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Latest Workplace Trends

Research Alert

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This research alert highlights areas of recent interest in the area of Work Health and Safety (WHS) and workers' compensation. The summarised issues have emerged from a six-month review of grey literature, including national WHS conference topics, and peer-reviewed publications from Occupational Health and Safety (OHS) industry journals.

Four themes were identified from this six-month review and while this list is not exhaustive, it provides a snapshot of areas of current research/professional interest.

The four identified emerging themes are:

1. **The ageing workforce**

   As governments increase the age at which workers can access the pension the age of retirement also increases. This has significant impacts on industries, such as construction, that rely on production styles requiring abilities that decrease with age, as reflected in the increased injury and fatality rate amongst older workers. Interventions that promote work-life balance, flexibility at work, and make concessions for physically and mentally demanding jobs can positively support older workers within the construction industry, thereby improving older workers' work ability, efficiency and productivity.

2. **Gender-based harassment at work**

   The most common forms of sexual harassment reported in the literature ranked by prevalence are: gender harassment, unwanted sexual attention and sexual coercion. Members of the trans, gender diverse and non-binary (TGDNB) community experience higher rates of gender harassment at work than their cis-colleagues. Two practical strategies to reduce gender harassment at work include diversity training/education and policy/procedures, however it is vital that the training is useful and authentic and the TGDNB polices are enforced.

3. **Dust diseases**

   Latest estimates indicate that 90% of the world's population inhales air that contains levels of pollutants above the safe limit defined by the WHO. Particulate matter is a form of air born pollutant made up of suspended dust with a diameter of <10 µm that leads to dust diseases. Recent increased cases of silicosis due to exposure to silica dust in Israel, Spain and Australia suggest that vigilance is required to reduce the prevalence of this workplace disease. A recent ban in Australia prohibits the use of engineered stone and was initiated to protect Australian workers from the negative effects of silica dust (Safe Work Australia, 2023).

4. **Screening for musculoskeletal disorders**

   Musculoskeletal disorders (MSDs) remain a significant burden on society that impacts both individuals and organisations. Pre-employment examinations including physical capacity testing have been used to: identify a worker's current MSD-related physical limitations; determine a worker's ability to meet the requirements of the job for safe placement;

establish a worker's baseline for health monitoring; and measure and monitor the effectiveness of rehabilitation/wellness programs. The current evidence for their use to predict MSD remains elusive.

1. The ageing workforce

Advances in technology and health standards have resulted in people living longer than in any previous generation, making it necessary for governments to find effective ways to support the extra years people are living. The Australian Government has dealt with this issue by raising the age a person is able to access their retirement pension: in July 2017, the pension eligibility age for men and women was raised to 65 years and 6 months, with increases by six months scheduled every two years until it reached the age of 67 years on 1 July 2023 (Commonwealth of Australia, 2020).

The wellbeing of older people often reflects their social and economic status and the inability to access a pension has resulted in many older workers extending their working life to maintain their financial security (Nagarajan & Sixsmith, 2023). Increases in workforce participation by older workers have led to a positive contribution to national economic and social development. Benefits include a reduction in the cost of pensions for government and an increase in the labour force (Berkman & Truesdale, 2023), constituting important contributions to many countries where reduced birth rates have led to labour force shortages.

The age a worker becomes an 'older worker' remains under debate, however most researchers define older workers as those with a chronological age of over 50 years (Peng & Chan, 2019). Whilst advances in health have meant that a worker's biological age at 50 is different to previous generations, changes in both cognitive and physical abilities continue to occur with age. When considered in relation to work, these abilities can be classified as age-appreciating cognitive, age-depreciated cognitive, and age-depreciated physical ability (Phiromswad, Srivannaboon & Sarajoti, 2022). The first category refers to skills that typically improve with age, such as verbal abilities and written expression, whilst age-depreciated cognitive abilities, such as perceptual speed, memorization and divided attention, decrease with age. Physical skills are consistently age-depreciating as physical abilities such as agility, body coordination, strength, and stamina reduce as individuals age biologically.

National economies with an ageing population tend to move towards production styles where age-appreciating skills are more important than age-depreciating ones (Cai & Stoyanov, 2016). This presents a problem for industries where productivity depends on age-depreciating skills, such as construction, maintenance and repair occupations.

As one of the most physically and mentally challenging and high-risk industries, construction is reporting an increase in the ageing workforce. As younger workers move away from construction due to the perceptions of job insecurity, long working hours, and health and safety risks, older workers are playing an increasingly important role. In Australia, between February 2008 to November 2019 the number of older workers increased from 55,157 to 76,082, while the number of young workers (aged less than 25 years) decreased from 140,228 to 115,507 (ABS, 2022).

This change in worker demographics attracts new costs as the rate of accidents and claims for musculoskeletal disorders and compensable work days are higher among older construction workers (Peng & Chan, 2021; Kamardeen & Hasan 2022). A review of injury rates in the

Australian construction industry found that older workers (aged ≥ 45 years) were more vulnerable to fatalities and permanent incapacities, particularly in smaller sized organisations and across the occupations of carpenters and joiners, plumbers, electricians, and construction laborers. Exposure to chemicals and substances, falls and vehicle incidents were the causes of the highest number of fatalities, whilst exposure to loud sound and pressure, nervous system and sense organ diseases were associated with the greatest number of permanent incapacities (Kamardeen & Hasan, 2022).

Interventions that promote work-life balance, flexibility at work, and make concessions for physically and mentally demanding jobs can positively support older workers in the construction industry, thereby improving older workers' work ability, efficiency and productivity (Ranasinghe et al., 2023)

A recent scoping review (Nagarajan & Sixsmith, 2023) found the most commonly reported interventions in the construction industry to support older workers included:

- work/job redesign to match with physical capacity
- training that specifically targets older workers
- promoting older workers to positions with less physically demanding requirements
- ergonomic programs
- pairing older with younger workers who support them when performing physically demanding tasks
- improving workers' physical health via providing discounted gym memberships; and
- facilitating regular medical examinations and health supports.

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2. Gender-based harassment at work

Sexual harassment has been described by the Australian Fair Work Ombudsman as "...*an unwelcome sexual advance or request for sexual favours to the person who is harassed, or other unwelcome conduct of a sexual nature in relation to the person who is harassed*" (Australian Fair Work Ombudsman, 2023). However, which specific actions are perceived as "sexual" varies between individuals, potentially leading to some ambiguity surrounding the definition of sexual harassment and creating challenges in reporting and prosecuting processes. Another definition encompasses the most common forms of sexual harassment: "*behaviour that derogates, demeans, or humiliates an individual based on that individual's sex*" (Berdahl, 2007). The most common forms identified in research include sexual coercion, unwanted sexual attention and gender harassment (Fitzgerald et al., 1988).

Sexual coercion at work involves the use of threats or bribes for sexual favours in the workplace. This form of sexual harassment, whilst often the most cited in the mainstream media is actually the least prevalent form of sexual harassment (Langhout et al., 2005). Unwanted sexual attention involves persistent acts of sexual pursuit that are unsupported by the target. Both involve the pursuit of a sexual relationship and are therefore often characterised under the broader term "sexual advance harassment" (Holland & Cortina, 2013; Leskinen et al., 2011).

Gender harassment is defined as insulting, hostile and/or degrading behaviours and comments that are gendered in nature (Leskinen & Cortina, 2014; Leskinen et al., 2011). These activities can convey sexist or sexual hostility and comprise the most frequent form of sexual harassment in the lives of working women. A key differentiating feature between this form of sexual harassment and the previous two is that gender harassment reflects a "put-down" rather than a "come-on".

In 2021-22 it was estimated that 1.7 million Australians (8.7%) will experience sexual harassment in the preceding 12 months, including 1.2 million women (13%) and 426,800 men (4.5%) (ABS, 2022). Compared to cisgender workers, trans, gender diverse and non-binary (TGDNB) workers experience higher rates of gender harassment (Jones et al., 2015). Whilst figures in Australia are unavailable, in the USA it has been reported that 50% of transgender men (individuals who were assigned female at birth and identify as men) and 54% of transgender women (individuals who were assigned male at birth and identify as women) report harassment at work (Grant et al., 2011). Additionally, 77% of lesbian, gay, bisexual or queer (LGBQ) workers reported gender harassment and 40% reported sexual harassment in the past year (Konik & Cortina, 2008).

TGDNB individuals generally report higher levels of anxiety (Bouman et al., 2017) and life stress (Brewster et al., 2014), which may translate to the workplace. The stressors include those associated with their nonconforming gender identity, including personal safety (Mizock et al., 2018) and gender policing (Martinez et al., 2017). Gender policing involves the imposition of normative gender expressions by the perpetrator on an individual who is perceived as not performing the traditional attributes of their gender or sex through their appearance or behaviour. It is estimated that 30% of TGDNB workers have been fired, denied a promotion, or experienced another form of workplace mistreatment due to their gender identity or expression (Human Rights Campaign, 2018).

It is proposed that gender harassment toward TGDNB workers is often based on the perpetrator's beliefs about gender and sexuality, leading to uncivil behaviours that aim to

reinforce traditional gender norms and hierarchies by punishing expressions that contradict hetero-normative norms (Rabelo & Cortina, 2014). In addition to power and prejudice, gender policing motivations may be particularly salient for sexual harassment toward TGDNB workers because they defy traditional beliefs that gender is binary and fixed (Herek, 2000; Nagoshi et al., 2012).

Research into ways to support TGDNB workers identified two practical strategies: the need for diversity training/education and improved policy/procedures. Whilst these two approaches are the most commonly reported by organisations, feedback from members of the TGDNB community emphasised the need for useful and authentic training, which is taken seriously by workers, and the enforcement of TGDNB polices (Huffman et al., 2021).

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3. Dust diseases

Adeyanju and Okeke (2019) estimate that 90% of the world's population inhales air that contains levels of pollutants above the safe limit defined by the World Health Organization (WHO), with approximately 7 million people a year dying from issues related to polluted air. Whilst the highest rates of air pollution related mortality and morbidity occur in Asia and Africa, where 90% of air pollution related deaths have been recorded, pollution related issues are a concern internationally with no country immune from its effects. The work sectors and processes that contribute to the emission of air pollutants vary across countries. The most common pollutants responsible for air pollution include particulate matter (PM), oxides of nitrogen (N), carbon monoxide (CO), sulfur dioxide (SO2) and volatile organic compounds (VOCs).

PM is suspended dust with a diameter of less than 10 micrometres that can be inhaled by humans and deposited in the lungs, particularly the alveoli. PM is further classified according to the size of the particles with those of 10 micrometers or less in diameter (PM_{10}) defined as coarse particles, those with 2.5 micrometres or less in diameter ($PM_{2.5}$) defined as fine particles, and those less than 100 nanometres defined as ultrafine particulate matter (UFPM) (Kyung & Jeong, 2020). Commercial, institutional and household activities, followed by industrial emissions contribute the highest to PM_{10} levels. $PM_{2.5}$ is primarily generated by commercial, institutional and household activities followed by road transport and industrial processes (Adeyanju & Okeke, 2019). The combustion of fossil fuels from human activity constitutes the most common form of PM generation, while natural sources, such as yellow dust, present a significant generator of PM (Kyung & Jeong, 2020).

Exposure to PM leads to increased pulmonary inflammation and aggravation of respiratory symptoms from oxidative stress and direct toxic injury. This exposure is particularly dangerous in individuals suffering pre-existing respiratory diseases, such as asthma or chronic obstructive respiratory disease (COPD), as acute exposure to PM can lead to exacerbation of the symptoms. It has also been identified that chronic, repeated exposure to PM increases the prevalence of chronic obstructive pulmonary disease (COPD) and lung cancer in adults. The ability of fine and UFPM to reach the brain is of particular concern to brain health (Kim et al., 2020).

As changes in climate lead to increased temperatures and changed patterns of atmospheric circulation, it has been projected that concentrations of PM in the air will also increase (Deng et al., 2020). Increased temperatures have led to increased levels of naturally occurring pollen, moulds, and spores in many countries leading to a greater likelihood of asthma. Those aeroallergens in combination with exposure to air pollutants act synergistically to intensify the allergic response (Deng et al., 2020).

Silica dust is a coarse particle (PM_{10}) that is one of the oldest known causes of the lung disease, silicosis. Exposure to silica dust has also been associated with increased risk of autoimmune diseases and tuberculosis (Hoy & Chambers, 2020). Despite knowledge of the risks of silica exposure, there have been recent increases in cases of severe, progressive forms of silicosis in Israel, Spain and Australia due to the introduction of high silica-containing artificial stone material used to fabricate domestic benchtops. Another common cause of silica dust exposure occurs in denim jean production during the process of sandblasting the jeans to produce a "worn-out" look (Akgun, 2016). A study of workers previously involved in the process of sandblasting denim jeans in Turkey found 53% had silicosis at baseline, with 6.2% dying within 4 years with a mean age of just 24 years (Akgun et al., 2015).

Due to its extensive presence in nature and low cost, manufacturing of silica is common and so is occupational exposure to silica dust. A 2016 survey of Australian workers reported that 6.4% of respondents were exposed to silica dust at work, with 3.3% potentially exposed to high levels (Si et al., 2016). Up to 5 million workers in Europe are estimated to have been exposed to silica dust (De Matteis et al., 2017), with miners and construction workers most likely to be exposed.

The high burden of diseases associated with silica dust and the limited treatment options highlight the need to maintain constant vigilance to identify and control sources of occupational silica-dust exposure. On 13 December 2023, WHS ministers representing the Commonwealth, states and territories agreed to prohibit the use of engineered stone to protect Australian workers from the negative effects of silica dust (Safe Work Australia, 2023).

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4. Screening for musculoskeletal disorders

Musculoskeletal disorders (MSDs) remain a significant burden on society, impacting individuals and organisations (Crawford et al., 2020) through reduced productivity and unemployment. The International Labor Organisation (ILO) estimated that 40% of workers' compensation costs can be attributed to work-related MSDs (ILO, 2015). A range of preventative measures have been reported in the literature ranging from ergonomic programs, training, hazard reduction interventions such as job rotation, pause exercises and others (Eerd et al., 2022).

Workers in physically demanding roles who are unable to meet the physical demands of the job are considered to be at higher risk for MSD. Workers in industries that involve high risk service jobs, such as health care, are commonly given pre-placement physical examinations (Wong, 2020). These pre-employment examinations include physical capacity testing and are used for a number of reasons, including to identify a worker's current MSD related physical limitations to underpin appropriate rehabilitation, determine a worker's ability to meet the requirements of the job for safe placement, establish a worker's baseline for health monitoring, and to measure and monitor the effectiveness of rehabilitation/wellness programs (Legge, 2013).

Assessment of a worker's physical ability has been used to improve the match between job demands and a worker's abilities, enhancing work performance and reducing the risk of injury (Laflin et al., 1997). Anderson (2006) reported a 41% reduction in overall MSDs, with a 57% reduction in low back injuries specifically, following the implementation of a screening program.

An audit of pre-placement screening results of 111 newly employed health care workers in Hong Kong found that almost one-third (32%) had experienced musculoskeletal symptoms in the previous 12 months. Over two-thirds (68%) of participants reported being physically inactive. On physical activity, testing handgrip strength was weaker than normative data, which correlated to measures of bilateral lifting, pushing, and pulling forces (Wong, 2020). The authors concluded that the pre-employment sedentary lifestyles and suboptimal physical strength may place the new workers at increased susceptibility to MSD.

Functional capacity evaluations (FCEs) are increasingly popular as part of pre-placement physical examinations despite limited published evidence for their validity in healthy working populations (Anderson & Briggs, 2008). There has been a small number of studies that have demonstrated predictability of workplace injury from FCE findings which improves when the results are compared with job demands (Legge, 2013). The lack of strong evidence for the predictive capacity of pre-placement screening for MSDs may reflect the multifactorial causes of MSDs in the workplace.

This limited evidence for the success of pre-placement physical examinations in predicting future MSDs in the workplace is reflected in the sporting literature where despite the widespread use of pre-placement physical examinations to screen athletes at greater risk for MSD, there remains limited evidence that subsequent interventions result in decreased MSD rates (Andujo et al., 2020). This may reflect the wide range of screening protocols used with a recent review identifying over 90 musculoskeletal screening exams used as a part of pre-placement physical examinations for athletes (Corrente et al., 2021).

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