed in the first DSW safety study, with DSW burnout associated with less favourable safety climate perceptions, and aspects of both management and co-worker safety attitudes and behaviours were found to be relevant (Harries et al., 2015; Kirby et al., 2014). DSW work conditions were considered an important factor in the significant finding between the co-worker safety climate dimensions and DSW health and well-being. The DSWs working for the organisation largely worked in dispersed community-based settings with a small workgroup of co-workers. In these work conditions, they generally received less direct supervision or support from management than was the case when disability support services were provided in institutional settings, suggesting that the influence of co-workers was likely to be more relevant.

In order to understand the relevance of support from superiors and co-workers as well as other work conditions in terms of their impact on DSW well-being and safety performance, a work conditions measure was also included in the survey. Findings from the work condition measure were used to contribute to recommendations regarding effective job redesign strategies to minimise worker ill-health and to promote environments that actively enhance positive worker well-being (Verhoeven, Maes, Kraaij, & Joekes, 2003). Findings of the first DSW safety study revealed an association between poorer health and well-being and less favourable perceptions by DSWs of their work conditions. For example, study findings showed higher burnout was associated with higher job demands and role conflict but lower job control, support and role clarity (Harries et al., 2015).

Furthermore, significant correlations were obtained between work conditions and well-being measures with the work safety climate measure utilised. Although causation could not be determined from correlations obtained in the safety study—with many and reciprocal causal links likely—the results suggested that work conditions and work stress findings have important implications for safety outcomes for DSWs.

Findings of this first DSW safety study, and particularly those of the safety climate measure, identified a range of causal factors and related organisational issues that were considered to be contributing to DSW workplace injuries (Kirby et al., 2014). These findings and consultations with key stakeholders (e.g. managers, supervisors, DSWs, health and safety representatives, union representatives and training personnel) were used to compile a series of strategic recommendations designed to prevent safety hazards and to improve DSWs' physical and emotional safety and well-being. Recommendations were grouped into five major areas: to cultivate a positive organisational culture that overtly acknowledges and respects DSW work safety; to develop the social capital and competency of work teams; to ensure DSWs have the information, training and support required to perform their jobs effectively; to enhance safety communication, monitoring and reporting systems; and to ensure work environments minimise the risk of DSW injuries. The subsequent study (DSW safety study 2) reported here translated seven of the safety recommendations into practice, with the effectiveness evaluated using the same survey as utilised in the first DSW safety study approximately 18 months after the first survey period.

The choice of the work safety interventions to translate into practice was guided by specific criteria. In particular, they addressed major areas of safety concern identified by stakeholders; there was wide consensus amongst stakeholders regarding the safety benefit of the intervention; the implementation of the interventions was considered feasible within the time frame available (i.e. approximately 9 months); and no additional financial resources beyond existing levels available to the organisation were required. The final criterion for the safety interventions was that they should involve upstream controls to address safety hazards that were either primary (preventative) or secondary (injury limitation) safety controls rather than focusing on tertiary or rehabilitative interventions that address the worker at the level of illness (e.g. use of employee assistance programs).

Factors previously reported in the literature as important for organisational change were used to facilitate the implementation of the safety interventions in the organisation. Research indicates that senior management involvement is critical to successful change in organisations (Alimo-Metcalfe & Alban-Metcalfe, 2010). In particular, communication from management about the reasons for, and process of change is required. Management also needs to build a coalition of suitably motivated and capable leaders, and be visibly and actively engaged in the change process. The use of "champions of change" is also recommended to facilitate organisational changes. These change advocates participate in the strategy-making process during the change and act as driving forces for the change, ensure resources are allocated to achieve changes and work to unblock barriers to change (Ginsberg & Abrahamson, 1991). Employee empowerment and engagement is also considered

critical to the process of successful change. The research literature provides support for the positive relationship between empowerment and the achievement of work-related outcomes (Maynard, Gilson, & Mathieu, 2012) and for the mediating effect of worker empowerment on burnout (Lee et al., 2013). Participatory approaches utilising employee and health and safety committee input have been shown to be effective elements of interventions designed to address work stress.

The seven work safety interventions that were translated into practice in DSW safety study 2 are shown in Table 1. As can be seen, most were considered to be primary level controls that aimed to proactively prevent harm or risks. The interventions were drawn from all of the major recommendation areas described previously except the final area associated with work environments.

During the second DSW safety study, the progress of these interventions was monitored by the authors using interviews with key stakeholders. At the completion of this study, the relative maturity of the interventions was established in interviews using a method adapted from a system of business process models (Van Looy, 2014)

Table 1 Work safety interventions translated into practice in DSW safety study 2

Safety intervention and purpose	Intervention description	Control level
1. Personnel selection procedures Recruit DSWs with required job skills, emotional capacity and personal characteristics	Use of psychological tests at the point of DSW recruitment	Primary
2. Workforce safety communication Improve safety communication and cultivate a positive organisational culture that overtly acknowledges safety importance	Trial methods for safety communication for a dispersed workforce	Primary
3. Safety and handover information Improve the handover of client and safety-related information and improve communication between DSWs	Develop a consistent safety and handover folder for all worksites	Primary
4. Communication and team training Develop the social capital and effectiveness of teams and reduce conflict between DSWs	Introduce communication and teamwork training for DSWs	Primary
5. Localised staff replacement system Ensure replacement DSWs deployed to worksites have the necessary expertise and are known to co-workers and clients	Develop a staff replacement system to ensure familiar teams of co-workers/replacement co-workers for worksites	Primary
6. Well-being checks Ensure DSW well-being following safety incidents	Develop a brief debriefing format to check on DSW well-being after safety incidents	Secondary
7. Safety monitoring and reporting Enhance safety reporting and monitoring systems	Develop a safety report format for managers that includes safety trends for proactive risk management	Secondary

Table 2 Level of safety intervention maturity at study completion

Maturity level	Safety interventions
1. Conceptual process (i.e. intervention concept identified; work required to develop concept before work-unit level trials)	<ul style="list-style-type: none"> • Localised staff replacement system • Communication & team training
2. Structured process (i.e. basic process developed; trialled at work unit level; refinement required for organisation-wide implementation)	<ul style="list-style-type: none"> • Safety and handover folder
3. Standardised process (i.e. standardised process developed; ready for integration as an organisation-wide methodology)	<ul style="list-style-type: none"> • Safety monitoring and reporting • well-being checks • Workforce safety communication
4. Managed process (i.e. detailed processes exist; implemented across the organisation; measures of output quality being collected)	<ul style="list-style-type: none"> • Personnel selection procedures
5. Optimised process (i.e. continuing organisational processes enabled by collecting quantitative feedback and innovation to achieve best practice)	

for determining the maturity of new businesses. Table 2 shows the maturity levels utilised and the maturity of the interventions at the completion of the study. As can be seen, the interventions progressed to different stages of maturity following implementation, with a number determined to be close to progressing to the next level of maturity at the completion of the study.

The findings reported here involve a post-intervention evaluation undertaken with DSWs at the end of the second study, with findings compared to those of DSWs who participated in the DSW safety study 1 (approximately 18 months earlier). The purpose of this post-intervention evaluation was to determine the extent to which DSW well-being, safety performance and safety climate had altered since the commencement of DSW safety study 1 and following the implementation of the safety interventions.

2 Method

2.1 Participants and Procedure

All DSWs working for the Australian disability organisation (approximately 1415 DSWs) were invited to participate in each safety study by participating in an interview and/or completing a survey. Invitations were sent to DSWs at their home addresses in study 1 and distributed to worksites in study 2. Information provided to the DSWs included information about the research and a letter of support from the Director responsible for the accommodation service operations outlining senior management support for the research and explaining that surveys and interviews

Table 3 Participant demographics for the survey data for the two DSW safety studies

	DSW safety study 1 (<i>n</i> = 99)	DSW safety study 2 (<i>n</i> = 129)	DSW workforce (approx. 1415)
<i>Gender</i>			
Males	51%	46%	39%
Females	49%	54%	61%
Mean age (SD)	48.35 years (10.6)	48.02 years (11.1)	45.5 years
Mean length of service (SD)	8.96 years (8.5)	9.75 years (9.4)	8.5 years

could be undertaken in work time. Participants were also informed that participation was voluntary, that their responses would be confidential and only group results would be reported.

The DSWs involved in the studies were employed to work within the organisation's accommodation support services and had daily responsibilities for providing person centred supports (e.g. for personal care, behaviour, health and medical, and other lifestyle needs) to maximise the independence and quality of life of adults with disabilities. The demographics of each DSW survey sample are shown in Table 3. As can be seen, for each study there were proportionally more males in the DSW samples than in the organisation's workforce and the mean age was slightly older.

In the second DSW safety study, a small sub-sample of 20 DSWs (11 females and 9 males) were interviewed about work safety and changes to work safety that had been observed. These DSWs had indicated on their returned consent form that they were willing to be interviewed. The questions used in interviews were as follows:

1. What has, and continues to work well with respect to safety for DSWs?
2. What are the major contributors to safety risks for DSWs?
3. Are you aware of any changes that have occurred with respect to work safety for DSWs over the past 12–18 months?

2.2 Measures

Responses for this investigation were drawn from a larger questionnaire compiled by the authors to examine work safety and to collect information regarding demographics (e.g. age, gender), employment characteristics (e.g. length of service), job satisfaction and safety perceptions. Four standardised measures were included in this study: measures of burnout, physical and mental health, bullying and/or harassment and safety climate. Additionally, the authors developed questions designed to address specific safety concerns associated with working as a DSW. Throughout the questionnaire, DSWs were provided with opportunities to record qualitative comments to elaborate on or qualify responses.

Burnout was assessed using the Copenhagen Burnout Inventory (CBI; Kristensen, Borritz, Villadsen, & Christensen, 2005). The CBI comprises three subscales. Central to the CBI is the association between burnout and physical and psychological fatigue and exhaustion. CBI subscale structure reflects attribution of exhaustion to specific life domains. The personal burnout subscale (six items) assesses exhaustion regardless of occupational status. The work-related burnout (seven items) and client-related burnout (six items) subscales measure the extent exhaustion is perceived as related to work or clients, respectively. Item responses are rated on a 5-point scale (0 = *never/almost never* or *to a very low degree* to 100 = *always* or *to a very high degree*). Higher scores represent more burnout, with the mean of 50 or greater considered as indicating burnout. The normative sample comprised 1914 human service sector workers.

Physical and mental health was assessed using the SF-8 health survey (Ware, Kosinski, Dewey, & Gandek, 2001). The SF-8 is a self-report survey that looks at the extent to which individuals are currently able to perform their normal or usual behaviours and activities. It has a norm-based scoring system and provides a Physical Health Component Summary score and a Mental Health Component Summary score. Higher scores on the Physical and Mental Health Component Summary scores indicate better health, with scores above and below 50 interpreted as above or below the average for the general US population with comparable norms available for the Australian population (Crouchley, 2007).

Bullying and/or harassment was measured using a subscale from the General Nordic Questionnaire for Psychological and Social Factors at Work (QPS Nordic; Dallner et al., 2000; Lindstrom et al., 2000). The normative sample consisted of 2010 participants from public services, health sectors and production. The bullying and/or harassment subscale includes two items that examine worker experiences of bullying and observations of others being bullied. The definition of bullying used in the QPS Nordic to establish the norms involves only downward bullying (i.e. involving superiors bullying subordinates), whereas the relevant Australian government safety authority uses a definition that includes non-directional bullying. Consequently, the authors used the QPS Nordic measure but with bullying defined “*as repeated and unreasonable behaviour directed towards a worker or group of workers that creates a risk to health and safety*” (Safe Work Australia, 2013b).

Safety climate was measured using the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50; Kines et al., 2011) which includes 50 items phrased positively or negatively. The NOSACQ-50 includes seven safety climate dimensions, including three management and four work-unit level dimensions. The three management level dimensions include management safety priority, commitment and competence (e.g. “Management encourages employees here to work in accordance with safety rules—even when the work schedule is tight”), management safety empowerment (e.g. “Management strives to design safety routines that are meaningful and actually work”) and management safety justice (e.g. “Management collects accurate information in accident investigations”). The four work-unit (or co-worker) level dimensions include workers’ safety commitment (e.g. “We who work here try hard together to achieve a high level of safety”), workers’ safety

priority and risk non-acceptance (e.g. “We who work here regard risks as unavoidable”—negatively scored item), peer safety communication, learning and trust in co-workers’ safety competence (e.g. “We who work here try to find a solution if someone points out a safety problem”), and workers’ trust in the efficacy of safety systems (e.g. “We who work here consider that a good safety representative plays an important role in preventing accidents”).

NOSACQ-50 uses a 4-point scale (i.e. *strongly disagree, disagree, agree and strongly agree*). The normative sample consisted of 3853 healthcare sector workers. Scores of 3.30 or more indicate a good safety climate for maintaining and continuing safety development; 3.00 to 3.30 reflect a fairly good safety with a slight need for improvement indicated; 2.70 to 2.99 suggest a fairly low perceived safety with need for improvement; and scores below 2.70 indicate a low safety climate with a great need for improvement.

Safety hazard perceptions were assessed using questions that asked DSWs to indicate how frequently they felt unsafe at work due to 22 workplace hazards related to working as a DSW. These questions included 12 questions related to physical hazards in the workplace (e.g. safety risks in the internal or external work environment; risks associated with use of hazardous substances; manual handling risks; risk of slipping, tripping or falling) and 10 questions related to psychosocial hazards in the workplace (e.g. client aggression; bullying; lack of support in workplace). These questions were rated using a 5-point scale (i.e. *1 = never or almost never, 2 = not often, 3 = sometimes, 4 = often, 5 = always*).

2.3 Ethics

Approval to conduct this evaluation was obtained from the Human Research Ethics Committees of the University of Adelaide and the participating organisation.

3 Results

Table 4 provides the descriptive statistics for well-being measures used in the survey for each of the DSW samples with the instrument norms where applicable. It can be seen that the mean burnout scores for the second safety study all differed significantly from the norm means, with the personal and work-related burnout means significantly poorer than the norms whereas client-related burnout was significantly better than the norms. This pattern of results remained the same as in the first DSW safety study. When the number of DSWs who were considered to be experiencing burnout (i.e. have a score of 50 or more) was examined, an improvement was evident in the second DSW sample when compared to the first study, although improvements were not significant. DSWs considered to be experiencing burnout included: personal burnout study 1 = 41.4%, study 2 = 35.2%; work-related burnout study

1 = 33.3%, study 2 = 31.0%; and client-related burnout study 1 = 15.3%, study 2 = 11.6%. In the first study, 49.5% of DSWs were experiencing burnout in at least one domain compared to 40.3% in the second study.

When the SF-8 scores are examined, it can be seen in Table 4 that for both DSW studies, the mean mental health component scores were significantly poorer than the norms. Although there was an improvement in the mental health component scores from study 1 to study 2, the mean difference was not significant. The SF-8 mental health component score can also be used as a preliminary screener to identify respondents who are at risk of depression, although it is not considered a diagnostic measure. Risk of depression findings for the two DSW samples showed an improvement, with 32% of DSWs considered to be at risk of depression in study 1 compared to 25% in study 2. However, the number of DSWs at risk of depression remained significantly higher than the SF-8 norms.

Findings from the two items in the QPS Nordic bullying and/or harassment subscale are shown in Fig. 1. Compared to the norms (which represent downwards bullying only) and the percentage reported for Australian workers (which represents non-directional bullying) (Safe Work Australia, 2013b), DSWs in both samples reported experiencing and witnessing significantly more bullying. While each sample reported higher levels of bullying than the norms, there was a decrease in experienced and witnessed bullying between the first and second safety study, with the percentage of DSWs reporting that they witnessed bullying significantly lower in the second study than was the case in the first.

Table 5 provides the descriptive statistics for the safety measures used in the survey for each of the DSW samples with the instrument norms where applicable.

Table 4 Descriptive statistics for the Copenhagen Burnout Inventory and SF-8 health survey and comparisons to the normative samples

Scales	DSW safety study 1 (n = 99)		DSW safety study 2 (n = 129)		Normative sample
	Range	Mean (SD)	Range	Mean (SD)	Mean (SD)
<i>Copenhagen Burnout Inventory</i>					
Personal burnout	8.33–100	45.77** (20.7)	0–100	43.08** (17.7)	35.9 (16.5)
Work-related burnout	3.57–100	41.28** (22.2)	3.57– 89.29	37.51* (20.1)	33.0 (17.7)
Client-related burnout	0–95.83	26.13* (20.8)	0–83.33	22.45** (19.2)	30.9 (17.6)
<i>SF-8 health survey</i>					
Physical health component score	23.81– 61.26	48.13 (9.3)	23.27– 63.72	48.78 (8.7)	50 (10)
Mental health component scores	17.43 –61.88	45.95** (11.4)	11.35 –61.69	48.03* (10.6)	50 (10)

*p < 0.05, **p < 0.01 (compared with the normative sample)

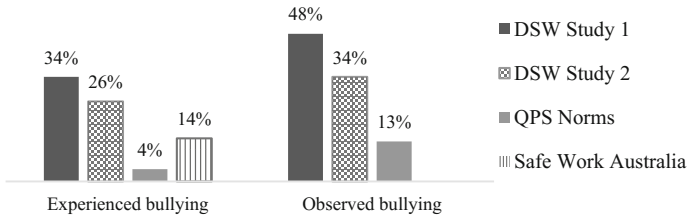


Fig. 1 Percentage of DSWs in each safety study who reported they had experienced or witnessed bullying in the workplace compared to the QPS norms and percentage reported by SafeWork Australia

As can be seen in Table 5, in both studies, the means for the safety climate dimensions differed significantly from those of the norm group for one management dimension (management safety justice) and all four of the work-group or co-worker safety climate dimensions. On all three of the management dimensions, there were mean improvements in the second study from the first, whereas only one of the four

Table 5 Descriptive statistics for the NOSACQ-50 and safety hazard survey questions and comparisons to the normative samples

Scales	DSW safety study 1 (n = 99)		DSW safety study 2 (n = 129)		Normative sample
	Range	Mean (SD)	Range	Mean (SD)	Mean (SD)
<i>NOSACQ-50</i>					
Management safety priority and ability	1.33–4.00	2.83 (0.59)	1.00–4.00	2.87 (0.55)	2.85 (0.58)
Management safety empowerment	1.29–4.00	2.71 (0.62)	1.00–4.00	2.77 (0.55)	2.83 (0.55)
Management safety justice	1.00–4.00	2.74** (0.67)	1.00–4.00	2.80** (0.55)	3.12 (0.50)
Worker safety commitment	2.00–4.00	3.11** (0.48)	1.83–4.00	3.09** (0.39)	3.31 (0.47)
Workers safety priority & risk non-acceptance	1.43–4.00	2.85** (0.52)	1.28–4.00	2.87** (0.52)	3.09 (0.51)
Peer safety communication, learning and trust in safety ability	1.50–4.00	3.05* (0.54)	1.25–4.00	3.03** (0.45)	3.20 (0.44)
Workers trust in the efficacy of safety systems	1.71–4.00	3.15** (0.47)	1.00–4.00	3.10** (0.46)	3.36 (0.44)
<i>Safety hazards</i>					
Physical hazards	1.00–3.83	2.11 (0.67)	1.00–4.00	1.99 (0.67)	–
Psychosocial hazards	1.00–4.30	2.47 (0.81)	1.00–4.56	2.20 (0.81)	–

*p < 0.05, **p < 0.01 (compared with the normative sample)

co-worker safety climate dimensions improved. With respect to concerns about specific safety hazards, it can be seen in Table 5 that in both study samples, the DSWs were generally more frequently concerned about psychosocial safety hazards than physical hazards. It can also be seen that the DSWs were less concerned about both types of hazards in the second sample than the first; however, only the difference for the psychosocial hazards was significant [$t(221) = 2.46, p = 0.014$].

Findings from interviews were used to determine DSW perspectives on effective safety initiatives used by the organisation and factors that remained as contributors to safety concerns. In interviews, DSWs identified 18 areas that were considered to be effective safety initiatives. Thirteen of these initiatives were reported by more than 50% of those interviewed. The top initiatives mentioned by 70% or more of the respondents included: workplace emergency plans, organisational safety policies, safe operating procedures (e.g. manual handling, use of hazardous substances), vehicle safety (e.g. vehicles in good condition, safety barriers) and the safety incident reporting system. The least frequently reported safety initiative was that the workplace was stress-free (reported by 23% of DSWs).

In response to the question about major contributors to safety risks for DSWs, the DSWs identified 18 areas of concern. Most safety concerns (61%) were mentioned by 5% or fewer of the DSWs interviewed. Those above this level were mentioned by between 6 and 15% of DSWs and included: bullying or other co-worker conflicts, lack of adequately trained staff, lack of support in the workplace, aspects of the internal and/or external physical environment, lack of adequate staff training, high job demands, working with clients with challenging behaviours and other staff-related issues (e.g. stress associated with working with unfamiliar replacement DSWs). Most safety risks identified by DSWs related to psychosocial aspects of the work situation rather than physical risks.

DSWs were also asked about any changes they may have observed over the preceding 18 months. Responses from DSWs included improvements and deteriorations. The improvements that were reported were grouped under seven headings, including: improved follow-up for DSWs following safety incidents, more overt commitment from management towards safety, changes to staffing procedures (e.g. use of psychological testing in new DSW recruitment), greater focus on safety procedures, improvements in safety communication, environmental safety improvements and training. Deteriorations reported by DSWs were grouped under eight headings, including: problems with equipment or aspects of the work environment, inadequate safety follow-up and communication, bullying and workplace conflicts, issues associated with the staff daily replacement system, lack of management support, aspects of their work conditions (e.g. lack of job rotation), clients with challenging behaviours and lack of adequately skilled staff. These findings supported the DSW study 1 findings that suggested that the causal influences of safety risks for DSWs were complex with specific factors or combinations of factors relevant for different work circumstances and environments, as indicated by the factors identified as improving by some DSWs also being reported as having deteriorated by others, for example, follow-up after safety incidents and safety communication. These findings

may also reflect the incomplete penetration across the organisation of the implemented safety interventions at the time of this evaluation.

4 Discussion

This project aimed to translate into practice selected work safety recommendations for disability support workers (DSWs) compiled from DSW safety study 1. The implemented interventions selected were chosen according to the specific criteria that there was wide consensus about possible safety benefit and likely impact, they could be implemented in a short time period (approximately 9 months), required no additional financial resources, and focused on upstream safety controls. The implementation of these interventions was undertaken with a strong commitment from the organisation's management and involved a cooperative process with the direct involvement of the organisation's management, thus demonstrating the organisation's commitment to improving the health and safety outcomes for DSWs.

The research findings in DSW safety study 1 suggested there were multiple factors associated with the psychosocial work safety hazards impacting DSWs and that the causal influences were often complex, with specific factors or combinations of factors relevant for particular work circumstances and in different environments. Consequently, to address these hazards multiple safety intervention approaches were required, seven of which were trialled in this research. The underlying focus of these interventions included the cultivation of a positive safety climate that overtly acknowledges and respects DSW work safety; the development of the social capital and competency of work teams; ensuring DSWs have the information required to perform their jobs effectively; and the enhancement of safety communication, monitoring and reporting systems. At the completion of the DSW safety study 2, the implemented interventions had reached variable levels of maturity.

As the time available to translate safety recommendations into practice was limited this meant that some interventions remained as pilot implementations at various worksites. Consequently, it was not anticipated that broad reaching work safety climate and organisational health and safety impacts would be evident in the post-intervention evaluation. Yet the post-intervention findings did show improvements when compared to findings for a DSW sample surveyed in the first safety study, although the DSW health and well-being outcomes generally remained poorer than norm groups. When compared to the first DSW sample, favourable health and well-being outcomes included fewer DSWs experiencing high levels of personal and work-related burnout, more DSWs who had physical and mental health scores indicating better health, and fewer DSWs at risk of experiencing depression.

A further favourable trend noted from the first to the second safety study involved significantly lower levels of bullying observed in the workplace in study 2 along with fewer DSWs reporting being bullied. Although reported levels of bullying remained significantly higher than the norms, the improvements in the results support further

efforts to continue with the communication and team training and localised staff training interventions. Both of these interventions aimed to develop effective teams and improve co-worker relationships, and each remained at relatively immature levels of development at the conclusion of this post-intervention evaluation.

The different levels of maturity achieved for each of the interventions were related to a number of factors (e.g. conflicting demands for resources, scale of the intervention). Nonetheless, the interview findings suggested that the seven safety interventions remained relevant for addressing DSW work safety. This was highlighted by the types of safety risks that DSW identified, many of which the interventions had been designed to address (e.g. follow-up for workers following safety incidents) and also in the improvements reported by some DSWs that related directly to the implementation of particular interventions (e.g. improved safety communication). Communication is identified in the literature as an important contributor to a positive organisational safety climate (British Standards Institution, 2011) and was central to several of the safety interventions trialled (e.g. communicating with the workforce about safety initiatives, handover transfer of critical client-related safety information, provision of safety statistics to communicate safety hazards and progress with managers, and well-being checks following incidents). DSWs' reports of improved communication from management as a safety improvement that occurred over the period of the research and improvements in the safety climate from study 1 underscore the role of communication in work safety improvements.

The findings reported here provide support for the utility of a measure of safety climate when attempting to identify work safety issues, solutions to those issues (based on providing opportunities for suggested improvements) and for implementing and monitoring safety-related changes in organisations. The NOSACQ-50 used in this study provided a useful profile of DSW perceptions of the safety behaviours and attitudes of both management and co-workers, relative to those of a norm group, which enabled the targeting of safety interventions designed to address areas of safety concerns raised. The post-intervention use of the same measure provided an indication of the extent to which the interventions had been effective at addressing the safety behaviours and attitudes identified by DSWs in the first study. Post-intervention survey findings showed slight mean improvements for all three management factors in the organisational safety climate but for only one of the co-worker factors when compared to the results of the first safety study. The fact that none of the work safety climate improvements was significant is not surprising given the relatively short time frame of the study and the fact that as a general measure of management and co-worker attitudes and behaviours it might be expected to take some time before changes in the work safety climate become apparent. Nevertheless, the slightly more favourable view of management in regard to how management prioritises and responds to safety concerns, the fair treatment of workers involved in incidents, and worker safety empowerment, were all consistent with the underlying focus of implemented interventions for which the most progress was made; for example, these included the interventions implemented to improve safety communication with the workforce and the intervention involving the use of well-being Checks for DSWs who were exposed to safety incidents.

Importantly, the safety climate findings in the second study identified areas of safety concern that remained a priority. For example, the mean score for the co-worker safety climate dimension associated with peer safety communication, learning and trust in safety ability was little changed from study 1 to study 2 and remained in the NOSACQ-50 score range considered to indicate “fairly good safety with a slight need for improvement”. Examples of the types of safety behaviours and attitudes in the dimension include “*We who work here feel safe when working together*”, “*We who work here have great trust in each other’s ability to ensure safety*” and “*We who work here can talk freely and openly about safety*”. These aspects of co-worker safety were key drivers behind the recommendations associated with the need for communication and team training and the development of a localised staff replacement system that ensures the deployment of replacement staff with the appropriate expertise and familiarity with co-workers and clients at particular worksites. These were the two safety interventions that matured the least during the period of this study, and the safety climate findings suggest that improvements associated with this co-worker safety dimension remain necessary.

5 Summary

Although there were no significant improvements in the safety climate, the findings did provide preliminary support for the effectiveness of the seven safety interventions, which largely targeted psychosocial safety concerns of the organisation’s DSW workforce. In particular, DSWs in the second study were significantly less likely to be concerned about psychosocial safety hazards than the DSWs surveyed for the first safety study, with no differences evident with regard to physical safety hazards. The health and well-being measures in the second study also showed fewer DSWs experiencing burnout, more DSWs with health scores at or above norms and fewer at risk of depression.

The findings of this study support an approach to implementing safety-related changes that incorporate the use of normed surveys to benchmark and monitor progress; stakeholder interviews to establish consensus for possible changes and identifying potential facilitators and/or inhibitors; and the use of external consultants to assist with navigating, monitoring and sustaining changes. In particular, the findings highlight the usefulness of a measure of safety climate that includes perceptions of both management and co-worker safety behaviours to identify safety issues, obtain suggestions for improvements and to regularly monitor the safety issues and the impact of changes.

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