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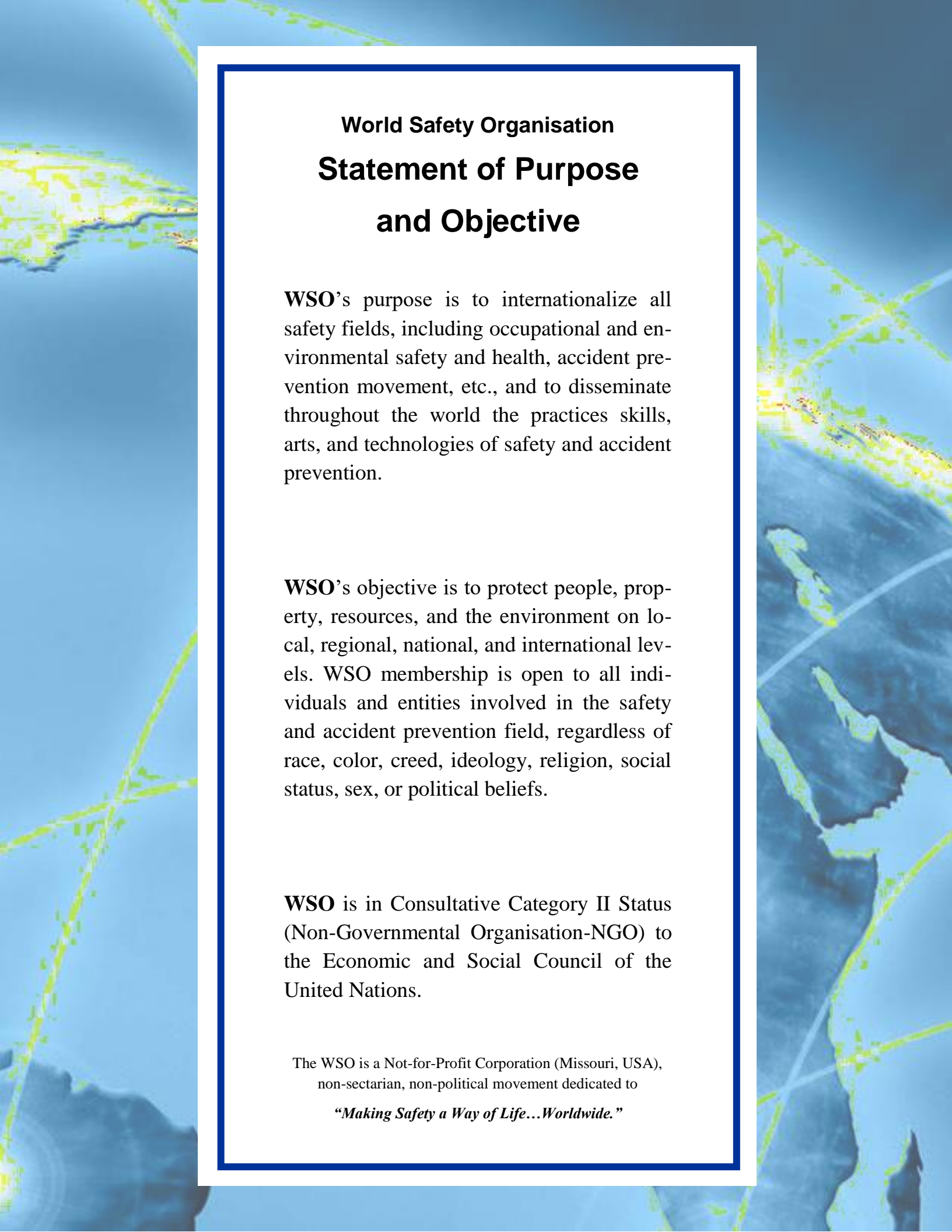


In This Edition

- The Health and Safety experience of Australia's migrant population
- Multiple Approaches to managing Workplace Safety and Health
- Risk Minimisation Strategies for the Employment of Young Workers
- Factors Affecting Employee's Return-to-Work Related Injury or Illness
- Prevention of Work-Related Stress
- A Review of the Perception of Risk at the individual Level and at the Organisational Level

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The health and safety experience of Australia's migrant population: A review of national and international studies

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Abstract

Due to increases in globalization, there has been a rise in the number of migrating populations around the world who are seeking greater economic and social opportunities. These are workers who are often prepared to put themselves at risk in order to gain jobs and set up their families in a new country. There are several factors, that internationally, can be identified as contributing to the poor occupational health and safety standards many migrants face when entering the workforce in developed countries. Throughout this review, barriers to migrant safety that have been identified internationally in previous studies are discussed before looking at Australia specifically. In Australia, there is a large migrant workforce, and in order to reduce any health and safety risk these migrants may face it is important to identify these factors. Recommendations to improve occupational health and safety for migrant workers in Australia are given based upon findings from international studies.

Key Words: Australia. Migrant. Occupational health and safety. Immigration.

Introduction

Due to an increase in globalisation, there has been a rise in the number of migrating populations around the world. Many are people seeking to increase their economic and social opportunities and are often willing to put themselves at risk to improve the life of their families (UNFPA, 2015). In 2015, there were approximately 244 million migrants internationally (UNFPA, 2015). Half were workers and were often engaged in jobs that posed a hazard to their health (UNFPA, 2015).

These jobs can be considered as being 3-D jobs, or jobs that are 'dirty', 'dangerous' and 'demanding', and are often characterised by high rates of employment instability, lower wages than should reasonably be expected, and unsafe working environments (Quandt et al., 2012). 3-D jobs are largely necessary to society as they provide services and goods such as garbage disposal, waste management and agricultural products, but work needs to be done to increase health and safety awareness, particularly in the case of migrant workers who are often overlooked (Quandt et al., 2012).

This can be due to a multitude of factors, which can differ country to country due to cultural differences. Factors such as employers devaluing the experience and qualifications immigrants may have, as qualifications gained in another country are often considered to be a

lower standard than qualifications gained locally (Salmonsson & Mella, 2012).

Immigrants can also face racism and prejudice when trying to enter a countries' workforce and may have increased difficulty in finding a job, even one below their experience and qualifications (Shinnaoui & Narchal, 2010).

Language barriers can also present as a barrier to the health and safety of migrant workers. The inability to adequately learn about workplace hazards, necessary processes, and potentially important workers' rights information can lead to the workers being placed in dangerous situations without the understanding of how to safely navigate them or what their rights are under the countries' laws (Jesus-Rivas, Conlon, & Burns, 2016). There are a multitude of factors that can negatively impact an immigrant's quality of health and safety in the workplace.

Looking at Australia specifically, there is a large migrant population. In 2018 alone there were approximately 7.3 million migrants living in Australia, with every country in the world being represented in the population (Australian Bureau of Statistics, 2019b). There has always been a large migrant population in Australia, the size and growth of which has fluctuated throughout the years due to various international policies, world events and changes in political climates.

The makeup of the Australian migrants has changed over the years. In 1996, the most common countries of birth after Australia were England, New Zealand, Italy, Vietnam and Scotland (Australian Bureau of Statistics, 2019a). As of 2018, the most common countries of birth have changed to be England, China, India, New Zealand and the Philippines (Australian Bureau of Statistics, 2019a). Migrants are, and have always been, an important part of Australia's population, and with the decline in birth rates and the aging population their importance to the growth of the labour force is increasing (Kosny & Allen, 2015). Under Australian Occupational Health and Safety legislation, migrant workers are considered to have the same rights, responsibilities and protections that any other employee would be entitled to in the workplace (Department of Mines, Industry Regulation and Safety, 2014). It is specified by The Department of Mines, Industry Regulation and Safety (2014) that it is an obligation of the employer to identify any necessary protections, education and assistance that migrant workers may require due to barriers that may be in place preventing them from accessing the same level of protection that any other employee has.

Methodology

Initial resources searches were conducted using the Curtin University Library. The key words 'immigrant' and 'health and safety' were used and the results were further filtered down to only include resources that met the criteria of being considered an article, a peer-reviewed article, and had been published between 2010-2019. This was to help ensure that the resources provided information that was reflective of the occupational health and safety environment current migrant workers are exposed to. Over 16,000 results were generated, with 10 being taken into consideration for use in this article. Due to the large number of references provided, attentions were moved to other data bases that would provide a more focused and refined search.

PubMed, accessed via the Curtin University Library Webpage, was the next to be consulted. Here the key words 'immigrant' and 'health and safety' were used again, with the same criteria towards publish date. This generated 79 results, with 16 being selected.

This was repeated on the databases Informit and ProQuest, using the same search criteria and

keywords, and only 2 additional resources were added as those databases contained many of the same resources that had already been selected from the Curtin Library and PubMed.

Searches were also conducted on the Safe Work Australia and Departments of Mines, Industry Regulation and Safety in order to gain resources on the information provided by Australian regulatory bodies to business and workers regarding information necessary for immigrants who have recently relocated to Australia and are entering the workforce. A further 4 resources were accessed.

Discussion

There are several factors that have been determined through various studies and literature reviews conducted in several countries around the world. All of these countries have varying immigration policies, political situations and health and safety laws, yet there are common factors between them that impact an immigrant's ability to access safe work environments.

Increased Likelihood of 'Survival Jobs'

Overall, across all of the countries that were included in this review, it was evident that immigrants are much more likely to be in jobs that are can be considered 'survival jobs' (Lay, Kosny, Aery, Flecker, & Smith, 2018). Commonly these jobs involve a high amount of risk of injury and harm, and numerous hazards that generally have minimal controls in place (Lay et al., 2018). In a study conducted in Canada, the interviewed immigrants were more likely to be in a temporary work relationship than non-immigrants (51.2% vs. 10.3%) and less likely to be union members (9.9% vs. 37.7%).

One study specifically looked at chicken catchers' in the United States of America (USA) poultry industry (Quandt et al., 2012). This is a workforce that is largely comprised of immigrant workers, a majority of which have relocated from Latin America, and the researchers looked to examine the working environments of these workers before interviewing them on their opinions of the risk and hazards associated with the job, and their overall satisfaction in the work (Quandt et al., 2012).

Their work environments were found to have a large number of hazards and overall risk, with factors such

as repetitive lifting and movements, noise exposure, dust, strong odours, bug and spider infestations, extreme temperatures, exposure to moving machinery (forklifts) and moving parts (fan blades), and electrical wires. These risks and hazards had minimal controls in place, and while the workers believe that they were working in an unsafe environment, they valued the jobs and say that they wouldn't quit as they believe that they would struggle to find another (Quandt et al., 2012).

The workers that were in these 'survival jobs' were not just immigrants with limited education; immigrants with higher education levels and qualifications also often found it difficult to find positions reflective of their experience (Lay et al., 2018).

Immigrant workers commonly found themselves in these jobs due to how a host country values their experience and qualifications gained before entering the country. Immigrants that were from 'culturally and linguistically diverse communities' (CALD) newly arriving in Australia could expect, based on evidence, a higher rate of unemployment and lower levels of earnings than Australian born workers (Shinnaoui & Narchal, 2010). One possible reason behind this disparity is the lack of recognition of the skills and credentials attained by foreign workers in employment processes, which are more likely to be held to a lower standard than those gained domestically (Shinnaoui & Narchal, 2010). Even when the jobs being applied for were in the same profession or required similar skill levels to jobs previously held in their country of origin, workers were often discounted and overlooked due to the belief in their skills or qualifications being lesser (McKillop, Parsons, Brown, Scott, & Holness, 2016).

Looking at Canada, this disparity was also found, that newly arriving immigrants with university degrees were often earning only 70% the amount that Canadian-born graduates were earning (Lay et al., 2018). It was noted in research by McKillop et al. (2016) that there is often a catch-22 in regards to employment opportunities: They do not have the experience and qualifications provided and valued by the country they have arrived in which increases their difficulty in finding a job, yet they are unable to acquire the necessary experience because they require a job to be able gain the experience (McKillop et al., 2016).

Often once immigrants do gain employment, they become very reliant on the position as they often require the money to send to families back in their home country, and they fear the period of financial instability they would be in if they lost their jobs (Liebman, Juarez-Carrillo, Reyes, & Keifer, 2016).

Fear of Being Fired

Across the majority of the studies and reports reviewed, the most common reason behind the underreporting of health and safety risk and hazards by immigrant workers is the fear of losing their job (McKillop et al., 2016). Although, in many countries it is well within the rights of the workers to express their concerns about a workplace's health and safety, immigrants reported that they struggled to determine who they could trust in the workplace so they would be free from possible repercussions (McKillop et al., 2016). They also believe, often correctly, that due to being in a low paid job it is simple for the employer to fire them and hire a replacement quickly (McKillop et al., 2016).

A study done in the USA by Liebman et al. (2016) looking at immigrant dairy farm workers, found that the workers commonly didn't speak up to their employers about issues in the workplace. Interviewed workers reported that they struggled to notify their employers of health and safety hazards in the workplace (Liebman et al., 2016). Most commonly the workers attributed this to not only the fear of being fired, but also expressed that their employer often didn't address their concerns and hazards remained in the workplace (Liebman et al., 2016).

This fear of speaking up is also reflected in the workers' injury notifications. Being a dangerous industry, working with animals a lot larger and heavier than themselves, workers are often exposed to numerous hazards and had a high potential for injury (Liebman et al., 2016). Workers reported often being told by their employer to not let medical professionals know when they received their injury at work, with only some of the employers offering in exchange to pay the medical bills of the injured employee (Liebman et al., 2016). This was often followed by the employer pressuring the worker to return to work much sooner than was advised by medical professionals and, often not paying the workers for anytime that they did take off for their injury (Liebman et al., 2016). This culture resulted in

many of the workers reporting that they chose not to notify their employer of any injuries that they do sustain out of fearing of possibly being fired or losing some of their pay (Liebman et al., 2016).

This culture of under reporting is dangerous in a workplace that is already characterised by high risk work. Limited reporting can lead to repeated preventable injuries to workers, or continual exacerbation of injuries that have already been sustained. This culture cannot be adjusted though until employers start to listen to and address the concerns of their workers, as changes cannot be made unless the employer is willing to facilitate the changes.

With the pressures many are under to establish a new life in their country of arrival, and the initial difficulty many faces in finding initial employment, it is understandable the hesitation that many new immigrants may have. It is then important to ensure they are provided with the necessary information regarding their employment and health and safety rights in their new country.

Translated Resources and Accessibility

With many immigrants working in higher risk workplaces, it is essential that they are given the necessary safety training and information required to work safely in that environment, though how effective these trainings are can depend on the languages that are provided and the language ability of the immigrant. This is particularly the case with immigrants coming from CALD countries, to a country such as Australia as they may have minimal English understanding.

Safety training is often provided by companies to their new immigrant workers, but the employer often doesn't check with the employee that they have understood the content of the training and are confident in what they have been taught (Moyce & Schenker, 2018). Studies have also found that to get around this some employers have even asked employees to sign documentation saying they have received safety training, even though none was given (Quandt et al., 2012). Posted safety information and warning signs are also of little help to immigrant workers if they are unable to understand them, creating more risk of exposure to hazards (Moyce & Schenker, 2018).

Many immigrants who are entering these higher risk

jobs have come from countries with limited health and safety practices, where there is often a culture in the workplace of the employee figuring out what is the safe and unsafe way to perform their job (Quandt et al., 2012). If a new immigrant enters a workplace where they are given minimal information that they are able to comprehend about health and safety practices, then they may continue to operate under this culture of 'figuring it out for themselves'.

Documentation Status

There are variations in the rights, services and benefits that immigrants have access to based on whether they are an illegal immigrant, a resident of the country, under a work visa, or have been granted citizenship. These variations can greatly impact the work conditions and job opportunities an immigrant may experience.

Looking specifically at a study performed in the USA, a survey of workers in low-wage jobs across three major cities, many disparities were found between documented and undocumented workers (Moyce & Schenker, 2018).

Undocumented workers were found to be more than twice as likely to experience violations to their wages, and were in more fear of losing their jobs if they made workplace health and safety complaints to their employers (Moyce & Schenker, 2018). This is a trend in many countries around the world as illegal immigrants are often not included in laws that are created to protect workers, resulting in higher rates of harassment, exploitation and wage thefts (Moyce & Schenker, 2018). They are often ineligible for benefits such as medical coverage or driver's licences, and often don't attempt to access many services out of fear of being prosecuted or deported (Moyce & Schenker, 2018).

Another study, conducted by Fitzgerald, Chen, Qu, and Sheff (2013), looked at Chinese rural migrant workers. There is an "... estimated 145-230 million rural Chinese migrants, called *nongmingong* in Chinese and often translated as 'peasant workers' in English..." (Fitzgerald et al., 2013, p. 349). These workers have migrated from rural China to more urban areas in the hopes of better job prospects and opportunities and maintain a 'legal residency' status, and yet are still exposed to higher occupational risk than other workers (Fitzgerald et al., 2013).

Though without being in possession of a legal 'urban

residency' they are exposed to much higher rates of employment discrimination, are only employed in low-wage positions, and are more likely to be employed in dangerous jobs that are often avoided by other workers (Fitzgerald et al., 2013). They are also subjected to working much longer hours for 6-7 days a week, and generally are employed without a contract or formal agreement with the employer, putting them at risk of discrimination and rights violations without the possibility of legal action in response (Fitzgerald et al., 2013).

Migrants in Australia

The most common pathways for immigrants to gain residency in Australia is work or family visas (Department of Home Affairs, 2019). More specifically though, the most common visa acquired is the temporary higher education visa, allowing students to come to Australia to access education (Australian Bureau of Statistics, 2019b). While these students generally enter the workforce as a form of income, they are commonly only employed on a part-time or casual basis. Discounting students, and those under a visitor visa, the next most common are the skill visas, working holiday visas, and family visas (Australian Bureau of Statistics, 2019b).

Australia is restrictive in who is given visas to come and work in the country. From the 1970s, migrants with higher skill and education levels were sought, increasing the difficulty of migrants who didn't meet these criteria to enter the country without family connections (Reid, Lenguerrand, Santos, Read, LaMontagne, Fritschi, & Harding, 2014). Migrants entering the country are selected based upon their English ability, qualifications, age, and previous work experience (Reid et al., 2014). Regardless of this, there are still disparities in the occupational health and safety experiences of migrants arriving in Australia.

Even considering the policies that are in place in Australia to ensure skilled migrants are entering Australia's workforce, there are still biases found in how employers perceive the skills and qualifications of migrants applying for positions (Shinnaoui & Narchal, 2010). In a study performed by Shinnaoui and Narchal (2010), participants were asked to assess resumes, all of which were identical apart from changes to the location of where education was received (being Australia, the United Kingdom, and Lebanon). Results found that the 'Lebanese

applicant' was assessed as being much less favourable, and the UK applicant as still being less favourable than an applicant from Australia (Shinnaoui & Narchal, 2010). This bias can limit the jobs a migrant is able to get, possibly forcing them into a workplace that is higher risk and could pose a greater health and safety risk.

A migrant's knowledge of employment standards, Australian occupational health and safety, and workers compensation is important in ensuring that they are knowledgeable not only of their own responsibilities, but the benefits and rights they are eligible while working in Australia (Kosny & Allen, 2015). Reviews of Australian resources that provide these forms of information to migrant workers found that there was limited information provided that wasn't isolated to one topic (Kosny & Allen, 2015). There were also limited resources that were translated into multiple languages and provided all the necessary information, making understanding harder for migrants that may have only just arrived in Australia and are still developing their English language skills (Kosny & Allen, 2015).

There was also an issue in regards to the number available resources in a state being reflective of the number of migrants settling there (Kosny & Allen, 2015). An example of this was NSW/Victoria, where 58% of all arriving migrants settle yet only 30% of all resources were developed specifically for these states (Kosny & Allen, 2015). This limited information can cause a migrant to be less aware of Australia's workplace laws and rights, potentially making migrants more vulnerable to exploitation from employers and industry (Department of Jobs and Small Business, 2019).

Currently, there is an increase in focus on foreign harvest workers in Australia. These are international backpackers (commonly young workers from international countries who arrive with good English skills and are often well-educated) who are drawn to work in agricultural sectors of the country (Underhill & Rimmer, 2015). There are some similarities seen between these temporary migrant workers and low-skilled migrants working in other higher-income countries (Underhill & Rimmer, 2015). They are drawn by incentives developed by the Australian government, to work for a certain period of time in exchange for a longer-term travel visa in Australia (Underhill & Rimmer, 2015).

The occupational health and safety environments that they work in are generally reflective of the general standards of OHS throughout the agricultural industry, that being a poor safety culture and less health and safety considerations taken in the workplace (Underhill & Rimmer, 2015). Focus groups with these temporary migrant workers have revealed that many approach the work with a poor safety culture, often based around the opinions that all farm work is safe, avoiding risk is common sense, and they will not be the victim of incidents (Underhill & Rimmer, 2015). This encourages the development of poor safety practices by these workers, who are generally already poorly experienced in agriculture and don't have the basis of experience that many other workers in the industry would use to base their hazard and risk perceptions off.

This culture also spreads across to their opinions on workplace injury and stress. Many of those interviewed by researchers reported large amounts of body stress (such as pain in the arms, back, shoulders and hand), and cuts, grazes and blisters associated with their work tasks (Underhill & Rimmer, 2015). Instead of the temporary workers adjusting their work to allow recovery from these injuries, they instead accepted these injuries as being a part of the experience and adopted the attitude of just having to "suck it up" (Underhill & Rimmer, 2015, p. 34).

Limitations

Information collection for this review was conducted primarily on the Curtin Library page and only a few data bases, which may have limited the resources accessed for review. Another limitation was the number of resources relevant to Australian immigrant workers. There was a large number of resources regarding other countries such as USA and Canada, but there were minimal Australian based resources found.

Conclusion

Overall, Australia has made some positive changes to their migration policies that have reduced the incidence of some of the factors that have been seen in various international studies to have led to increased occupational health and safety risk to migrant workers. There are still some areas for improvement though, with there still being biases in how migrant qualifications and valued in employment processes, limitation in the amount of educational information that is available, and poor

conditions and culture that is fostered with backpackers working in the agriculture industry temporarily. These areas should be addressed in order to ensure that Australian migrants are offered the safest culture and environment in which to work.

References

- Arcury, T. A., Estrada, M. J., & Quandt, S. A. (2010). Overcoming language and literacy barriers in safety and health training of agricultural workers. *Journal of Agromedicine*, 15(3), 236-248. <http://doi.org/10.1080/1059924X.2010.486958>
- Australian Bureau of Statistics. (2019a). *Estimated resident population, Country of birth – as at 30 June, 1996 to 2018*. <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3412.02017-18?OpenDocument>
- Australian Bureau of Statistics. (2019b). *Migration, Australia, 2017-18* (3412.0). <https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3412.0Main%20Features12017-18?opendocument&tabname=Summary&prodno=3412.0&issue=2017-18&num=&view=>
- Department of Home Affairs. (2019). Permanent resident. <https://immi.homeaffairs.gov.au/visas/permanent-resident/visa-options>
- Department of Jobs and Small Business. (2019). *Appendix 5a: Extract from the report of the migrant workers' task force*. <https://www.ag.gov.au/industrial-relations/industrial-relations-publications/Pages/report-migrant-workers-taskforce.aspx>
- Department of Jobs and Small Business. (2019). *Report of the migrant workers' task force*. <https://www.ag.gov.au/industrial-relations/industrial-relations-publications/Pages/report-migrant-workers-taskforce.aspx>
- Department of Mines, Industry Regulation and Safety. (2014). *Understanding the safety and health needs of your workplace – migrant workers: A guide for employers*. <https://www.commerce.wa.gov.au/publications/understanding-safety-and-health-needs-your-workplace-migrant-workers-guide-employers>
- Fitzgerald, S., Chen, X., Qu, H., & Sheff, M. G. (2013). Occupational injury among migrant workers in China: A systematic review. *Injury Prevention*, 19(5), 348-354. <http://doi.org/10.1136/injuryprev-2012-040578>
- Jesus-Rivas, M. D., Conlon, H. A., & Burns, C. (2016). The impact of language and culture diversity in occupational safety. *Workplace Health & Safety*, 64(1), 24-27. <http://doi.org/10.1177/2165079915607872>
- Kosny, A., & Allen, A. R. (2015). Falling through the cracks? An analysis of health and safety resources for migrant workers in Australia. *International Journal of Migration, Health and Social Care*, 12(2), 99-108. <http://doi.org/10.1108/IJMHSC-03-2012-0008>
- Lay, A. M., Kosny, A., Aery, A., Flecker, K., & Smith, P. S. (2018). The occupational health and safety vulnerability of recent immigrants accessing settlement services. *Canadian Journal of Public Health*, 109, 303-311. <http://doi.org/10.17269/s41997-018-0063-4>
- Liebman, A. K., Juarez-Carrillo, P. M., Reyes, I. A., & Keifer, M. C. (2016). Immigrant dairy workers' perceptions of health and safety on the farm in America's heartland. *American Journal of Industrial Medicine*, 59, 227-235. <http://doi.org/10.1002/ajim.22538>
- McKillop, C., Parsons, J. A., Brown, J., Scott, S., & Holness, L. (2016). Rights, responsibilities and (re)presentation: Using drawings to convey health and safety messages among immigrant workers. *Work*, 55, 37-50. <http://doi.org/10.3233/WOR-162385>

- Moyce, S. C., & Schenker, M. (2018). Migrant workers and their occupational health and safety. *Annual Review of Public Health*, 39, 351-365. <https://doi.org/10.1146/annurev-publhealth-040617-013714>
- Quandt, S. A., Arcury-Quandt, A. E., Lawlor, E. J., Carrillo, L., Marin, A. J., Grzywacz, J. G., & Arcury, T. A. (2012). 3-D jobs and health disparities: The health implications of latino chicken catchers' working conditions. *American Journal of Industrial Medicine*, 56, 206-215. <http://doi.org/10.1002/ajim.22072>
- Reid, A., Lenguerrand, E., Santos, I., Read, U., LaMontagne, A. D., Fritschi, L., & Harding, S. (2014). Taking risks and survival jobs: Foreign-born workers and work-related injuries in Australia. *Safety Science*, 70, 378-386. <https://doi.org/10.1016/j.ssci.2014.07.002>
- Salmonsson, L., & Mella, O. (2012) Cultural demands on skilled immigrants, a devaluation of human capital. *Nordic Journal of Migration Research*, 3(1), 3-9. <http://doi.org/10.2478/v10202-012-0008-6>
- Shinnaoui, D., & Narchal, R. (2010). Brain gain to brain waste: Individual biases, prejudice, and discounting of migrant skills. *Journal of International Migration and Integration*, 11(4), 423-437. <http://doi.org/10.1007/s12134-010-0151-7>
- Underhill, E., & Rimmer, M. (2015). Itinerant foreign harvest workers in Australia: The impact of precarious employment on occupational safety and health. *Policy and Practice in Health and Safety*, 13(2), 25-46. <https://doi.org/10.1080/14774003.2015.11667816>
- UNFPA. (2015). *Migration*. <https://www.unfpa.org/migration>

About the Author



Stephanie Ashworth is currently completing her final year in Health, Safety and Environment at Curtin University, Western Australia. Her health and safety involvement so far has been based in several industries such as open-cut mining, occupational hygiene, underground mining, construction, contractor management, and environmental management. Stephanie's passions are in occupational hygiene, particularly in regards to the mining industry, and she aims to complete post-graduate studies in the area and to focus her attentions on high risk environments.

Multiple Approaches to Managing Workplace Safety and Health

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Abstract

To achieve a sustainable development many organizations around the world are striving for excellence in workplace safety and health. This article summarizes how selecting appropriate approaches and using them efficiently is a key to creating safer and healthier workplaces

Key Words: Workplace Safety & Health. Legislative Approach. Safety Management System. Technological Approach. Psychological Approach.

Introduction

Workplace accidents not only claim the human life, they also generate financial losses due to disruption of operation/production, damage to property and harm to the organization's reputation. They consequently have a negative impact on the business competitiveness and potential economics opportunity. Over the last few decades, significant progress has been made in the minimizing of occupational accidents and controlling associated risks through several approaches such as Legislative Approach, Technological (Engineering) Approach, and Safety Management System Approach. A new emerged approach is a Psychological Approach which emphasizes on human factors such as behavior, perception and attitude. Some researchers have cited the Psychological Approach by introducing a few terms known as Safety Culture, Safety Climate and Safety Behavior.

Legislative Approach

In earlier days industry accidents were considered as inevitable or as the will of the gods. The safety of an employee was generally regarded to be his/her own account. The conventional wisdom was "You take care of yourself. It is your own fault if you get hurt". The liability of the employer for accidental injuries depended on certain common-law doctrines that generally operated against the employee.

The world's first legislation for Workplace Safety and Health was passed in the Parliament of the United Kingdom and was entitled *the Health and Morals of Apprentices Acts in 1802*. In USA, the Occupational Safety and Health Act was passed in 1970 to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical

dangers, heat or cold stress, or unsanitary conditions. In United Kingdom, the Health and Safety at Work Act 1974 (HSWA) came into force in 1974 and section 2 places a duty on all employers "to ensure, so far as is reasonably practicable, the health, safety and welfare at work" of all their employees, and persons working on their premises. Legislative Approach is the first respond of the society to control the workplace safety and health hazards through regulation and litigation. For a long time, the governments around the world have passed many safety and health laws and regulations to protect workmen and society from workplace hazards. Compliance with legal requirements helped the organizations in reducing the workplace safety and health hazards.

Legislative Approach is essential in managing safety and health and to be used as a basic set of minimum requirements. However, laws, regulations and industrial standards are not enough to achieve a high level of safety and health performance. Today, many organizations are looking beyond compliance with legal requirements and consequence to a high level of safety and health performance.

Technological Approach (Engineering Approach)

Beginning in about 1867, many employers in Europe formed accident prevention association and installed devices to make machine safer. It was the first movement in improving occupational safety and health standard by mean of technological improvement approach. Mechanization helped to remove workers from dangerous operation and to reduce accidents.

Technology has played a major role in reducing workplace safety and health risks by introducing new safer method, material, products and equipment to elevate the safety and health standard. Technological aspect of planning, design, operation and maintenance

can potentially create or transform industries, their development has far outpaced our understanding of their implications for workplace safety and health. Emerging technologies with inherently safety design offered solutions to improve safety and health standard by eliminating or reducing workplace risks (Pillay, 2016).

Principles of the inherently safety design aim to protect the safety and health of workmen are:

- Intensification or minimization: avoid the catastrophic potential of an exposure by storing small amounts of a substance.
- Substitution: safer materials or processes are substituted for more hazardous substances or processes.
- Alternative reaction routes or plant layout: the sequence of reactions in the process may reduce or eliminate a hazardous exposure.
- Energy limitation: the energy potential, whether electrical, chemical or kinetic, is reduced in order to reduce the hazard of an exposure.
- Simplification: eliminate unnecessary complexity so workers can comprehend the process and recognize it hazardous circumstances.

It is obvious that Technological Approach in managing safety and health has contributed to abate or eliminate the workplace safety and health risks. This approach takes a step forward to improve workplace safety and health.

Safety management System Approach

It is more and more recognized that Safety Management System Approach plays an important role in achieving and maintaining a high level of workplace safety standard, on top of Technological Approach (Jilcha & Kitaw, 2017).

Modern principles of safety management system are closely linked to “Deming’s principle” of “Plan-Do-Check-Act” cycle and the concept of continuous improvement. Safety Management System (Health & Safety Executive, 2011). Approach is a planned top management driven activity to control the workplace safety and health hazards. The safety management system can be defined as the set of policies,

procedures and resources that interact in an organized way to minimize damage and losses generated in the organization.

Typical elements of safety management system are

- * Safety and Health Policy
- * Management commitment & resource
- * Risk assessment and hazard control measure
- * Legal and other requirements
- * Roles & responsibilities of employees
- * Safe work procedures
- * Safety training
- * Safety inspection
- * Safety meeting
- * Safety audits
- * Safety promotion
- * Procurement and contracting
- * Safety performance measurement
- * Preventive and corrective actions
- * Continual improvement
- * Emergency preparedness and response

The objective of Safety Management System Approach is to control risk within an acceptable range in the operations it manages. This approach tends to concentrate on functions dealing with policy, organizing, planning, audit, measuring performance, etc. (Santos-Reys & Beard, 2008). In order for safety management system to be effective and achieve a sustained minimizing in the accident rate, it must be integrated into the daily work of the organization and encourage both the safe behavior of the employees and to ownership in safety.

Psychological Approach

Recent years have witnessed a growing interest in Psychology Approach to managing workplace safety and health. Psychological Approach is an emerging measure that emphasizes on human factors and organization culture such as behavior, perception, attitude, and safety culture and safety climate. Investigations to major disasters have revealed that safety and health management systems broke down disastrously, despite the adoption of full range of technical safeguard, because people failed to do what they supposed to do. Researchers have found that the human factor plays a fundamental role in major industrial disaster. The human factor is considered to contribute by over 80% of accidents (Tsuei, Lee, Ho, Regehr &

Nimmon, 2019).

Nowadays, many organizations tend to focus on Researchers from around the world have consistently reported that the Psychological Approach in managing safety and health leads to many positive results in organization's safety and health performance. The typical findings include:

- Improved levels of safety performance, safety behavior and attitudes towards safety.
- Reductions in accident rates.
- Significant reductions in accident costs
- Improvement in co-operation, involvement and communication between management and workforce.
- Improvement in safety climate.
- Ongoing improvements to safety and health management systems.

Multiple Approaches

As discussed there are four approaches in managing occupational safety and health. These individual approaches may represent a step forward to managing safety and health but may not be enough to address the management of workplace safety and health effectively. Implementing Multiple Approaches includes Legislation, Technology, Safety Management System and Psychology approaches. The multiple approaches will lead to maintain workplace safety and health risks within acceptable range in the operation of any organization and help to achieving excellence in their occupational safety and health performance (Guldenmund, 2000; Cooper, 2001; Piilay, 2016).

the Psychological Approach besides installing safety and health management system and technological approach.

Conclusions

Managing safety and health is an integral part of every organization. Utilizing single approach to improve overall workplace safety and health performance might not be sufficient. Hence the organizations are recommended to adapt Multiple Approaches to eliminate/ reduce workplace accidents efficiently that will help to achieve sustainable business development.

References

- Cooper D, (2001). *Improving safety culture a practical guide*. Safety & Health Practitioner. <https://www.shponline.co.uk/culture-and-behaviours/download-improving-safety-culture-a-practical-guide/>
- Guldenmund, F., (2000). The nature of safety culture. A Review of Theory and Research. *Safety Science*, 34, 215-257.
- Health & Safety Executive. (2011). *Successful Health & Safety Management*. Author. www.hsebooks.co.uk
- Jilcha, K. & Kitaw, D. (2017). Industrial occupational safety and health innovation for sustainable development. *Engineering Science and Technology, an International Journal*. 20(1), 372-380.
- Pillay, M. (2016). Improving Organizational Health and Safety Performance: Theoretical Framework and Contemporary Approaches. *International Journal of Management Excellence*. 7(3), 855-866.
- Santos-Reys, J., & Beard, A. (2008) A systemic approach to managing safety. *Journal of Loss Prevention in the Process Industries*. 21, 15-28.
- Tsuei, S. Lee, D. Ho, C. Regehr, G. & Nimmon, L. (2019) Exploring the Construct of Psychological Safety in Medical Education. *Academic Medicine*. 94(11S), S28-S35.
- Zhihan, N. (2014). *Managing Workplace Health Hazards, Strategies & Approaches*. Ministry of Manpower. Government of Singapore. <https://www.wshc.sg>

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Risk Minimisation Strategies for the Employment of Young Workers

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Abstract

Young workers make up a substantial proportion of the workforce, bringing energy, fresh ideas and new perspectives to company workings. However, young workers are proven to carry an increased risk of occupational injury and illness. This paper examines the strategies that may be implemented by employers to minimise the risks associated with newly-employed young workers.

Key Words: Young Workers. Health and Safety. Risk. Risk minimization strategies.

Introduction:

With the Australian economy reaching all-time highs, the opportunity presents itself for the younger population (aged 15-24 years) to integrate themselves in various industries within the workforce (Work Safe Victoria, n.d). These young workers make up a substantial proportion of the 'newly employed workforce' and can bring energy to workplace culture and fresh ideas and perspectives to company workings (Safe Work Australia, 2019). However, young workers are proven to carry an increased risk of occupational injury and illness (Clarkson, Blewett, Rainbird, Paterson & Etherton, 2018).

According to Safe Work Australia, in 2016, 14 workers between the age of 15-24 were killed in work-related incidents and a further 13,275 successfully filed serious workers' compensation claims (Safe Work Australia, 2019). This working-age group was classified as the second most at risk bracket for occupational injury and illness in Australia (Australian Bureau of Statistics, 2018). Alarming, in addition, workplace injury and illness are severely underreported within this age group, with 63% of young workers since 2013 not submitting claims for their injuries (Safe Work Australia, 2015). Hence, this age bracket of workers carry a significant burden of risk for workplace injury and illness within the organisations that employ them (Salminen, 2004).

Young workers carry increased risk for occupational illness and injury compared to their more mature, senior counterparts in the 'newly employed workforce' as they typically lack the skills and safety awareness that comes with workforce experience (Safe Work Australia, 2019; Salminen, 2004). Further factors that increase the risk of young people for occupational injury and illness include; inadequate supervision and training; a lack of personal understanding about the rights and responsibilities of employment, and; high rates of unmanaged mental

illness which may compromise working capabilities (Burnaby, 2012; SafeWork NSW, 2017). This paper examines the strategies that may be implemented by employers to minimise the risks associated with newly-employed young workers.

Methodology:

A search was conducted through the Curtin University Library Database, using keywords 'young workers' and 'safety'. This resulted in 272,571 publications, which was then further refined to exclude any material published over 20 years ago. The materials captured included articles published from a variety of databases including Science direct, ProQuest and Google Scholar.

An additional in-depth search was conducted on the google scholar database using the keywords 'young workers', 'safety' and 'risk'. 546,000 results were found. This was further refined to 115,000 search results, when the 'within 20 years' publication date filter was applied.

A google search was conducted using the keywords 'young workers' and 'safety' resulting in 187,000,000 results. Links to multiple government sites including Worksafe Australia, and associated state and territory Worksafe websites resulted from search. This report aimed to incorporate the most recent statistical evidence as available from official Australian Government affiliated sites.

As a result of these searches, twenty-two publications were gathered for use in this literature review. Of these publications, seven are journal articles, seven are publications from professional organisations and eight are government publications.

Inadequate supervision and training

Safe Work NSW (2017) identifies 'inadequate supervision and training' as the highest risk factor for

occupational illness and injury in young workers. As legislated by the *Occupational Safety and Health Act (1984)* and *Occupational Safety and Health Regulations (1996)*, Australian employers are required to provide health and safety training and experienced supervision to a worker employed in either a new role or company, until that employee has developed the skills necessary to complete their assigned working task safely (Government of Western Australia, 2017). Hence, there is not only clear motivation for an organisation to provide adequate supervision and training to all new employees from a risk minimisation perspective but also because it is a legally binding responsibility of them as an employer. Laberge, MacEachern & Calvet (2014) recognise that the limited workforce experience of young workers hinders them from being able to fully understand and efficiently recognise hazards. However, they argue that such skills can be quickly developed through effective training. In their recently published journal article “Why are occupational health and safety training approaches not effective?”, they explore 3 major factors that influence the effectiveness and efficiency of training and supervision in minimising the large occupational injury and illness risk that young workers carry (Laberge et al., 2014).

The gap between teaching and learning

Laberge et al. (2014), found that when being taught a task that is perceived by an experienced worker to be simple and easily reproducible, young workers are often not given specific directional training. As a result, young worker new to the task could not always easily replicate an operation demonstrated by a senior colleague, particularly if the task involved a complex motor skill that requires practice to develop (Laberge et al., 2014). Laberge et al. (2014) assert that if young workers are to learn skills, training and supervision need to be active processes in which the teacher and learner work together to develop a learning plan and practice the associated skill.

“By investing time and resources in them from their first day in the job, young workers are more likely to remain healthy and safe throughout their working life and contribute to a happier and more efficient work environment.” – SafeWork NSW Inspector (Safework NSW, 2017, para.2)

The challenge of situated learning

Learning in the working environment can be difficult due to its frequent diverse and dynamic interactive events (Laberge et al., 2014). Research shows that

when teaching a skill, senior workers only typically teach one technical method – generally, their own preferred method – of completing the associated task (Laberge et al., 2014). In reality, there may be multiple technical methods of completing the same task, and young workers who are new to a task should be given the opportunity to explore all of the known safe techniques to find which one works best for their individual style. When a young worker is forced to use a technique that does not suit their personal style and then thrown into a job without supervision, they are more likely to adopt opportunistic or incidental learning (Laberge et al., 2014). This form of learning is a ‘win some, lose some’ situation, and whilst the young worker may develop a sense of adaptive knowledge, it could also promote risk-taking behaviours in the workplace leading to negative consequences (Laberge et al., 2014).

The social dimension of learning

The social environment can be a major influence on a young worker’s learning experience (Dishman, 2017). The surrounding environment can be a source of constraint when there are inconsistencies with advice and colleagues performing/teaching unsafe behaviours (Laberge et al., 2014; Dishman, 2017). Uncertain employees naturally seek to follow the behaviour of their peers (Dishman, 2017). If the employee is surrounded by people participating positively in safety culture, they will more than likely do the same (Laberge et al., 2014). Hence, building a workplace culture that values safety is vital to ensure young worker develop safe practices (Dishman, 2017).

Rights and Responsibilities

Being new to the workforce, young workers often put their health and safety at risk without knowing they have rights and responsibilities (Burnaby, 2012). An online survey conducted by the Young Worker Centre in Melbourne, found that one in four young people felt like they they had been instructed to complete unsafe practices at work, and of those, 55 percent said they did it anyway (Young Worker Centre, 2016). In addition, approximately 24% of the surveyed workers, detailed that they had been injured at work, and of that 24%, a further one-third didn't report the incident with fears that they'd lose shifts or not have their contracts renewed (Young Worker Centre, 2016).

"Insecure forms of employment exacerbate young people's fear of speaking up at work. This is one of the

key reasons the exploitation of young workers is underreported.” – Keelia Fitzpatrick, Coordinator of the Young Workers Centre (Shalailah, 2016, para.2)

According to WorkSafe Australia, the single biggest influence of safety behaviour and attitudes are company leaders (Safe Work Australia, 2019). Leaders should be actively involved in creating a positive safety culture within their organisation by:

- Educating young people about their WHS rights and responsibilities (Safe Work, Australia, 2019);
- Empowering young people to have the confidence to speak up about health and safety in the workplace (Safe Work, Australia, 2019), and;
- Fostering a positive workplace culture that engages young workers in WHS (Safe Work, Australia, 2019).

Mental Health Issues

The World Health Organisation (2014, para.1) describes mental health as “a state of well-being in which every individual realises their potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to their community”. Studies show that 1 in 4 young Australians will experience poor mental wellbeing in any 12-month period, with 75% of mental health illnesses emerging before age 24 (Young Workers Centre, 2016; Patel, Fisher, Hetrick, & McGorry, 2007). Entering the workforce is a significant milestone for young workers; however, associated with this such milestones are stressors that may precipitate mental illness (Young Worker Centre, 2016). Despite the significance of mental illness within society, mental health is a topic that is often not well understood or effectively dealt with by employers (Patel et al., 2007). Furthermore, the common misconception that mental illness is not a valid workplace health issue often prevents young workers from taking leave and seeking appropriate support (Young Worker Centre, 2016). Developing a strategic workplace framework for healthy employees, provides companies with a platform to promote mental wellbeing, minimise workplace-related risks factors for mental illness, support people experiencing mental health issues, and the reduce stigma associated with mental illness (Heads up, 2018). Heads up, an Australian government-affiliated organisation, recommends three corporate strategies to successfully improve occupational mental health. These are;

Active commitment from organisational leaders

Corporate leaders are in an influential position to improve the attitudes towards, and the value placed

upon, mental wellbeing within their organisation (Heads up, 2018). It is recommended that leaders come together to make a visible, long-term commitment towards improving the mental health of their employees (Heads up, 2018). This commitment should include actions to establish themselves as positive mental wellbeing role models and provide a variety of human and financial resources (Heads up, 2018).

Employee Participation

Openly developing and committing to an agreed set of mental wellness goals and strategies is an effective way to bring corporate leaders and employees together to share the burden of responsibility and promote participation in creating company culture (Heads up, 2018). Employees have a first-hand perspective of the possible hazards to mental health within the workplace (Heads up, 2018). By encouraging staff to speak up and contribute their perspective, employers have the ability to prioritise actions specific to the needs and values of their workplace (Heads up, 2018).

Ongoing Communication

It is crucial for employers to communicate their commitment to improving the mental wellbeing of their employees at all phases of planning and implementation of their developed framework (Heads up, 2018). Transparency within the workplace gives employees a sense of ownership over the strategies and improve their education in mental health issues (Heads up, 2018). Greater workplace understanding of mental illness aids young workers in identifying when they themselves are experiencing mental illness, and increases their awareness of the support services available to them (Heads up, 2018; Young Worker Centre, 2016). Furthermore, the implementation of mental health-orientated systems within the workplace has additional economic benefits with a calculated positive return of investment of 2.3 to 1 (Heads up, 2018).

Conclusion

The employment of young works comes with an increased risk of occupational injury and illness as a result of their inherent lack of working experience. In addition, there are multiple factors that compound this risk and hence risk minimisation strategies must be implemented by employers to ensure that they are fulfilling their responsibility to maintain the health and safety of all employees. Issues that these strategies must address include; the education of young workers about their rights and responsibilities, the implementation of adequate training and supervision programs, and increasing access to mental wellbeing resources. For

young workers to succeed and remain safe in the workforce, these performance barriers must be managed effectively.

References

- Amador, G. J., & Hu, D. L. (2015). Cleanliness is next to godliness: Mechanisms for staying clean. *Journal of Experimental Biology*, 218, 3164-3174. <http://dx.doi.org/10.1242/jeb.103937>
- Australian Bureau of Statistics. (2018). Work-Related Injuries, Australia, Jul 2017 to Jun 2018. <https://www.abs.gov.au/ausstats/abs@.nsf/mf/6324.0>
- Burt, C. (2015). New Employee Safety: Risk Factors and Management Strategies. <https://doi-org.dbgw.lis.curtin.edu.au/10.1007/978-3-319-18684-9>
- Clarkson, L., Blewett, V., Rainbird, S., Paterson, J. L., & Etherton, H. (2018). Young, vulnerable and uncertain: Young workers' perceptions of work health and safety. *Work*, 61(1), 113. [doi:http://dx.doi.org.dbgw.lis.curtin.edu.au/10.3233/WOR-182788](http://dx.doi.org.dbgw.lis.curtin.edu.au/10.3233/WOR-182788)
- Government of Western Australia. (2014). Employers; Your responsibilities. <https://www.commerce.wa.gov.au/worksafe/employers-your-responsibilities>
- Government of Western Australia. (2017). Employees; your rights and responsibilities. <https://www.commerce.wa.gov.au/worksafe/employees-your-rights-and-responsibilities>
- Heads Up. (2018). Strategies for healthy workplaces. <https://www.headsup.org.au/healthy-workplaces/strategies-for-healthy-workplaces>
- Heads Up. (2018) Step 3: Develop a plan. <https://www.headsup.org.au/healthy-workplaces/strategies-for-healthy-workplaces>
- Dishman, B. (2017). Social Influences Affect Your New Employee's Safety Behavior. <https://ohsonline.com/Articles/2017/09/13/Social-Influences.aspx>
- Marie, L. MacEachen, E., & Calvet, B. (2014). Why are occupational health and safety training approaches not effective? Understanding young worker learning processes using an ergonomic lens. *Journal of Science direct*, Volume 68, 250-257. <https://doi.org/10.1016/j.ssci.2014.04.012>
- Medhora, S. (2016). Are young people too scared to speak up about workplace safety? ABC. <https://www.abc.net.au/triplej/programs/hack/young-people-at-risk-in-workplace/7910980>
- Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Adolescent health 3: Mental health of young people: A global public-health challenge. *The Lancet*, 369(9569), 1302-13. <https://search-proquest-com.dbgw.lis.curtin.edu.au/docview/199076575?accountid=10382>
- Safework NSW. (2017). Young Workers Plan 2018-19. Retrieved from https://www.safework.nsw.gov.au/__data/assets/pdf_file/0020/443432/YoungWorkersPlan_SW09103.pdf
- Salminen, S. (2004). Have young workers more injuries than older ones? An international literature review. *Journal of Sciencedirect*, 35(5), 513-521. <https://doi.org/10.1016/j.jsr.2004.08.005>
- WorkCover Queensland. (2019). Young Workers. <https://www.worksafe.qld.gov.au/injury-prevention-safety/young-workers>
- WorkSafe Australia. (2015). Work Productivity Loss in Young Workers. <https://www.safeworkaustralia.gov.au/system/files/documents/1702/young-workers.pdf>
- WorkSafe Australia. (2019). Young workers.

<https://www.safeworkaustralia.gov.au/young-workers>

- WorkSafe Victoria. (n.d). Young workers: Safety basics. <https://www.worksafe.vic.gov.au/young-workers-safety-basics>
- World Health Organisation. (2014). Mental health: a state of well-being. https://www.who.int/features/factfiles/mental_health/en/
- Young workers Centre. (2016). Taking care of your mental health at work. <http://www.youngworkers.org.au/mentalhealthwork>
- Young Workers Centre. (2016). Young Workers Health and Safety Snapshot. <https://www.vichealth.vic.gov.au/-/media/ProgramsandProjects/MentalHealthandWellBeing/APPENDIX-1-Young-Workers-Health--Safety-Snapshot.pdf?la=en&hash=9E4D5DA282D8C2C008841252354CF86B74CCD6D3>
- Young workers need to know their rights and responsibilities. (2012). Burnaby Now <https://search-proquest-com.dbgw.lis.curtin.edu.au/docview/1037641128?accountid=10382>

About the Author



Jordan Sears, at the time of writing this article, was a final year Health, Safety & Environment student at Curtin University, Western Australia. His ambitious attitude towards health & safety has seen him gain diverse industry experience, including in mining and in oil and gas. Jordan's passion is to innovate health and safety in high-risk industries, making a positive change for his community and the environment. Jordan is now employed as a Graduate Health and Safety Advisor at Woodside, an offshore oil and gas production company.

Factors Affecting Employees' Return-To-Work Following Work-Related Injury or Illness

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Abstract

Whilst returning to work following an injury or illness is not always easy, work has been proven to be generally beneficial for health and wellbeing. This article examines the relationship between biological, psychological, social and socio-economic factors and the success of a worker's return to work following a work-related injury or illness. This article concludes with the consequences of delayed or failed return to work.

Key Words: Return to work. Safety. Injury management. Health. Influencing factors

Legislation and definitions

Worker's Compensation and Injury Management Act 1981: Sets the minimum legal requirements and standards relating to injury management and return to work requirements following a work-related injury or illness in Western Australia.

Current Return to Work Rate: The proportion of workers who have reported that they had returned to work at any time since their injury or illness, and were currently working at the time of reporting.

Small employer size: Employers with less than \$1 million in total annual remuneration

Medium employer size: Employers with between \$1 million and less than \$20 million in total annual remuneration

Larger employer size: Employers with \$20 million or more in total annual remuneration

Unsuccessful RTW attempt: When an employee is required to take additional time off from work since returning, due to either work-related illness or work-related injury.

Introduction

Whilst returning to work following an injury or illness is not always easy, work has been proven to be generally beneficial for health and wellbeing (Work Cover Tasmania, 2018). The Australian Bureau Statistics (2018) reported that of the 13.4

million Australians who worked at some point between July 2017 and June 2018, 563,600 employees (4.2%) experienced one or more work-related injury or illness. More than half (60%) of these work-related injuries required time away from work, and of this proportion, 16% required between 5-10 days off, 26% required 11 or more days off, and 6% had not returned since the occurrence of the injury or illness. 'Return to

work' [RTW] refers to the process of helping an injured worker return to their normal job following an injury. It is an integral part of recovery, and the RTW process is the same for both physical and psychological injuries (WorkCover Queensland, 2019). RTW following an illness or injury is a complex, multifaceted process that is influenced by biological, psychological and social factors, which intertwine to form the biopsychosocial model (Kosny et al., 2012). The biopsychosocial model provides an evidence-based framework that considers a worker's physical or mental condition, the personal and psychological factors, and social contexts, constraints or pressures that can influence recovery and consequently, the success of their return to work. (Hara et al., 2018). It must be noted that whilst the individual factors influence RTW outcomes, the biopsychosocial model emphasises the need to consider the relationship between the factors, rather than focusing on the factors in isolation (Comcare, 2017).

This literature review examines the biological, psychological, social and socioeconomic factors that can either positively or negatively influence an injured worker's RTW. The consequences of delayed or failed RTW will also be discussed.

Methodology

To identify the factors that can influence an employee's RTW, a literature search was conducted through ProQuest, Science Direct and Google. A search on ProQuest using the keywords "return to work", "barriers", "factors" and "work-related injury" resulted in 256,504 publications. This search was further refined to include peer-reviewed journal articles published between 2009-2019, which produced 18,331 publications. A search on Science Direct using the keywords "return to work" and "injury" resulted in 150,874 publications. This search was further refined to include journal articles that did not exceed 10 years old, which found 41,953 results. Lastly,

a search was conducted on Google using the search term “return to work barriers following injury”, resulting in 96,600,000 results. This search was inclusive of material from Government organisations, including The Australian Bureau of Statistics, Comcare, WorkCover Queensland, Work Cover WA and Safe Work Australia. Credible data was selected from a range of appropriate web pages, and publication dates were restricted to a maximum of 10 years old to ensure relevance to the current employment industry.

A total of 20 publications were considered for this article based on the quality and depth of analysis, and relevance to factors that influence a worker’s return to work. 12 of the referenced publications are journal articles, 8 are government publications.

Biological Factors

Biological factors are the characteristics of the injury or illness sustained by the worker, which are determined by the cause, type and location, and the severity of the injury. Berecki-Gisolf, Clay, Collie and McClure (2011) identified several different biological risk factors, including injuries involving multiple locations or the neck; traumatic joint, ligament, muscle and tendon injuries; and musculoskeletal and connective tissue diseases. Intense and persistent pain was identified as a determining factor of failed RTW (Pélissier, Fort, Fontana, Charbotel, & Hours, 2017). Injury severity and pain intensity were reported as key risk factors in RTW, with less serious injuries resulting in a better chance of RTW and shorter sickness absence (Clay, Fitzharris, Kerr, McClure, & Watson, 2012; He, Hu, Yu, Gu, & Liang, 2010).

Psychological Factors

An individual’s perception of their injury or illness can significantly encourage or delay their RTW. Those who expect to recover slowly following an injury often do so, and not expecting to RTW will likely lead to a futile recovery. Perceived pain levels, recovery expectations and perceptions of current health are all psychological factors that can influence RTW outcomes. A 2017 study described that pain severity was the main determining factor of disability, and that patients who constantly over predict their pain are most likely to have failed or delayed RTW (Pélissier et al.,

2017). Cancelliere et al. (2016) found that positive expectations for recovery and RTW were associated with successful RTW outcomes, with evidence from studies on workers with musculoskeletal disorders, mental health disorders and myocardial infarction. Furthermore, the authors reported that negative RTW expectations were predictive of longer RTW times. Therefore, clinicians may find benefit in investigating a worker’s expectations regarding recovery and RTW during the initial stages to identify those who are at risk of delayed or incomplete RTW.

A 2017 article found that depressive symptoms were a strong contributing factor to the duration of a worker’s RTW, with employees who reported depressive symptoms needing between 30-50 additional days for full RTW, compared to injured employees with no symptoms (Huijs, Koppes, Taris, & Blonk, 2017). Although less severe injuries sustained by a worker will generally result in better RTW outcomes, perceptions of recovery and self-reported health status were identified as determinants of RTW in two publications (Comcare, 2017; He et al., 2010). A high sense of urgency to RTW and high level of self-efficacy was also found to positively impact a worker’s recovery and RTW (Cancelliere et al., 2016; Pahlplatz, Schafroth, & Kuijer, 2017). He et al. (2010) concluded that a worker’s positive psychological status was important for RTW outcomes, and it may be further supported by additional factors such as good social support and adjustable work accommodations. Psychological interventions, such as cognitive behavioural therapy and problem-solving therapy, may assist in improving a worker’s psychological state, and promote management of depression and poor recovery expectations (Cancelliere et al., 2016).

Social Factors

Several studies have commented on the effect of social and workplace factors in RTW outcomes. Recovery can be slow or timely, so support from friends, family, employers and co-workers is critical to achieving successful RTW (Clay et al., 2012). Literature has confirmed that social support may be just as impactful as physical work accommodations in facilitating a worker’s RTW (Smith et al., 2013). Kosny et al. (2012) stated that injured workers who reported having support from co-workers after an injury or illness were more likely to RTW. A 2012 article found that injured or ill workers who reported strong social

involvement returned to work 4.6 times faster than participants who reported low or moderate social involvement (Clay et al., 2012). Workers who were injured in work-related incidents described that they wish to receive moral support (eg. listening, receiving calls at home), job related support, and emotional support (eg. empathising with the injured worker's situation), as they felt that these actions would assist their RTW (Kosny et al., 2012). Co-workers said they were more likely to offer support if they had a strong, pre-existing long-term relationship with an injured worker. Additionally, several workers reported that would be more inclined to help an older, more senior worker; someone who had "done their time" in the company (Smith et al., 2013).

A lack of social support has been predictive of longer work absences and RTW problems. Evidence suggests that problems with co-workers can delay recovery and RTW, and injured workers have described feelings of delusion and discouragement when co-workers did not accept their injuries as legitimate (Kosny et al., 2012). Early RTW when a worker still has significant pain or injury may impede relationships with their co-workers. Lack of formal communication regarding an injured worker's condition or their modified work may lead to frustration among other workers. Therefore, employers must consider the consequences of an early RTW, and ensure that safe and meaningful work is available (Kosny et al., 2012). Australian employers have a legal obligation to provide the injured worker with their pre-injury job, or another job of comparable status and pay if they are incapable of their normal work (WorkCover WA, 2016). Alternative, modified or 'light' duties should be delegated where possible to assist a worker's RTW, and the allocation of suitable duties can be critical when ensuring a positive RTW outcome for the injured worker and the employer. The benefits of allocating a worker modified duties include retention of skill, decreasing isolation and maintaining the worker's focus on their RTW (Cancelliere et al., 2016; WorkCover WA, 2016). In addition to alternative or modified duties, employers could offer equipment, changes in the physical worksite, and to adjust work schedules as additional means of workplace accommodations (Cancelliere et al. 2016).

Smith et al. (2013) found that large workplace size was

associated with shorter duration of sickness absence following a physical work-related injury, since larger workplaces could offer more options for accommodations or alternative duties. These figures are reflected in the *National Return to Work Survey 2018*, where large employers reported an 81.9% RTW rate. Comparatively, the RTW rate for medium and small employers was reported at 75.0% and 73.5% respectively (Safe Work Australia, 2018). The authors also reported that, whilst workplace accommodations for workers with physical injuries may be relatively straight forward (ie. modified duties, assistance equipment), the accommodations required for a work-related mental health absence may be more complex, especially if the ailment involves negative interactions with co-workers and/or supervisors. Lastly, Smith et al. (2013) found that qualitative studies on RTW among workers with common mental health disorders showed that it is often vague when a worker should RTW following a mental health injury, and accommodations were often not available to assist in their RTW.

Employers can support their worker's RTW in several different ways, including the allocation of meaningful alternate duties, encouraging a supportive workplace culture, assisting with means beyond the minimum required meetings, providing injury management and communication training to line managers and supervisors, and involving the injured worker in team meetings and social events (WorkCover Tasmania, 2018). Regarding their employers, employees identified trust, communication and knowledge of disability and the RTW process as a precursor to successful RTW (Clay et al., 2012). Recent literature shows that the relationship between the injured worker and their supervisor has an impact on successful RTW outcomes (Kosny et al., 2012). Respondents to the *National Return to Work Survey 2018* were predominantly positive about the support that they received from their employer following their work-related injury or illness, especially with being treated fairly during and after the claims process (Safe Work Australia, 2018). However, those who experienced sickness absence related to mental disorder were significantly less satisfied with the support received from their employer.

Socio-demographic Factors

Several studies confirm that socio-demographic factors such as age, gender, marital status, level of education and occupation industry are predicting factors of an

employee's RTW. He et al. (2010) found that workers aged 46 years and older had significantly lower RTW rates than younger workers, possibly because their employers encouraged older, injured workers to retire early instead of returning to work to ensure vacancies for younger workers. Conversely, older workers may view early retirement as an easier and more feasible route than the RTW process. Berecki-Gisolf et al. (2011), Cancelliere et al. (2016), and Clay et al. (2012) support that older age was an independent predictor of delayed or incomplete RTW.

According to Safe Work Australia (2012), of the 638,400 workers who experienced a work-related injury or illness between 2009-2010, 284,300 of these workers (44.53%) were females. Several studies have concluded that female workers have a higher rate of failed RTW than their male counterparts (Berecki-Gisolf et al., 2011; Cancelliere et al., 2016; Pahlplatz et al., 2017). Maher, Lindsay and Tanner (2013) found that women prioritised family care responsibilities over returning to work following an injury or illness. Furthermore, the pressure of family obligations coupled with a difficult RTW process influenced their decisions about when they would RTW.

Higher education levels subsequently lead to higher job classes, including but not limited to finance, business, administration, science, health and self-employment. Education has been found to be a factor that encourages RTW, as these occupations are generally sedentary with low physical demand (Pahlplatz et al., 2017). Marom et al. (2018) described how a higher level of education can lead to more flexible employment options and greater mobility in the job market.

Fan, McLeod and Koehoorn (2010) found an association between blue-collar occupations and RTW outcomes. Workers in trades, mining and oil and gas industries, and processing and manufacturing had odds ratio 3-9 times higher for failed RTW, whereas workers in health-related employment had odds ratio 2-3 times higher for partial RTW. These findings are consistent across several studies, with Smith et al. (2013) and Pahlplatz et al. (2017) reporting that physically demanding occupations (eg. goods production, manufacturing and labour) were associated with slower

RTW for physical injuries.

Consequences of Delayed or Failed RTW

Delayed RTW has become a challenging problem in many societies, significantly impacting socioeconomic status and individual well-being (He et al., 2010). Delayed RTW results in adverse physical, psychological, social and financial effect worsen with each passing day (Kosny et al., 2012). Findings by Marom et al. (2018) and Work Cover Tasmania (2018) show that those who do not return to their work at an early stage are at an increased risk of long term disability, depression, poorer health, and suicide, with long term unemployment increasing the risk of suicide by 6 times. For young men who are out of work for six months or more, this rate increases to 40 times.

Ample evidence shows that work is an important part of our lives as it provides not only financial benefit to the worker, but it increases self-esteem, improves physical and mental health and develops a sense of belonging (Clay et al., 2012; Kosny et al., 2012; Marom et al., 2018; Smith et al., 2013). It is a common misconception that a full recovery is required to return to work. Although the work may be uncomfortable or difficult, complications or delays in RTW decrease the probability of a worker returning (Work Cover Tasmania, 2018).

Conclusion

The current literature supports the concept that work is beneficial for health and wellbeing. When a worker experiences a work-related injury or illness, they must undergo the RTW process, which can be complex and drawn-out. A worker's RTW outcome is influenced by biological, psychological and social factors that must be considered to ensure the best conceivable chance of RTW. Although not included in the biopsychosocial model, socio-demographic factors have also been found to significantly predict a worker's recovery and subsequent RTW. Moving forward, this literature review could be used to form a rationale for the identification of workers at risk of failed RTW though investigation into recovery and RTW expectations.

References

- Australian Bureau of Statistics. (2018). Work-related injuries, Australia, Jul 2017 to Jun 2018. <https://www.abs.gov.au/ausstats/abs@.nsf/mf/6324.0>
- Berecki-Gisolf, J., Clay, F. J., Collie, A., & McClure, R. J. (2011). Predictors of sustained return to work after work-related injury or

- disease: Insights from workers' compensation claims records. *Journal of Occupational Rehabilitation*, 22(3), 283-291. doi:10.1007/s10926-011-9344-y
- Cancelliere, C., Donovan, J., Stochkendahl, M. J., Biscardi, M., Ammendolia, C., Myburgh, C., & Cassidy, J. D. (2016). Factors affecting return to work after injury or illness: best evidence synthesis of systematic reviews. *Chiropractic & Manual Therapies*, 24(1). doi:10.1186/s12998-016-0113-z
- Clay, F. J., Fitzharris, M., Kerr, E., McClure, R. J., & Watson, W. L. (2012). The association of social functioning, social relationships and the receipt of compensation with time to return to work following unintentional injuries to Victorian workers. *Journal of Occupational Rehabilitation*, 22(3), 363-375. doi:10.1007/s10926-012-9354-4
- Comcare. (2017). Barriers to return to work: A literature review. https://www.comcare.gov.au/recovery/rehabilitation/barriers_to_return_to_work
- Fan, J. K., McLeod, C. B., & Koehoorn, M. (2010). Sociodemographic, clinical, and work characteristics associated with return-to-work outcomes following surgery for work-related knee injury. *Scandinavian Journal of Work, Environment & Health*, 36(4), 332-338. doi:10.5271/sjweh.2901
- Hara, K. W., Bjørngaard, J. H., Jacobsen, H. B., Borchgrevink, P. C., Johnsen, R., Stiles, T. C., ... Woodhouse, A. (2018). Biopsychosocial predictors and trajectories of work participation after transdiagnostic occupational rehabilitation of participants with mental and somatic disorders: a cohort study. *BMC Public Health*, 18(1). doi:10.1186/s12889-018-5803-0
- He, Y., Hu, J., Yu, I. T., Gu, W., & Liang, Y. (2010). Determinants of return to work after occupational injury. *Journal of Occupational Rehabilitation*, 20(3), 378-386. doi:10.1007/s10926-010-9232-x
- Huijs, J. J., Koppes, L. L., Taris, T. W., & Blonk, R. W. (2017). Work characteristics and return to work in long-term sick-listed employees with depressive symptoms. *Journal of Occupational Rehabilitation*, 27(4), 612-622. doi:10.1007/s10926-017-9696-z
- Kosny, A., Lifshen, M., Pugliese, D., Majesky, G., Kramer, D., Steenstra, I. Carrasco, C. (2012). Buddies in bad times? The role of co-workers after a work-related injury. *Journal of Occupational Rehabilitation*, 23(3), 438-449. doi:10.1007/s10926-012-9411-z
- Maher, J., Lindsay, J., & Tanner, C. (2013). Women's injuries and return to work- The social context (0513-043-R3C). Institute for Safety, Compensation and Recovery Research website: https://research.iscrr.com.au/__data/assets/pdf_file/0008/310220/womens-injuries-and-return-to-work-the-social-context-final-report.pdf
- Marom, B. S., Ratzon, N. Z., Carel, R. S., & Sharabi, M. (2018). Return-to-work barriers among manual workers after hand injuries: 1-year follow-up cohort study. *Archives of Physical Medicine and Rehabilitation*, 100(3), 422-432. doi:10.1016/j.apmr.2018.07.429
- Pahlplatz, T. M., Schaefroth, M. U., & Kuijer, P. P. (2017). Patient-related and work-related factors play an important role in return to work after total knee arthroplasty: a systematic review. *Journal of ISAKOS: Joint Disorders & Orthopaedic Sports Medicine*, 2(3), 127-132. doi:10.1136/jisakos-2016-000088
- Pélessier, C., Fort, E., Fontana, L., Charbotel, B., & Hours, M. (2017). Factors associated with non-return to work in the severely injured victims 3 years after a road accident: A prospective study. *Accident Analysis & Prevention*, 106, 411-419. doi:10.1016/j.aap.2017.06.020
- Safe Work Australia. (2012). Australian work -related injury experience by sex and age, 2009-2010 https://www.safeworkaustralia.gov.au/system/files/documents/1702/australian_work-related_injury_experience_by_sex_and_age_2009-10.pdf
- Safe Work Australia. (2018). National Return to Work Survey 2018: Summary Report. <https://www.safeworkaustralia.gov.au/system/files/documents/1811/national-rtw-survey-2018-summary-report.pdf>
- Smith, P. M., Black, O., Keegel, T., & Collie, A. (2013). Are the predictors of work absence following a work-related injury similar for musculoskeletal and mental health claims? *Journal of Occupational Rehabilitation*, 24(1), 79-88. doi:10.1007/s10926-013-9455-8
- Work Cover Queensland. (2019). Rehabilitation and return to work. <https://www.worksafe.qld.gov.au/claims-and-return-to-work/rehabilitation-and-return-to-work>
- WorkCover Tasmania. (2018). The benefits of returning to work (IS-083). Retrieved from https://worksafe.tas.gov.au/__data/assets/pdf_file/0014/301811/IS-083-The-benefits-of-returning-to-work.pdf
- WorkCover WA. (2016). Injury management: A guide for employers. Retrieved from <https://www.workcover.wa.gov.au/wp-content/uploads/2014/09/2017-Injury-Management-Guide.pdf>

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Prevention of Work-Related Stress

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Abstract

Stress is often a facet in all of life, but especially in adult life where much of a person's time is spent in an occupation or job. Work related stress is widespread and has been documented by many scientific journals but despite this, is still difficult to prevent completely. This literature review has concluded that the prevention of work-related stress, which is mandated by West Australian legislation, can be achieved through a combination of early identification, primary intervention and specialised training. These techniques ensure that at risk employees are recognised and receive the treatment they need to reduce stress, increasing productivity and decreasing the risk of occupational diseases.

Key Words: Health and safety. Work-related stress. Prevention. Psychosocial. Hazard. Risk. Occupational stress. Job stress.

Introduction

Every year, work related stress imposes huge tolls on employee mental health, acting as the main cause of occupational diseases such as depression and anxiety in workers in a wide variety of industries (Noblet & LaMontagne, 2006). These effects not only reduce employee quality of life but also their performance of work, with exposure to stressful working environments resulting in greater absenteeism and labour turnover (Noblet & LaMontagne, 2006). Combined with the costs incurred compensating for these effects, this makes the prevention of stress in the best interest for both employers and employees, representing both a financial and an ethical commitment (Noblet & LaMontagne, 2006). Despite this, a wide variety of industries still lack knowledge on the presence of work stress amongst their employees (Offia Ibem, Anosike, Azuh, & Mosaku, 2011) and how prevention can be used to eliminate it or minimise the psychosocial hazards that cause it (Forastieri, 2016).

Methodology

Both simple and advanced searches were performed to source articles for use in this review using Curtin Library's online catalogue which accesses multiple databases, including Proquest and Pubmed. An example of search phrases used included "preventing work stress". Results from this search were further filtered by including only peer reviewed articles published between 2009 and 2019, aside from one article from 2006. This search returned 230,681 results, but more searches were performed with different keywords and search phrases such as "occupational stress" and "job stress" that yielded similar results. In this review 10 peer reviewed articles are utilised.

In addition to peer reviewed articles, legislation was sourced through the West Australia State Law Publisher website and google searches were used to find guidance materials and codes of practice from providers like WorkSafe Western Australia. This included the Occupational Safety and Health Act 1984 and 'Stress – What is the law?' guidance material from the Department of Mines, Industry Regulation and Safety website. The Occupational Safety and Health Regulations 1984 were not included as they had no specific content relating to work related stress or its prevention.

West Australian Legislation

In West Australia, the Occupational Safety and Health Act 1984 is the main legislative source that is concerned with ensuring and promoting the health and safety of employees, as well as outlining the penalties for those that ignore its content (Occupational Safety and Health Act, 1984). The act outlines that "An employer shall, so far as is practicable, provide and maintain a working environment in which the employees of the employer (the employees) are not exposed to hazards" (Occupational Safety and Health Act, 1984, s.19.1). Because of this, the Act requires that employers ensure their employees, so far as reasonably practicable, are not exposed to undue amounts of stress, as it is an example of a psychological hazard (Department of Mines, Industry Regulation and Safety, 2014). According to the legislation this must be achieved by ensuring the workplace and its systems of work do not produce or expose employees to hazardous amounts of stress (Occupational Safety and Health Act, 1984, s.19.1a).

This may also be fulfilled through the provision of training or information about work related stress as a hazard, or supervision to ensure an employee does not encounter stress as a part of their work (Occupational Safety and Health Act, 1984, s.19.1b).

Since it is a legal requirement of employers to take action against work related stress as a psychosocial hazard, any of the methods of prevention discussed in this review could be employed to fulfil this requirement (DMIRS, 2014). The key part in demonstrating this commitment, however, is that it must be treated like any other workplace hazard, with workers being protected and educated from it, risk assessments being performed to reduce it and the notification of Worksafe if it causes a reportable injury (DMIRS, 2014).

Bayesian network, social support and early identification

Often occupational stress can be the result of high demand combined with low resources, where employees' anxiety stems from facing heavy workloads with little control, support or reward systems (Juras, Knezevic, Golubic, Milosevic, & Mujstabegovic, 2009). This demand versus control concept forms one of the many psychosocial hazards that can cause work related stress (Forastieri, 2016). Many studies have concluded the importance of social support systems in these situations, with employees receiving support self reporting the improvement and being shown to have a lower risk of occupational diseases such as depression, anxiety, musculoskeletal pain and immune deficiency (Noblet & LaMontagne, 2006). The things these traditional studies lack is a comprehensive statistical analysis of national data, which can be achieved using Bayesian networks to determine the exact effects of social support on employees who experience stress (García-Herrero, Mariscal, Gutiérrez, & Ritzel, 2013). This was undertaken in 2013 when researchers applied Bayesian networks to existing Spanish national labour data to create models that map out what factors effect stress in jobs with high cognitive demands and how social support reduced these (García-Herrero et al., 2013).

The results from this confirmed social support such as teamwork and consultation decreased the probability of stress in employees, especially those who experienced more than one contributing factor in their work

(Intellectually demanding, working at night) (García-Herrero et al., 2013).

The data also showed that not only does intellectually demanding work and working at night increase the probability of stress, but that these factors (and many others) produce multiplicative effects, resulting in a stress probability higher than their sum (García-Herrero et al., 2013). The application of this data highlighted which workers were at a higher risk of experiencing stress and who could benefit most from social support systems (García-Herrero et al., 2013). The only limitation noted in this study was that it focussed only on cognitive demand with no acknowledgement of emotional demand and how it relates to stress (García-Herrero et al., 2013).

Another study used a similar method to identify employees early who were at risk for taking sick leave due to work related stress, so that more effective prevention methods could be applied to these individuals (Holmgren et al., 2016). In the study, employees in primary health care were given a work stress questionnaire (WSQ) to fill out in order to determine how much and what kind of stressors they were facing on a daily basis (Holmgren et al., 2016). Those who were deemed to be experiencing an unhealthy amount of stress were referred to a general practitioner who used their WSQ to recommend specific interventions like specialist referrals (Holmgren et al., 2016). This group was compared to a control group who, if they were also experiencing unhealthy amounts of stress, would be consulted by a GP but without the information from a WSQ (Holmgren et al., 2016). The intervention group received more tailored prevention methods and were at half the risk of taking sick leave due to work related stress than the control group (Holmgren et al., 2016).

Organisational prevention

Stress can also originate from organisational factors, especially in employees who work independently, despite having a large amount of control and input over work tasks and procedures to match the high demand of individual work (Havermans et al., 2018). One study showed that this kind of stress originated due to independent employees often undertaking or being recommended stress management strategies that were classified as tertiary interventions, only concerned with short term control of symptoms (Ipsen & Jensen, 2012). These interventions often consisted of holidays, days off or sick leave, temporarily separating the employee from the source of stress (work) only to be reintroduced to their occupation and experience the same symptoms as

before (Ipsen & Jensen, 2012). The reason these tertiary interventions were utilised was often because the employee concerned was too independent from other workers to be made aware of existing social support systems that provided primary intervention (Ipsen & Jensen, 2012). These employees were also often high ranking in their respective organisation's structure, resulting in them taking their own measures to control stress, most of which were tertiary (Ipsen & Jensen, 2012). However, this form of stress has been shown to effect employees and employers to the same extent, presumably due to organisational structure serving as a foundation that allows stress to be experienced by both groups (Havermans et al., 2018).

Preventing stress from originating due to organisational structure in these situations involved ensuring that all employees had access to primary interventions, which were known to be more effective in addressing stress as they were concerned with eliminating the root cause (Ipsen & Jensen, 2012). It was determined that there was nothing inherently wrong with the organisational structure being employed in these situations but rather that the structures allowed certain particularly autonomous and independent employees to be unaware of primary interventions that their workplaces already offered (Ipsen & Jensen, 2012). In these cases it was determined that realigning these employees into the centre of the organisation, rather than on the fringes, would allow them to be more knowledgeable of the interventions they have at their disposal to deal with stress, making them more likely to access primary interventions (Ipsen & Jensen, 2012).

Similar findings have been reported in health care work where organisational changes caused health care workers to be exposed to work related stress more often than usual (d'Ettorre & Greco, 2015). In this study, stress management programs such as safety training and team development proved effective in reducing the level of stress report in the workplace by employees (d'Ettorre & Greco, 2015).

Imagery training in high risk professions

Research shows that the stress experienced by employees in high risk occupations, like police officers, can be reduced by providing specific training that bolsters their resilience to the difficult situations

they will undoubtedly face (Arnetz, Arble, Backman, Lynch, & Lublin, 2013).

One study reported that police cadets who received complementary training before entering the force displayed these beneficial effects for at least 2 years, suggesting that specialised imagery training could be used to produce similar effects in other first responders, such as ambulance drivers (Arnetz et al., 2013). This study also showed that the training produced a decrease in occupational diseases related to stress like sleeping difficulties and gastrointestinal issues (Arnetz et al., 2013).

Limitations

Research in this review only looked at peer reviewed articles, which despite their high quality, are not the only source of information on the topic of work related stress, with other sources appearing in searches like books and conference findings being ignored. Also, the articles sourced in this review do not represent all of the peer reviewed literature available, as Curtin Library does not access all online scientific databases. In addition to this, guidance materials and codes of practice on stress in West Australia are lacking, with most sources and searches redirecting to documents on topics like bullying and discrimination.

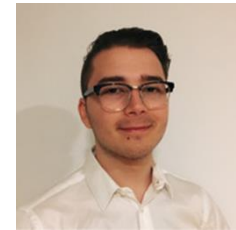
Conclusion

In conclusion, it is clear from this review that many effective strategies for reducing work related stress exist and could be employed in a variety of workplaces. Early identification can reveal at risk employees who can benefit from social support and organisational structures can be managed and modulated to ensure employees have access to primary stress interventions. In addition to this, specialised training can be used to reduce stress and increase resilience in employees in more high risk positions, such as first responders. All of these techniques are valid options for reducing work related stress and eliminating psychosocial hazards in order to fulfil the legal commitments for employers set out in the Occupational Safety and Health Act 1984.

References

- Arnetz, B. B., Arble, E., Backman, L., Lynch, A., & Lublin, A. (2013). Assessment of a prevention program for work-related stress among urban police officers. *International Archives of Occupational and Environmental Health*, 86(1), 79-88.
doi:<http://dx.doi.org/10.1007/s00420-012-0748-6>
- Department of Mines, Industry Regulation and Safety. (2014). Stress - What is the law?
<https://www.commerce.wa.gov.au/worksafe/stress-what-law>
- d'Ettorre, G., & Greco, M. (2015). Healthcare Work and Organizational Interventions to Prevent Work-related Stress in Brindisi, Italy. *Safety and Health at Work*, 6(1), 35-38.
doi:<https://doi.org/10.1016/j.shaw.2014.10.003>
- Forastieri, V. (2016). Prevention of psychosocial risks and work-related stress. *International Journal of Labour Research*, 8(1/2), 11-33.
<https://search.proquest.com/docview/1917279338?accountid=10382>
- García-Herrero, S., Mariscal, M. A., Gutiérrez, J. M., & Ritzel, D. O. (2013). Using Bayesian networks to analyze occupational stress caused by work demands: Preventing stress through social support. *Accident Analysis & Prevention*, 57, 114-123.
doi:<https://doi.org/10.1016/j.aap.2013.04.009>
- Havermans, B. M., Brouwers, E. P. M., Hoek, R. J. A., Anema, J. R., van der Beek, A. J., & Boot, C. c. R. L. (2018). Work stress prevention needs of employees and supervisors. *BMC public health*, 18(1), urn:issn:1471-2458. doi:10.1186/s12889-018-5535-1
- Holmgren, K., Sandheimer, C., Mårdby, A.-C., Larsson, M. E. H., Bültmann, U., Hange, D., & Hensing, G. (2016). Early identification in primary health care of people at risk for sick leave due to work-related stress - study protocol of a randomized controlled trial (RCT). *BMC public health*, 16(1), 1193.
<https://search.proquest.com/docview/1844026385?accountid=10382>
- Ipsen, C., & Jensen, P. L. (2012). Organizational options for preventing work-related stress in knowledge work. *International Journal of Industrial Ergonomics*, 42(4), 325-334.
doi:<https://doi.org/10.1016/j.ergon.2012.02.006>
- Juras, K., Knezevic, B., Golubic, R., Milosevic, M., & Mujstabegovic, J. (2009). Work stress: Recognition, prevention and solutions. *Sigurnost*, 51(2), 121-126.
<https://search.proquest.com/docview/34953196?accountid=10382>
- Noblet, A., & LaMontagne, A. D. (2006). The role of workplace health promotion in addressing job stress. *Health Promotion International*, 21(4), 346-353. doi:10.1093/heapro/dal029
- Occupational Safety and Health Act 1984 (WA)
[https://www.slp.wa.gov.au/pco/prod/filestore.nsf/FileURL/mrdoc_41381.pdf/\\$FILE/Occupational%20Safety%20And%20Health%20Act%201984%20-%20%5B07-j0-01%5D.pdf?OpenElement](https://www.slp.wa.gov.au/pco/prod/filestore.nsf/FileURL/mrdoc_41381.pdf/$FILE/Occupational%20Safety%20And%20Health%20Act%201984%20-%20%5B07-j0-01%5D.pdf?OpenElement)
- Offia Ibem, E., Anosike, M. N., Azuh, D. E., & Mosaku, T. O. (2011). Work Stress Among Professionals in the Building Construction Industry in Nigeria. *Australasian Journal of Construction Economics and Building*, The, 11(3), 45-57.
doi:10.5130/ajceb.v11i3.2134

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A Review of the Perception of Risk at the Individual Level and at the Organisational Level

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Abstract

The purpose of this research was to determine the ways that an individual's perception of risk may affect their ability to behave in a safe manner. This research was undertaken as a literature review using Curtin University's subscription databases. The review found a variety of internal and external factors that can influence an individual's perception of risk, including exposure to risk, workplace culture, experience, knowledge, level of stress and insecurity. Additionally, factors, such as stakeholder involvement, market volatility and immediate vs. delayed effect of risk were found to have an effect on perception of risk from an organizational management perspective.

Key Words: Risk perception. Safe behaviour. Occupational health and safety.

Introduction

Management of risk within an organisation is dependent upon the effective identification of the likelihood and consequence that a particular hazard could eventuate into an undesirable event. This act of applying a rating to a risk based on its likelihood and consequence is a highly subjective act and is reflective of an individual's personal perception of that risk. Because of this, risks are often rated incorrectly and can result in a multitude of unforeseen adverse effects (Krallis & Csontos, n.d.). Organisations have generally placed a large amount of focus on the management of worker safety with little attention paid towards the fallible human element that is used to define the impact a hazard may have on its operations. This in turn affects the level of resources dedicated to mitigating that particular risk.

The first step in managing individual perceptions of risks is to understand what perceptions are and how they are developed within the individual. Perception is defined as the act of apprehending by means of the senses or of the mind (Oxford Dictionaries, n.d.). Based on this definition, it can be deduced that, as each individual selects, organises and interprets the information that is gained from their senses differently, objective perception can be considered as extremely difficult, if not impossible (Krallis & Csontos, n.d.). This is due to that fact that each individual possesses an entirely different frame of

reference that is based on a variety of factors gained through experiences that may not be directly related to the immediate situation that their perception is relying on. Furthermore, these factors that perceptions are based on form a large part of an individual's attitude, belief and value system (Nielsen et al, 2013). Lastly, it is essential to realise that perception directly affects the level of energy dedicated towards a task or to the management of a risk (Dester & Blockley, 1995). A task that is perceived to be of low importance, or a risk that is perceived to be of low consequence will naturally have less energy expended on its management, regardless of whether this is a correct response, this perception is simply the result of the decision maker's cognition, which is based on individual experiential factors.

Aim and Objective

The Aim of this literature review was to examine and compile the ways in which perception of risk affects the traditional risk management process within an organisational environment.

The review Objectives were to:

1. Identify and examine the internal and external factors that shape worker perception of risk and how they respond to workplace risk management processes

2. Identify and examine management level factors that affect the perception and tolerance of risk for an organisation.

The following section is a review of published literature related to the perception of risk within an organisation from the perspective of the worker and management level personnel. It outlines the research methodology undertaken to gather the relevant articles, an examination of the internal and external factors that influence risk perception at the worker level, and the factors that influence risk perception of managers. The manner in which risk perception impacts safe behaviour and the initiatives and approaches that maybe taken to manage unwanted perceptions are discussed.

Literature Review Introduction

Individual and organisational perceptions of risk have a major impact on individual behaviour and occupational health and safety (OHS) management system direction. This study aimed to explore the factors that shape perception of risk and their management at an organisational level. The research was conducted as a published literature review. The steps that this study took to achieve the aim were to initially determine ways in which individual and organisational perceptions of work tasks, skills and capabilities influence the way workers and the organisation assess the risks presented within their occupational environment. Secondly an examination was made on how the aforementioned factors influence worker behaviour and OHS management system structure, and the ways in which this can be addressed at the OHS management system level.

The primary focus of this literature review was twofold, with the aim being to determine the ways in which individuals at the frontline perceive the risks that they face within their work environment. It also aimed to identify the methods that individuals at the management level can use to influence perception of OHS risks faced by the organisation as a whole to determine how this could be used to promote safe behaviour. The research parameters were initially set

to concentrate on studies conducted within the previous 20 years and located in developed economies, where the tolerance to risk is lower and a high regard is placed on safety. It was estimated that a high amount of progressive research would be undertaken in such economies where the OHS discipline is a fully-fledged and respected profession.

Literature Review Methodology

The search was limited to full text English professional safety and peer reviewed scholarly journals published between the years 1994 and 2014. Studies were identified through a systematic review of the literature available on Science Direct, ProQuest and Emerald. An initial aim of the literature review was to find 20 relevant studies per research objective in order to ensure that a sufficient amount of literature was reviewed. A search was conducted using the Science Direct database as the primary database using the following terms:

- Individual risk perception OHS
- Organisational risk perception OHS

The search yielded 411 and 247 results respectively with a total of 42 suitable for use in this review.

A second search was conducted using the ProQuest database. The search utilised the above search phrases yielding 3,531 and 1,929 results respectively with 18 suitable articles. The last search was undertaken in the Emerald database using the above search phrases and resulted in 20 suitable articles out of 1,412 and 357 results respectively.

Out of a total of 80 articles found establishing a link to the topic, 37 of these publications are cited in this review. Twenty four of the cited publications are research studies, 4 are comprehensive literature reviews and 9 are commentaries relating to the perception of risk and risk management in the workplace.

Risk Perception at Individual Level

The following section outlines findings for the first research objective, how risk perceptions are affected at

an individual level, with a number of internal and external factors explored.

Internal factors.

The main internal factors noted in published literature to affect an individual's risk perception are the individual's knowledge, insecurity, stress and past experiences (Vazquez, 2001; Lingard, 2002; Arezes & Miguel, 2005; Caponecchia & Shiels, 2011; Tobin et al, 2011; van Manen, 2012; Elias & Shiftan, 2012; Nielsen et al, 2013; Kern et al, 2014).

Experience

Experience has been shown to be a key internal factor that defines an individual's risk perception. By having a direct interaction with a risk that resulted from a particular hazard defines how it is perceived to a point where sensory processes, such as smell and sound, trigger alertness (van Manen, 2012). Additionally, two individuals that had experienced the same risk, but one with a low-consequence outcome and the other with a high-consequence outcome will perceive the risk differently due to their own unique experience with that hazard (van Manen, 2012).

Conversely, experience can also act to lower an individual's risk perception if they have not experienced a significant enough consequence that triggers a sense of acute awareness as a result (Kern et al, 2014). In many cases this can actually act to promote further interaction with the risk as a way of sensation seeking. Furthermore, lack of experience with risks has been shown to trigger a sense of optimism bias, where individuals begin to perceive that they are impervious to extraordinary events (Caponecchia & Shiels, 2011).

Knowledge

Knowledge is a similar factor to experience in that it may be gained through experience, however it must be considered as separate internal factor due to the fact that one cannot gain experience through knowledge. Whilst experience is the unique result

of sensory processes, knowledge is the result of receiving information relating to a subject, which can be applied in the same way to multiple individuals.

Lingard (2002) shows that simple first aid training had a positive effect on OHS based behaviour of workers within the construction industry, resulting in reduction of self-other bias, where individuals become aware of their own behaviour as a causal factor in the avoidance of injury and illness. There was a reduction of worker willingness to accept and take risks, and increased concern for others. This kind of behaviour manipulation was mirrored in similar studies by Arezes & Miguel (2005) where administering learning relating to the effects of high-level noise exposure resulted in increased uptake of hearing personal protective equipment (PPE), and by Elias & Shiftan (2012) where education on driving risks resulted in elimination of the risk through an uptake in public transport use.

Stress and Insecurity

The final internal factor that influences perception of risk is the individual's levels of stress and insecurity experienced in the workplace. This can stem from constant exposure to danger within the work environment or over-education relating to a risk (Nielsen et al, 2013). Where other internal factors act to lessen the perception of a risk, stress and insecurity act to increase it to a level that is unsustainable as it begins to affect the worker's mental health (Nielsen et al, 2013). This is present in workplaces where the risk is managed to a point that incidents occur irregularly and infrequently (Nielsen et al, 2013).

Further evidence of the above can be seen through analysis of populations that are exposed to extreme risk stemming from a natural catastrophe source (Tobin et al, 2011) (Vazquez, 2001). The analysis reveals a cyclically influential relationship, where exposure and experience with the risk increase perception, which in turn increases feelings of stress and insecurity, resulting in a heightened increase in perception that is unhealthy (Tobin et al, 2011). Conversely, a similar

study found that this exact scenario in a different population has resulted in a superior level of preparedness and awareness (Vazquez, 2001).

External factors

The main external factors that published literature identifies as affecting risk perception include management support and involvement, exposure to risk and the workplace culture (Höpfl, 1994; Dester & Blockley, 1995; Williams, Zainuba & Jackson, 2002; Dicksen, et al, 2004; Arezes & Miguel, 2008; Trethewy, 2005; Caponecchia & Shiels, 2011; Tobin et al, 2011; van Manen, 2012; You, Ji & Han, 2013; Neves & Eisenberger, 2014; Kern et al, 2014).

Workplace culture

While workplace culture can initially be considered as an organisational factor that influences risk perception, the fact is that other examined factors within the organisational level are shown to actually mould the type of culture an organisation has, and this in turn acts to impact upon the way that the individual worker navigates risk within the workplace making it an essential external influence.

Arezes & Miguel (2008) show that a positive organisational safety culture directly influenced the uptake of noise protection PPE in workplaces as it created greater awareness within the workforce and increased motivation. Dester & Blockley (1995) further exemplifies the impact of workplace culture by outlining that it is a result of the demands and requirements of the client organisation, which influences the attitudes, beliefs and behaviour of managers and is in turn reflected in the performance, productivity attitudes within the frontline workforce. This occurs due to individuals being able to form a sense of identity that is in line with the culture that the organisation espouses (Höpfl, 1994).

Management Support & Involvement

If there is a positive workplace culture, management support and involvement there is increased two-way

interaction between the worker and organisation. Management support and involvement can be considered as 3 influencing factors that include providing feedback, information and fostering motivation (Trethewy, 2005), the outcome of which results in behavioural change towards a positive perception of risk as well as compliance to organisational direction (Trethewy, 2005).

Neves & Eisenberger, (2014) state that the reason for this is that presence of management fosters relationship building, ownership of organisation goals at the frontline level and, most importantly, a sense of trust in the workers that management initiatives have considered their interests equally as those of the organisation. On the manager's side, greater involvement within the frontline workforce also contributes to reduce risk uncertainty (Williams, Zainuba & Jackson, 2002).

Exposure to Risk

Consistent exposure to risk within an individual can act to develop experience with that risk, which in turn also increase perception of that particular risk (van Manen, 2012; Kern et al, 2014; Caponecchia & Shiels, 2011). However, it has also been shown, that consistent exposure to risk also increases levels of stress and insecurity, affecting the mental health of the individual (Nielsen et al, 2013; Tobin et al, 2011; Vazquez, 2001). Therefore, it can be concluded that as an external factor, exposure to risk is an influencing factor on two internal factors. This is essential knowledge in being able to manage worker risk perception and welfare through exposure. This was further exemplified by Dicksen, et al, (2004) where frontline exposure to risk had a direct negative influence on workers' health, but was not able to be recognised due to manager's perception of those risks not significant enough due to organisational distance. On the positive side, You, Ji & Han (2013) show that effective management of exposure to risk in airline pilots through education and experience increases the pilot's personal confidence to control situations where risks present themselves.

This section identified and examined a range of internal and external factors that influence an individual worker's perception of risk within their environment. It has been revealed that a number of factors, such as management support and involvement, exposure to risk and workplace culture, are dependent upon the organisation itself. The following section explores how the organisation influences these factors from its own perception of risk at a leadership level.

Risk Perception at Organisational Level

Legislation

Legislation was found to be the first and foremost factor that influenced perception of risk in the sense that it defines the level of punishment an organisation will receive if a risk eventuates, thus increasing its perception (Wadick, 2010). However, whilst legislative rules are designed with the workers welfare at its core, there seems to be a dissonance between the intention of the legislation and the reality of the workplace (Chen & Zorigt, 2013), with no recognition of the methods that an organisation has implemented to manage safety within its work environment (Wadick, 2010). Additionally, the application of legislation can be seen to be burdensome and ineffective at managing the risks that the organisation itself perceives to be high, such as communication breakdowns and interactions throughout the contracting chain (Wadick, 2010).

Stakeholder Influence

A stakeholder is a person or group of persons that can influence, or be affected, by the actions of an organisation. Whilst this includes investors, they are considered in the following section due to their direct operational impact. Stakeholders in this scenario include local communities and public authorities (Chen & Zorigt, 2013). At the community level, organisations that operate within a defined geographical location due to a local resource rely on the nearby community for its workforce. Because of this dependence, the

perception of the risks that the workforce encounters is heightened within the organisation.

This is not only because any incidents may affect a limited supply of human resources, but also because any perceived wrong-doing by the organisation can negatively affect the organisation's ability to operate near the sought after resource. (Fowler & Fowler, 2010). While the organisation is seen to be cognisant of this, stakeholders seem to be unaware of their ability to impact (Schwarzkopf, 2006).

Investor Influence

In comparison to other groups of stakeholders, investors play a far greater role in risk perception due to the simple fact that there is a monetary interest involved. Investors can take form in shape of partnering organisations from the same or similar industries or external organisations that have provided financial investment (Chen & Zorigt, 2013). Due to this investor influence in forming perception of risk is profound due to being able to directly influence the allocation of their resources (Lehtiranta, 2014). In organisational partnerships, the controlling factor in forming perception of risk is the level of dedication to OHS and the accompanying culture belongs to the organisation with the greatest control (Lehtiranta, 2014).

Integration of OHS into Organisation Management

It is a logical assumption that by integrating OHS into the overall management of the organisation, including project management activities, that the perception of the risks encountered by the organisation are affected. However, the interesting points that this review revealed is the intention behind OHS integration, usually revolves around meeting market demands (Fernández-Muñiz, Montes-Peón & Vázquez-Ordás, 2012). While this is solely a business improvement reason, it results in the organisation improving their risk perception. For small and medium enterprises (SME's), whilst integration of OHS allows for a competitive advantage, in many cases the effort

required to manage a fully-fledged OHS management system requires a level of human and time resources that reduces the organisations efficiency and in turn perception of risk (Eakin, Champoux, & MacEachen, 2010; Holmes et al, 1999; Blewett & O’Keefe, 2011; Wadick, 2010).

Market Volatility

Market volatility is an essential factor in the unfortunate sense that it determines an organisation’s commitment to integrate OHS into its management systems that affects organisational perception of risk. This is particularly evident in the SME space, where managers feel that effective OHS management systems are an item of indulgence (Wadick, 2010) as it is an additional administrative function that cannot be charged to a client. Therefore, in times of economic uncertainty and continuous change, organisations are forced to rationalise their resources, downsize and intensify their work process. Generally, this results in overhead functions such as OHS suffering as the organisation rarely recognises the positive financial impact that effective OHS management has in times where risk potential is increased due to economic stressors (Langenhan, Leka & Jain, 2013).

Immediate vs Delayed Effect of Risk

Whether a risk has an immediate effect or a delayed effect upon the workforce has also been found to influence the level of attention it receives by the organisation. This was outlined by (Holmes et al, 1999) who compared organisational perception of the risk of falls from height against the risk of developing a skin disease within its workforce. The study concluded that because falling from height is seen as immediate and controllable, a considerable amount of effort was dedicated to its managements. Conversely, the risk of skin disease was just as prevalent, but due to the fact that it has delayed effect, which is perceived to be uncontrollable, the organisation adopts a fatalistic attitude towards its management (Holmes et al, 1999).

The disconnect in the perceptions of these risks

between the organisation and its workforce can be seen in Holmes et al, (1997), where employees were found to perceive the delayed effect risks higher than their employer.

Availability of Resources

Availability of resources affects organisational perception of risk in a hierarchical manner by being the factor that influences the organisations ability to integrate OHS into its systems and also the education levels of its management through the engagement of OHS professionals. While this is yet another seemingly obvious factor, it is best represented in an environment that has limited access to these necessary resources (Micheli & Cagno, 2010), such as SMEs in the construction sub-contracting industry. These organisations generally operate as a small team of skilled tradesmen with basic administration support and whilst they do not undertake highly complex tasks, their accident rates are some of the highest in construction (Micheli & Cagno, 2010). This can largely be traced back to the lack of human and financial resources available to assist in guiding the organisation towards best practice in OHS (Wadick, 2010).

Education level of Management

The education level of management is the primary overarching factor in that higher education in OHS at the managerial level directly influences how, and if, any resources are directed towards the OHS function (Loosemore & Andonakis, 2007). Additionally, greater education levels influence integration of OHS into the management of the organisation and prioritise OHS during times of economic uncertainty due to the manager’s ability to recognise efficiency, financial and competitive benefits of an effective OHS system. Furthermore, education levels of management personnel can also affect the factors that influence risk perception of its workforce through greater participation (Geldart et al, 2010), resulting in feedback and two-way communication, as well as fostering a positive safety culture within the

workplace. While this is widely practiced in larger organisations, SMEs tend to exhibit a limited OHS knowledge base within its management largely due to the fact that, in many cases, managers are owner-operators of small operations with limited interests in the finer aspects of business administration (Loosemore & Andonakis, 2007).

Conclusions

The literature review results correlated with the set objectives, finding a number of internal factors, such as stress and experience levels, and external factors, such as workplace culture and level of exposure to risk, shaped risk perception within individual workers.

Conclusions related to objective two, which was to identify and examine management level factors that affect the perception and tolerance of risk for an organisation were that these factors were legislation, workplace safety management practices, educational level of managers in relation to occupational safety and health, how fast adverse consequences occurred and the availability of finance. Finance for risk management was influenced by the business stakeholders, investors, market status and the availability of workplace safety and health promotion resources.

Recommendations

As this literature review is potentially the start of a relatively new direction of focus in OHS research it is accepted that it only goes so far as to outline current related research without being able to state exact parameters of implementation that could be used by OHS professionals in the field. However, because this paper explores current and credible studies that define how risk perception functions, it can be seen that a change of attitude is needed if this line of risk management is to proceed. Much like the current focus on psychosocial and mental health within the workplace (Dickson et al, 2004), understanding a worker's personal stressors, goals and objectives, at any level, will contribute extensively to creating the

foundation from which further initiatives and approaches can be implemented (Marques et al, 2014) (Weber & Milliman, 1997).

Research Limitations

As research into this subject matter is still relatively unexplored, this review acts as a foundation for further targeted research. A limitation of this literature review is that it has been conducted in a general manner covering many industries without focusing on a particular industry, the size of the organisation or the perception of a specific risk. As a result there is a need for further targeted research on the perception of work related risks for specific industries and organisations.

References

- Arezes, P.M. & Miguel. A.S. (2005). Individual perception of noise exposure and hearing protection in industry. *Human Factors*. 47 (4). 683-693.
- Arezes, P.M. & Miguel. A.S. (2008). Risk perception and safety behaviour: A study in an occupational environment. *Safety Science*. 46 (2008). 900-907.
DOI:10.1016/j.ssci.2007.11.008
- Blewett, V. & O'Keeffe, V. (2011) Weighing the pig never made it heavier: Auditing OHS, social auditing as verification of process in Australia. *Safety Science*. 49 (2011). 1014-1021. DOI:10.1016/j.ssci.2010.12.010
- Caponecchia, C. & Shiels. I. (2011) Perceptions of personal vulnerability to workplace hazards in the Australian construction industry. *Journal of Safety Research*. 42 (2011). 253-258. DOI:10.1016/j.jsr.2011.06.006
- Chen, J.K.C. & Zorigt, D. (2013). Managing occupational health and safety in the mining industry. *Journal of Business Research*. 66 (2013). 2321-2331.
DOI:10.1016/j.jsr.2012.03.013
- Dester, W.S. & Blockley, D.I. (1995) Safety – Behavior and culture in construction. *Engineering, Construction and Architectural Management*. 2 (1995). 17-26.
DOI:10.1108/eb021000
- Dickson, G.C.A., Price, L., Maclaren, W.M. & Stein, W.M. (2004) Perception of risk: a study of A&E nurses and NHS managers. *Journal of Health Organisation and Management*. 18 (5). 308-320. DOI:10.1108/14777260410560857
- Eakin, J.M., Champoux, D. & MacEachen, E. (2010) Health and safety in small workplaces: Refocusing upstream. *Canadian Journal of Public Health*. 101 (2010). 529-533.
- Elias, W. & Shiftan. Y. (2012) The influence of individual's risk perception and attitudes on travel behavior. *Transportation Research Part A*. 46 (2012). 1241-1251.

- DOI:10.1016/j.tra.2012.05.013
- Fernández-Muñiz, B., Montes-Peón, J.M. & Vázquez-Ordás, C.J. (2012) Occupational risk management under the OHSAS 18001 standard: Analysis of perceptions and attitudes of certified firms. *Journal of Cleaner Production*. 24 (2012). 36-47. DOI:10.1016/j.jclepro.2011.11.008
- Fowler, S.W. & Fowler, K. (2010) Risk perception, safety behaviour, employment precarity and community attachment: the case of Newfoundland and Labrador fibreglass boatbuilding workers. *Policy and Practice in Health and Safety*. 8 (2010). 43-60.
- Geldart, S., Smith, C.A., Shannon, H.S. & Lohfeld, L. (2010). Organizational practices and workplace health and safety: A cross-sectional study in manufacturing companies. *Safety Science*. 48 (2010). 562-569. DOI: 10.1016/j.ssci.2010.01.004
- Haase, C.M. & Silbereisen, R.K. (2011) Effects of positive affect on risk perceptions in adolescence and young adulthood. *Journal of Adolescence*. 34 (2011). 29-37. DOI:10.1016/j.adolescence.2010.03.004
- Holmes, N., Lingard, H., Yesilyurt, Z. & De Munk, F. (1999). An exploratory study of meanings of risk control for long term and acute effect occupational health and safety risks in small business construction firms. *Journal of Safety Research*. 30 (4). 251-261.
- Holmes, N., Triggs, T.J., Gifford, S.M. & Dawkins, A.W. (1997). Occupational injury risk in a blue collar, small business industry: Implications for prevention. *Safety Science*. 25 (1-3). 67-78.
- Höpfel, H. (1994). Organizational transformation and the commitment to safety. *Disaster Prevention and Management*. 3 (3). 49-58. DOI:10.1108/09653569410065010
- Kern, L., Geneau, A., Laforest, S., Dumas, A., Tremblay, B., Goulet, C., Lepage, S. & Barnett, T.A. (2014) Risk perception and risk-taking among skateboarders. *Safety Science*. 62 (2014). 370-375. DOI:10.1016/j.ssci.2013.08.009
- Koh, P.P., Wong, Y.D. & Chandrasekar, P. (2014) Safety evaluation of pedestrian behaviour and violations at signalized pedestrian crossings. *Safety Science*. 70 (2014). 143-152. DOI:10.1016/j.ssci.2014.05.010
- Krallis, D & Csontos, A. (n.d.) From Risk Perception to Safe Behaviour. <https://www.sia.org.au>
- Langenhan, M.K., Leka, S. & Jain, A. (2013) Psychosocial Risks: Is Risk Management Strategic Enough in Business and Policy Making? *Safety and Health at Work*. 4 (2013). 87-94. DOI:10.1016/j.shaw.2013.04.003
- Lehtiranta, L. (2014) Risk perceptions and approaches in multi-organizations: A research review 2000–2012. *International Journal of Project Management*. 32 (2014). 640-653. DOI:10.1016/j.ijproman.2013.09.002
- Loosemore, M. & Andonakis, N. (2007) Barriers to implementing OHS reforms – The experiences of small subcontractors in the Australian Construction Industry. *International Journal of Project Management*. 25 (2007). 579-588. DOI:10.1016/j.ijproman.2007.01.015
- Marques, P.H., Jesus, V., Olea, S.A., Vairinhos, V. & Jacinto, C. (2014) The effect of alcohol and drug testing at the workplace on individual's occupational accident risk. *Safety Science*. 68 (2012). 108-120. DOI:10.1016/j.ssci.2014.03.007
- Micheli, G.J.L. & Cagno, E. (2010) Dealing with SMEs as a whole in OHS issues: Warnings from empirical evidence. *Safety Science*. 48 (2010). 729-733. DOI:10.1016/j.ssci.2010.02.010
- Mitchell, S.J. & Braithwaite, G.R. (2008) Perceptions of safety and offshore helicopter travel. *International Journal of Energy Sector Management*. 2 (4). 479-498. DOI:10.1016/17506220810919036
- Neves, P. & Eisenberger, R. (2014) Perceived organizational support and risk taking. *Journal of Managerial Psychology*. 29 (2). 187-205. DOI:10.1108/JMP-07-2011-0021
- Nielsen, M.B., Glasø, L., Matthiesen, S.B., Eid, J. & Einarsen, S. (2013) Bullying and risk: Perception as health hazards on oil rigs. *Journal of Managerial Psychology*. 28 (04). 367-383. DOI:10.1108/JMP-12-2012-0395
- Oxford Dictionaries. (n.d.) Definition of perception in English. <http://www.oxforddictionaries.com/>
- Schwarzkopf, D.L. (2006) Stakeholder perspectives and business risk perception. *Journal of Business Ethics*. 64 (2006). 327-342. DOI: 10.1007/s10551-006-0002-9
- Tobin, G.A., Whiteford, L.M., Jones, E.C., Murphy, A.D., Garren, S.J. & Padros, C.V. (2011) The role of individual well-being in risk perception and evacuation for chronic vs. acute natural hazards in Mexico. *Applied Geography*. 31 (2011). 700-711. DOI:10.1016/j.apgeog.2010.12.008
- Trethewy, R.W. (2005) The effect of feedback on risk taking in the Australian construction industry. *Journal of Engineering, Design and Technology*. 3 (2). 109-115. DOI:10.1108/17260530510815349
- Van Manen, S.M. (2014) Hazard and risk perception at Turrialba volcano (Costa Rica); Implications for disaster risk management. *Applied Geography*. 50 (2014). 63-73. DOI:10.1016/j.apgeog.2014.02.004
- Vazquez, E.L. (2001) Risk perception interactions in stress and coping facing extreme risks. *Environmental Management and Health*. 12 (2). 122-133. DOI:10.1108/09566160110389889
- Wadick, P. (2010) Safety culture among subcontractors in the domestic housing construction industry. *Structural Survey*. 28 (2). 108-120. DOI:10.1108/02630801011044217
- Weber, E.U. & Milliman, R.A. (1997) Perceived risk attitudes:

Relating risk perception to risky choice. *Management Science*. 43 (2). 123-144

Williams, S., Zainuba, M. & Jackson, R. (2002) Affective influences on risk perceptions and risk intention. *Journal of Managerial Psychology*. 18 (2). 126-137.

DOI:10.1108/02683940310465027

You, X., Ji, M. & Han, H. (2013) The effects of risk perception and flight experience on airline pilots' locus of control with regard to safety operation behaviors. *Accident Analysis and Prevention*. 57 (2013). 131-139. DOI:10.1016/j.aap.2013.03.036

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World Safety Organization(WSO)

The WSO was founded in 1975 in Manila, The Republic of the Philippines, as a result of a gathering of over 1,000 representatives of safety professionals from all continents at the First World Safety and Accident Prevention Congress. The WSO World Management Center was established in the United States of America in 1985 to be responsible for all WSO activities, the liaison with the United Nations, the co-operation with numerous Safety Councils, professional safety/environmental (and allied areas) organizations, WSO International Chapters/Offices, Member Corporations, companies, groups, societies, etc. The WSO is a not-for-profit corporation, non-sectarian, non-political movement to “Make Safety a Way of Life... Worldwide.”

World Safety Organization Activities

WSO publishes WSO Newsletters, World Safety Journal, and WSO Conference Proceedings.

WSO provides a network program linking various areas of professional expertise needed in today's international community.

WSO develops and accredits educational programs essential to national and international safety and establishes centers to support these programs.

WSO receives proposals from professional safety groups/societies for review and, if applicable, submits them to the United Nations for adoption.

WSO presents annual awards: The James K. Williams Award, Glenn E. Hudson International Award, J. Peter Cunliffe Transportation Award, Concerned Citizen, Concerned Professional, Concerned Company/Corporation, Concerned Organization, Educational Award, WSO Chapter/National Office of the Year, and Award for Achievement in Scientific Research and Development.

WSO provides recognition for safety publications, films, videos, and other training and media materials that meet the WSO required educational standards.

WSO establishes and supports divisions and committees to assist members in maintaining and updating their professional qualifications and expertise.

WSO has Chapters and National/International Offices located throughout the world, providing contact with local communities, educational institutions, and industrial entities.

The WSO organizes and provides professional support for international and national groups of experts on all continents who are available to provide expertise and immediate help in times of emergencies.

Benefits of Membership

WSO publishes the “WSO Consultants Directory” as a service to its Members and to the Professional Community. Only Certified Members may be listed.

WSO collects data on the professional skills, expertise, and experience of its Members in the WSO Expertise Bank for a reference when a request is received for professional expertise, skill, or experience.

WSO provides a network system to its Members whereby professional assistance may be requested by an individual, organization, state, or country or a personal basis. Members needing assistance may write to the WSO with a specific request, and the WSO, through its

Membership and other professional resources, will try to link the requester with a person, organization, or other resource which may be of assistance.

WSO provides all Members with a Membership Certificate for

display on their office wall and with a WSO Membership Identification Card. The WSO awards a Certificate of Honorary Membership to the corporations, companies, and other entities paying the WSO Membership and/or WSO Certification fees for their employees.

Members have access to WSO Newsletters and other membership publications of the WSO on the WSO website, and may request hard copies by contacting the WSO World Management Center. Subscription fees apply to certain publications.

Members are entitled to reduced fees at seminars, conferences, and classes given by the WSO. This includes local, regional, and international programs. When Continuing Education Units (CEUs) are applicable, an appropriate certificate is issued.

Members who attend conferences, seminars, and classes receive a Certificate of Attendance from the WSO. For individuals attending courses sponsored by the WSO, a Certificate of Completion is issued upon completion of each course.

Members receive special hotel rates when attending safety programs, conferences, etc., sponsored by the WSO.

Membership

The World Safety Organization has members who are full time professionals, executives, directors, etc., working in the safety and accident prevention fields, including university professors, private consultants, expert witnesses, researchers, safety managers, directors of training, etc. They are employees of multinational corporations, local industries, private enterprises, governments, and educational institutions. Membership in the World Safety Organization is open to all individuals and entities involved in the safety and accident prevention field, regardless of race, color, creed, ideology, religion, social status, sex, or political beliefs.

Membership Categories

Associate Membership: Individuals connected with safety and accident prevention in their work or individuals interested in the safety field, including students, interested citizens, etc.

Affiliate Membership: Safety, hazard, risk, loss, and accident prevention practitioners working as full time practitioners in the safety field. Only Affiliate Members are eligible for the WSO Certification and Registration Programs. **Institutional Membership:** Organizations, corporations, agencies, and other entities directly or indirectly involved in safety activities and other related fields. **Sustaining/Corporate Member:** Individuals, companies, corporations, organizations or other entities and selected groups, interested in the international effort to “*Make Safety A Way Of Life... Worldwide.*”

The WSO Membership Application is included on the following pages and is also available on the WSO website:
<https://worldsafety.org/application-for-wso-membership/>
<https://worldsafety.org/quick-downloads/>

World Safety Organization • Application for Membership

| | | |
|-----|----------------------------|---------------|
| () | Application Fee | \$20.00 USD |
| | Associate Membership | \$65.00 USD |
| | Affiliate Membership | \$90.00 USD |
| | Institutional Membership*) | \$195.00 USD |
| | Corporate Membership*) | \$1000.00 USD |

*) In case of institution, agency, corporation, etc., please indicate name, title, and mailing address of the authorized representative.

(Please print or type)

| | |
|---|-------------|
| NAME (last, First, Middle) <input type="checkbox"/> Mr. <input type="checkbox"/> Ms. <input type="checkbox"/> Mrs. <input type="checkbox"/> Dr. <input type="checkbox"/> <input type="checkbox"/> Engr. | |
| BIRTHDATE: | |
| POSITION/TITLE: | |
| COMPANY NAME AND ADDRESS: <input type="checkbox"/> Preferred | |
| HOME ADDRESS: <input type="checkbox"/> Preferred | |
| BUSINESS PHONE: | FAX: |
| CELL PHONE: | HOME PHONE: |
| E-MAIL ADDRESS(ES): | |
| PROFESSIONAL MEMBERSHIP(S), DESIGNATION(S), LICENSE(S): | |
| EDUCATION (degree(s) held): | |

REFERRAL

If you were referred by someone, please list his/her name(s), chapter, division, etc.:

WSO Member: _____

WSO Chapter: _____

WSO Division/Committee: _____

Other: _____

PLEASE specify your area of professional expertise. This information will be entered into the WSO "Bank of Professional Skills," which serves as a pool of information when a request for a consultant/information/expertise in a specific area of the profession is requested.

☐ Occupational Safety and Health (OS&H)

☐ Environmental Safety and Health (EH&S)

☐ Fire Safety/Science (FS&S)

☐ Safety/Loss Control Science (S&LC)

☐ Public Safety/Health (PS&H)

☐ Construction Safety (CS)

☐ Transportation Safety (TS)

☐ Industrial Hygiene (IH)

☐ Product Safety (PRO)

☐ Risk Management (RM)

☐ Hazardous (Toxic) Materials Management (HAZ)

☐ Nuclear Safety (NS)

☐ Aviation Safety (AS)

☐ Ergonomics (ERG)

☐ Petroleum (PS)

☐ Oil Wells (OW)

☐ Other: _____

PAYMENT OPTIONS

For secure Credit card payment please visit the SHOP on WSO website (<https://worldsafety.org/shop>) and select "WSO Membership Application Fee" to make your payment. You will receive an emailed invoice for the Membership Fee upon approval.

Check or Money Order payable to WSO may be mailed with application packet to: WSO-WMC, Attn: Membership Coordinator, PO Box 518, Warrensburg MO 64093 USA. International postal money orders or drafts with a U.S. routing number are acceptable for applicants outside the United States. For alternate payment arrangements, please contact WSO-WMC

Annual dues hereafter will be billed and payable on the Anniversary date of your membership. **U.S. funds only.**

By submitting this application, you are accepting that WSO use the information provided to perform an independent verification of employer, credentials, etc.

Mail or email completed form, along with current resume/OJ:

WSO World Management Center

PO Box 518 | Warrensburg, Missouri 64093 USA

Phone 661-747-3132 | FAX 661-747-2647 | membership@worldsafety.org



Student Membership Application

WORLD SAFETY ORGANIZATION

Instructions | Complete all applicable fields and mail to WSO World Management Center, PO Box 518, Warrensburg, MO 64093 USA, email to membership@worldsafety.org, or fax to 1-660-747-2647. For assistance completing this application please call 1-660-747-3132 or email questions to membership@worldsafety.org.

Membership Level I

College/University Student Membership- FREE

You will receive all member benefits including subscriptions to WSO World Safety Journal and WSO Newsletter, as well as access to WSO's Mentor Program.

Last Name/Family Name

First Name/Given Name

Initial

OM OF
(Gender)

Birthdate MM / DD / YYYY (Application must include date of birth)

Current Street Address ☐ On Campus ☐ Off Campus *All addresses must be a permanent residence.*

City

State/Province

County

Zip/Postal Code

Telephone Number (include area code)

(Type)

Permanent Street Address

City

State/Province

County

Zip/Postal Code

Telephone Number (include area code)

(Type)

Send mail to: ☐ Current Address ☐ Permanent Address

Email Address(es)

COLLEGE/UNIVERSITY STUDENT

Category: ☐ Undergraduate ☐ Graduate/Post-Graduate

Degree(s) Sought/Obtained

Name of College/University

Campus

If you were referred by someone, please list name(s), chapter, division, etc.:

WSO Member: _____

WSO Chapter/National Office: _____

WSO Division/Committee: _____

Other: _____

What Interests You?

Please specify your area(s) of interest. These areas of interest will allow you to connect with others who share similar interests throughout the world.

- ☐ Occupational Safety and Health (OS&H) ☐ Environmental Safety and Health (EH&S) ☐ Fire Safety/Science (FS&S) ☐ Safety Assessment/Control Science (S&LC) ☐ Public Safety/Health (PS&H) ☐ Construction Safety (CS) ☐ Transportation Safety (TS) ☐ Industrial Hygiene (IH) ☐ Product Safety (PS) ☐ Risk Management (RM) ☐ Hazardous (Toxic) Materials Management (HAZ) ☐ Nuclear Safety (NS) ☐ Aviation Safety (AS) ☐ Ergonomics (ERG) ☐ Petroleum (PS) ☐ Oil Wrecks (OW) ☐ Other: _____

Required Signatures & Permissions

I subscribe to the above record and when applicable will be governed by the

Constitution and By-Laws of WSO and its Code of Ethics as it applies to a member. I fill in the membership agreement to protect the objectives of the WSO wherever and whenever possible.

X

Applicant Signature

Date

FORMID/HIGH SCHOOLERSONY: WSO subscribes to the Family Educational Rights and Privacy Act (FERPA) prohibiting the disclosure of student privacy and information. WSO may disclose "direct" information such as a student's name, WSO student chapter affiliation, name of school, grade in school, etc., with the approval of the individual. WSO Newsletters, Newsflashes, eNews on WSO website and on WSO's social media accounts.

☐ My student has permission to participate as outlined above

☐ My student has permission to participate with exclusions:

WSO Student Chapter Mentor Signature
PF APPUCABALE]

Date



WSO National and International **Offices and Directors**

WSO National Office for Australia

Dr. Janis Jansz, Director

c/o Curtin University

Phone: (618)9266-3006; Fax: (618)9266-2958

Contact: j.jansz@curtin.edu.au

WSO National Office for Austria

Dr. Majid Alizadeh, Director

c/o Payesh System Mehr Engineering Company

Contact: majidealizadeh@gmail.com

WSO National Office for Cameroon

Mr. Clement Bantar Nyong, Director

c/o Cameroon Safety Services

Contact: info_wso@cameroonsafetyservices.com

WSO National Office for Canada

Mr. Michael Brown, Director

c/o Apex One Management Group

Contact: michael.brown@worldsafetycanada.ca

andrea.shadgett@worldsafetycanada.ca

emmanuel.sarmiento@worldsafetycanada.ca

Website: www.worldsafetycanada.ca

WSO National Office for Ghana

Mr. Peter Oko Ahunah, Director

c/o Ghana National Fire Service

Contact: pahunah23@gmail.com

WSO National Office for Guam

Mr. James H. Akin, Director

c/o Safeworx Training Solutions and Consulting

Contact: safeworxtsc@icloud.com

WSO National Office for India

Mr. C. Kannan, Director

c/o Indian Society of Safety Engineers (ISSE)

Contact: support@worldsafety.org.in

Website: www.worldsafety.org.in

WSO National Office for Indonesia

Mr. Soehatman Ramli, Director

c/o Prosafe Institute

Contact: soehatman@prosafe.co.id

soehatmanramli@yahoo.com

WSO National Office for Iran

Mrs. Fatemeh Gilani, Director

c/o Payesh System Mehr Engineering Company

Contact: gilani@imsiran.ir

WSO National Office for Iraq

Dr. Eng. Khaldon Waled Suliman, Director

c/o NAYA Engineering Services & Training

Contact: naya_engineering_services@yahoo.com

WSO National Office for Lebanon

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c/o Ministry of Transportation

Contact: elias.choueiri@gmail.com

WSO National Office for Myanmar

Mr. Win Bo, Director

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Phone: (95)936091909

Contact: winbo@osheservices.com

WSO National Office for Nigeria

Mr. Olalokun Soji Solomon, Director

c/o Danarich Creative Concept Limited

Phone: (234) 08121697235

Contact: info@worldsafety.org.ng

Website: www.worldsafety.org.ng

WSO National Office for Pakistan

Mr. Syed Tayyeb Hussain, Director

c/o Greenwich Training & Consulting

Contact: doctimes@gmail.com

WSO International Office for Philippines

Eng. Alfredo A. De La Rosa, Jr., Director

Phone: (63) 2 709-1535, (63) 2 709-1738

Fax: (63) 2 709-1737

Contact: info@wsophil.org

WSO National Office for Qatar

Mr. Allan N. Milagrosa, Director

c/o Bright Services

Contact: dolphin_ems@yahoo.com

WSO National Office for Saudi Arabia (KSA)

Mr. Garry A. Villamil, Director

c/o The Academy of Sciences for Medical Education

Contact: director@worldsafetygcc.com; villamga@gmail.com

Website: www.worldsafetygcc.com

WSO National Office for Taiwan, Republic of China

Dr. Shuh Woei Yu, Director

c/o Safety and Health Technology Center/SAHTECH

Contact: swyu@sahtech.org

WSO National Office for Vietnam

Mr. Binh Pham, Director

Contact: binh@worldsafety.org.vn

Website: www.worldsafety.org.vn

World Safety Organization Code of Ethics

*Members of the WSO,
by virtue of their acceptance of membership into the
WSO,
are bound to the following Code of Ethics
regarding their activities associated with the
WSO:*



Members must be responsible for ethical and professional conduct in relationships with clients, employers, associates, and the public.



Members must be responsible for professional competence in performance of all their professional activities.



Members must be responsible for the protection of professional interest, reputation, and good name of any deserving WSO member or member of other professional organization involved in safety or associate disciplines.



Members must be dedicated to professional development of new members in the safety profession and associated disciplines.



Members must be responsible for their complete sincerity in professional service to the world.



Members must be responsible for continuing improvement and development of professional competencies in safety and associated disciplines.



Members must be responsible for their professional efforts to support the WSO motto:

“Making Safety a Way of Life...Worldwide.”



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editorialstaff@worldsafety.org | j.jansz@curtin.edu.au

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