

COMPARATIVE STUDY OF WORK-RELATED FACTORS AFFECTING MENTAL WELL-BEING OF MALE AND FEMALE CONSTRUCTION WORKERS IN AUSTRALIA

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ABSTRACT

The construction industry is long perceived as physically demanding, and less consideration has been given to the mental well-being of the construction workers. The increasing number of mental health concerns urges the research to expand their focus from work health, safety and accident prevention to the “physio-social effects” on workers’ well-being. Hence, this research aims to explore the effect of work-related factors on the mental well-being of male and female construction workers. After a thorough literature review to set the background, a qualitative research approach was adopted as the methodology. Sixteen participants across two cases were interviewed, and the sample is an equal representation of male and female construction workers in Australia. Factors affecting mental well-being are recognised under five themes through the content analysis of the case study results, including the machoism characteristics of the industry culture; the high-risk and fast-paced work environment; financial stability and financial literacy; uneven workload and unconventionally long working hours; and the involvement of the employer’s management in reassuring the mental well-being. The key implication is that the same inherent machismo cultural characteristics of the Australian construction industry distinctly affect the mental well-being of male and female construction workers. The unpredictability of casual and contract-based appointments causes low job security and financial stability among male workers leading to financial stress. The current study emphasises that a one-stop approach to address the mental health issues of male and female construction workers is ineffective and proposes further in-depth research under the emerged themes of the research.

Keywords: Australia; Construction Workers; Female; Male; Mental Well-being; Work-Related Factors.

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1. INTRODUCTION

Society is one of the three main pillars of sustainability. The concept of social equity distributes well-being over space, ensuring the fair treatment of all members of society and promoting spatial sustainability of a well-being decision (Summers & Smith, 2014). Discussing the socio-economic and cultural implications of built environment sustainability would be prolific when equal consideration is given to people working in the construction industry. As one of the largest industries in Australia, the construction sector has over 1.15 million employees (Australian Bureau of Statistics [ABS], 2020). With its continuous growth, this number will continue to rise. Therefore, the mental well-being of millions of employees is vital to ensure a safe, comfortable and sustainable work environment. However, underlying issues in the construction industry affect the workers' mental well-being, with suicide rates for workers in construction being 80% higher than the general working population (Maheen, LaMontagne & King 2020). From this perspective, this study compares work-related factors affecting the mental well-being of male and female construction workers in Australia.

2. LITERATURE REVIEW

Mental health is “a state of well-being in which every individual realises their own potential, can cope with the normal stresses of life, can work productively and fruitfully, and can make a contribution to their community” (World Health Organisation, 2022). Previous studies identify two avenues of mental health based on the “context-free” and “context-specific” outcomes (Sun et al., 2022). Context-free mental well-being considers the general mental health of an individual. In contrast, context-specific refers to the education or work-related mental health issues governed by specific factors (Sun et al., 2022). The work-related factors of the construction workers can also be considered as the “context-specific” mental health of the individuals in the construction with context-specific outcomes such as job burnout, work-related anxiety, and work-related depression (Schonfeld et al., 2019).

However, mental health and well-being are often overlooked in the construction industry due to stigma and workplace ethos (Hon, 2021). American Society of Civil Engineers (ASCE) identified work-related factors associated with worker well-being, such as job demand, lack of work support, work hazards and workplace injustice (Chan, Nwaogu & Naslund 2020). Similar factors were identified, including low job resources, high cognitive demand, long work hours, and job security (Hon, 2021). Bowen et al. (2014) claim that these factors appear consistent between male and female construction workers and recognise that females face unique challenges due to direct and indirect discrimination. However, Ness et al. (2012) highlight that the mental well-being of female workers requires definite sensitivity, where 99% of the construction workers are from the male population. The specific problem in the construction industry is that mental health and worker mental well-being issues are not openly discussed or recognised to their true magnitude and prevalence for both female and male employees. If the construction industry became proactive and more open-minded about mental health, projects would be more successful as construction workers would have fewer altercations, and communication would be apparent.

This research aims to uncover the work-related factors affecting the mental well-being of male and female workers within the construction industry and provide insight into their effects and severity between the genders. Due to the industry being male-dominated, female workers and their mental well-being are often unrecognised. Hence, the conceptual framework in Figure 1 is used to guide the research.

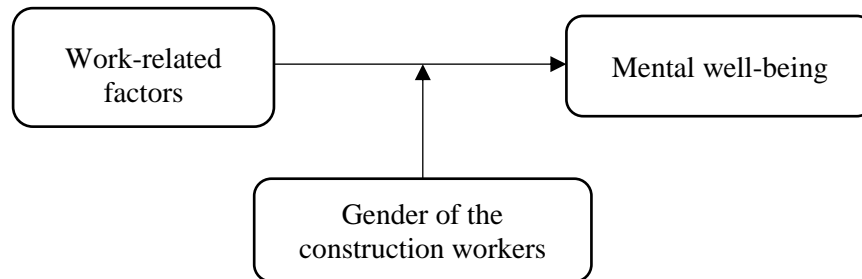


Figure 1: Conceptual model used to guide the case study research

Likewise, the study considers both genders equally and compares the work-related factors affecting their mental well-being. This study aims to highlight and bring awareness to an overlooked issue that may affect thousands of Australian construction workers. Therefore, this study is essential, as it can potentially assist in establishing strategies to improve mental well-being and health and prevent this issue from further affecting the industry and its workers. Hence, the research problem stands as,

“What is the effect of work-related factors on the mental well-being of male and female construction site workers?”

By addressing this issue, the research will increase awareness of the matter within the construction industry. It is anticipated that the findings will assist in developing prevention strategies to improve the mental well-being of workers within the industry.

3. RESEARCH METHODOLOGY

The primary research method was the implementation of explorative case studies. Case studies allow for a deeper exploration and understanding of complex issues (Zainal, 2007). Zainal also explains that case studies effectively present data from real-life situations and provide better insights into the behaviours of the subjects of focus, as they allow researchers to go beyond the quantitative statistical results.

Gustafsson (2017) explains that a multiple case study approach allows researchers to examine various issues to understand the similarities and differences between the points. A survey from Gustafsson (2017) states that findings from multiple case studies are more measured, robust, and reliable. The research team conducted and analysed two cases as part of the explorative case study method. Selection criteria of the cases incorporate that the selected organisation must be a tier 2 construction company; must be a construction company that is building, subcontracting, and managing commercial or industrial buildings; and must be a construction company with projects between \$500,000 - \$50,000,000. Two organisations out of the organisations that fulfil all the three selection criteria were considered as the case studies. Criterion ensured that cases with a broader representation of the Australian construction industry were chosen, that the research participants had an in-depth understanding of the work-related factors and culture affecting mental well-being within the construction industry, and that sufficient and

quality data was collected. The selected organisations are identified as Cases A and B in the subsequent sections.

Interviews were the primary research method for data collection when undertaking the current research. Interviews were an effective qualitative research method, as they allowed the researchers to learn about the world of others through accurate understanding, which may sometimes be elusive (Qu & Dumay, 2011). Qu and Dumay (2011) also state that a well-planned interview approach can provide a rich data set. Therefore, to implement this method, the research team developed and followed semi-structured interview guidelines. Liamputtong (2019) describes a semi-structured interview as “an interview to obtain descriptions of the interviewee’s world concerning interpreting the meaning of the described phenomena”. In a semi-structured interview guideline, the questions were kept open, and the interviewee could freely express their views while still focusing on the research topic. The demographic distribution of the interviewed participants is demonstrated in Table 1. The research team set out the goal of interviewing 16 participants, 8 participants from each organisation, containing four female and four male participants.

Table 1: Demographic distribution of the participants

	Participant Code	Organisation	Male Or Female	Role	Age	Industry Experience
CASE A	APM1	OA	Male	Concreter	38	20
	APF2	OA	Female	Project Manager	45	24
	APM3	OA	Male	Site Supervisor	45	20
	APF4	OA	Female	Quality Surveyor	59	20
	APM5	OA	Male	Project Manager	36	13
	APF6	OA	Female	Surveyor	25	5
	APM7	OA	Male	Operator	55	6
	APF8	OA	Female	Operator	28	5
CASE B	BPM1	OB	Male	Truck Driver	52	9
	BPF2	OB	Female	Project Coordinator	57	12
	BPM3	OB	Male	Traffic Control Officer	34	10
	BPF4	OB	Female	Boiler Maker	18	6
	BPM5	OB	Male	Accountant	38	9
	BPF6	OB	Female	Electrician	34	11
	BPM7	OB	Male	Electrician	20	7
	BPF8	OB	Female	Project Manager	43	12

Each participant was assigned a code indicating the case and the gender (APM1: Participant No.1 from Case A, Male; APF2: Participant No.2 from Case A, Female). The interview data was qualitative. Hence a thematic analysis was implemented to analyse the data. Braun and Clarke (2021) define thematic analysis as qualitative research used to analyse patterns and themes related to the data. By providing a systematic element to data analysis, a thematic approach allows researchers to accurately determine the relationships between concepts and tell them to the replicated data (Braun & Clarke,2021). The coded

interview data was assigned a reference consisting of the participant code and the case (APM1, OA) for the thematic analysis and cross reference purposes.

4. CASE STUDY FINDINGS

The case study findings in the subsequent section provide an embedded cross-case analysis of the construction workers of the two case studies.

4.1 THE MACHOISM CHARACTERISTICS OF THE INDUSTRY CULTURE

Participant from Organisation A indicated that the construction industry has mostly stayed the same over the past years and is still tackling macho culture (APM1, OA). Compared to the past generations, it was expressed that the culture was very 'macho', and males that spoke about their emotions were shown to be 'weak' or 'feminine'. APM3 from Organisation A also agreed with APM1 as he explained that in the past years, "*the masculine culture affected the ability for males to talk about mental health, as males were expected to uphold the tough persona*". Participant APF4 further extends on the change of culture due to the interaction of females by conveying that "*males are more alert when females are onsite and tend to watch how they talk and act, to ensure that the females are not offended*" (OA, APF4). While many workers had difficulty overcoming the stereotypical tough male mentality of the construction industry in the past, those of different ethnicities also had to battle the challenges of fitting in. APF2, a male with a Philippine background, expressed that in his early days, due to the industry's lack of diversity and being predominately white, he felt that he did not fit in (OA, APF2). Women in the construction industry find themselves having to adjust to this masculine culture that has been ingrained into the industry over generations of predominately male workers. APM7 said that "*it being such a male-dominated industry, you have to be fairly open-minded, so there is a lot of swearing a lot of cursing*" and "*you can't be too precious, you have to let that slide because that's all these guys have ever known*" (OA, APM7). APF8 support this as she stated, "*it might be a bit confronting or too much, which might lead to them feeling uncomfortable and develop mental health issues*" (OA, APF8). In this statement, she refers to how the masculine culture created by the workers can be confronting and uncomfortable for female workers who are new to the industry and have not been exposed to this type of culture.

The culture that Case B participants experienced followed a trend, with many participants experiencing a toxic culture. Participant BPM3 stated that a "*terrible toxic masculinity problem and had witnessed people breakdown from a combination of bullying and extreme heat*" (OB, BPF2) shows a highly toxic culture within the construction industry. The interviews suggest that there is still an 'old school' culture presence contributing to the toxic culture, with participant BPF4 stating, "*Older bosses are kind of stricter and older traits*" (OB, BPF4, Q5), showing an unaccepting culture towards the new generations of construction workers. This provides an insight that a detrimental culture still exists within the industry and impacts construction workers. When considering the participant responses regarding culture in the workplace, it identified that the 'old school' communication styles and the attitude/empathy towards colleagues are dismal. Participant BPF8 stated, "*I try to avoid comments like that; you need thick skin to work in this industry*" (OB, BPF8). Furthermore, BPF8 stated, "*Management tells me that is who they are, and they cannot modify their behaviour*" (OB, BPF8, Q7). Both comments

are alarming when considering the workplace culture, as acceptance of this behaviour is not the appropriate solution.

In both Case A and Case B the machoism characteristics of the organisational culture are observed. However, in Case B, most participants were aware of the toxicity of the macho culture and demonstrated an interest in changing it for the better. In contrast, in Case A participants find that the culture of their organisation is a constant which they must adapt and adjust.

4.2 THE HIGH-RISK AND FAST-PACED WORK ENVIRONMENT

APM1 works in concrete construction, which involves workers working simultaneously with cranes, concrete pumps, mobile plants, and deep excavation. He explains that the environment is very stressful, high risk and requires workers to move quickly and effectively, which can result in complacency and unfollowing safety procedures. Participant APF2 has the occupation of a site supervisor and expresses that his work environment is very stressful, with the stress originating from "*job responsibility, timeline, client objectives and dealing with a significant amount of site workers*" (OA, APF4). Participants APM5, APM7, and APF8 are involved in civil works and have said their work environment is "*high risk*" and "*demanding*". APF8 stated, "*The high-risk and fast-paced nature of the work environment could also affect people's mental health because they might not handle the pressure very well*" (OA, APF8, Q7). This notion was supported by participants APM5 and APM7, who said they have felt stressed due to their work environment and its high-risk nature. Similarly, the competitive work environment created by other workers can also affect the mental health and well-being of female workers. APF6 has said that "*It is intimidating when I go onsite, I am expected to work as twice as hard as men especially as a woman in a male-dominated work environment*" (OA, APF6). Therefore, the environment created by male workers can be intimidating or uninviting for female workers. APF8 supported this by stating, "*You do the get the odd few workers who are stuck in their ways which might make the environment a bit less enjoyable*" (OA, APF8).

Similarly in Case B, the environments that construction workers are exposed to are often high-risk and harsh; this has the potential to evoke symptoms of stress. This was supported by participant BPM3 who stated a "*high-stress environment that can be unique from other industries*" (OB, BPM3) regarding the work environment; this quote produces an alarming response regarding the stress levels construction workers experience. BPM7 further stated, "*performing activities such as commissioning may look easy and stress-free however, when the equipment is demanded to be placed back into service, then a component fails, the pressure and stress levels become very high*" (OB, BPM7). As stress and pressure impact an individual's mental well-being, there is a link between the work environment and an individual's mental well-being.

Peculiarly, unlike the female participants of Case A the female participants of Case B have not highlighted the harsh, dangerous, and tiring nature of the work environment as a factor that affect their mental wellbeing.

4.3 FINANCIAL STABILITY AND FINANCIAL LITERACY

It was found that financial gain from working in construction was the driving force for the female participants in entering the industry. APF8 stated that "*I think money is*

another factor too because the main reason we are working these long work hours is to make money” (OA, APF8). On the contrary, the majority of the female participants found that the lack of financial stability due to their work had negative impacts on mental well-being. APF6 stated that *“not making enough money and raising the cost of living definitely affects your mental health, especially if you need to provide for your family”* (OA, APF6). Therefore, financial hardship is a prominent factor affecting female workers’ mental well-being, as it limits their ability to provide for themselves or their families. As a result, they are forced to work more hours to increase their income.

This was also found to be a heightened factor in the recent climate of the COVID-19 pandemic, where there were many financial uncertainties factored around the industry, which extended to construction workers. This is shown via participant BPF2 stating, *“It was quite stressful trying to keep the project on budget during the covid pandemic”* (OB, BPF2), representing the financial pressures that would extend to the construction industry workers. The pandemic has placed many financial uncertainties and made the management of projects extremely difficult.

In this light, workers undergoing financial pressures are found to overcommit themselves, place themselves in unsafe environments, and undertake off-the-book tasks for the potential to earn more money. This is a direct result of stress from financial pressure, as the stress can blind workers from making ethical, safe, and acceptable decisions. However, it is important to understand that many unknown factors, such as marital status and lifestyle, have not been considered and can easily influence an individual’s mental well-being.

4.4 UNEVEN WORKLOAD AND UNCONVENTIONALLY LONG WORKING HOURS

In conjunction with a shortage of materials and tight project deadlines, construction workers are found to be overwhelmed and experiencing higher levels of stress. APF2 expresses this precisely by conveying, *“All the programs and schedules at the moment are getting tighter and tighter, so it is getting pretty stressful ensuring that all construction activities are on the path”* (OA, APM1). Higher responsibility can result in a higher workload, resulting in longer working hours. Regarding working hours, APF2 elaborates that his occupation does not have a “clock off time” and that his responsibilities are not confined to the project site. He feels obligated to answer phone calls and emails outside working hours to ensure that no critical information is missed. Therefore, it is depicted that long working hours can significantly impact one’s mental health as it can impact life outside of work, overwork mental capacities, and cause exhaustion/complacency. These long work hours can take a toll on the worker’s physical and mental health, as described by APF8 who stated that *“I’m working 10-hour days for sometimes 6 days a week, so it’s definitely exhausting both physically and mentally”* (OA, APF8). Working 10-hour days consecutively for multiple days affected all participants, as they felt that work was consuming their life. APF6 stated that *“Working the long hours obviously takes away from your own life outside of work and everyone needs that downtime to relax and enjoy life with friends and family”* (OA, APF6). The female participants found the workload coupled with restricted time frames to complete the works to be a major factor in stress and poor mental health. APM5 stated that *“The limited amount of time we can do things and the amount of work that needs to be done, definitely adds*

pressure on an already stressful environment” (OA, APM5). APF8 also found that “pressure to meet deadlines” (OA, APF8).

Participants BPF2 that there often is an “increase in workloads near the completion of projects to ensure it made its deadline” (OB, BPF2), showing that there can be quite a demand on construction workers sometimes. Participant BPF4 supported this notion stating that “nightshift limits my ability to have a social life” (OB, BPF4), showing the impacts that long work hours can have on construction worker, especially in their personal lives. Long working hours was not identified as a predominated factor in influencing the mental well-being of the female construction workers, this was predominately due to the role of each female participant. As the participants (BPM5, BPF6, BPM7 and BPF8) were predominately shift workers or 9-5 workers. They did not experience huge workloads for long periods of time.

4.5 THE INVOLVEMENT OF THE EMPLOYER’S MANAGEMENT IN REASSURING THE MENTAL WELL-BEING

Management systems within construction organisations and subcontractors play a vital role in developing a physically and mentally safe environment for all construction workers. APF4 conveys that in his experience, a management system that actively involves subcontracts positively impacts the project outcome and improves individuals' mental well-being, as they feel heard and respected. “Simple actions from management such as allowing a worker to feel heard and respected significantly improves the work environment, workmanship quality and makes coming to work more appealing” (OA, APM3). APM1 expresses that his occupation (concreter) is very weather dependent and that it is sometimes challenging to meet organisation deadlines.

All female participants found the management within their company to be supportive and approachable, with no participants voicing any problems regarding the management system. They found the organisation to have adequate support options regarding mental health and found it easy to contact management if they required help. Participants all showed awareness about mental health and often stated that a particular element of their job could lead to poor mental health. A response regarding the management systems from participant BPF2 stated that the “team leader sometimes mentioned it that support throughout the avenues” (OB, BPM1). This suggests that there is support offered by the company through the management system. One participant BPM3 stated that they “have not actually done so I expect better, more supportive results from my outside-of-work friends” (OB, BPM3). This suggests that there is discomfort towards seeking support internally within the industry for this individual. However, from a wholistic approach, an experienced participant, BPF8, stated, “Due to the size of larger tier 1 construction contracts, the larger construction companies can afford good mental health programs, whereas smaller tier 2/3 construction companies struggle to have the cash flow to invest into mental health programs” (OB, BPF8). Hence, because of this, smaller construction companies cannot provide adequate mental health programs, which impacts an individual’s ability to seek help.

5. DISCUSSION

In contrast to other industries, construction is vastly falling behind in ensuring the social equity of the construction workers, especially on the special sustainability of well-being

decisions. The construction industry holds on to the stigma surrounding mainstream forms of treatment for those struggling with their mental health or even depression (Milner et al., 2015). Thus, the industry requires a complete mental and physical commitment to ensure that all construction activities are performed safely and that all workers remain unharmed. The analysis of the case study result features five work-related factors that affect the mental well-being of construction workers.

Regardless of gender, working in the construction industry can typically provide a stressful work environment and concern workers' well-being. As is well documented within the construction industry, it is not uncommon that construction workers can be required to work 12-hour days, six days a week which places a huge amount of strain on an individual (Hon, 2021). The macho and male-dominated construction culture plays a crucial role in the worker's mental well-being, as it can create a hostile, unsafe, and peer-pressured environment. The communication issues with the upper management have left construction workers feeling individually responsible for project progress and dedicated to workload beyond their capacity. These findings are supported by (Powell et al., 2018), who claimed that the masculine culture encourages male and female workers to perceive the notion of enduring pain as necessary and suppress their mental health to adhere to the masculine culture. The management team must also be approachable to allow construction workers to feel comfortable speaking up about site or individual concerns. This approachable relationship can be formed by treating subcontractors equally and conversing with them daily. Powell et al. (2018) convey that long working hours in a union with high cognitive demanding tasks, physical labour and exposure to hazardous activities can leave construction workers feeling emotionally drained. The current study emphasises that this seeps into external factors such as family and lifestyle as male and female workers are left feeling time-poor and exhausted. Eventually, poor worker well-being stemming from work-related factors impacts a worker's personal life, magnifying a worker's negative mindset (Langdon & Sawang, 2018). The findings of the study show that the same work-related factors affect the mental well-being of male and female construction workers differently.

For instance, male construction workers, find the macho culture in the construction industry is a barrier to opening up about mental health issues. Male employees often face a negative stigma that mental health issues are identified as a weakness. The need to prove their masculinity place men in challenging positions, and they tend to take unnecessary risk in the already risky construction work environment. Moreover, male construction workers often express a negative turn on mental health due to financial stress than their female counterparts. Contrariwise, unhealthy mental well-being can cause males to be distracted, sleep-deprived, unstable, unbearable, and inattentive (Boschman et al., 2013), all factors leading to safety incidents and accidents. A common observation is that male construction workers rarely seek management support to handle their mental health-related issues. Hence, Bowen et al. (2014) conclude that while gender can be linked to workers' coping mechanisms.

On the other hand, the exact machoism culture causes sexual harassment, bullying, and role ambiguity among female construction workers in the construction site setting. A previous study (Sunindijo & Kamardeen, 2017) found that females within the industry have a higher impact on mental health through poor relationships with supervisors, bullying, and role ambiguity. In addition to these psychological hazards, female workers are more susceptible to intimidation, confrontation, excessive monitoring, 'fitting in', and

sexual harassment due to fighting gender norms within the industry (Hashmi et al., 2022). Moreover, the study outlines that female face lower job satisfaction and experience high levels of conflict balancing work and life commitment.

6. CONCLUSIONS

In essence, this study builds upon knowledge surrounding workers' well-being in the construction industry. It explores the work-related factors associated with worker well-being for male and female construction workers. The key findings of the study are three-fold. The study identifies work-related factors such as machoism cultural characteristics, high-risk work environment, pressure from time constraints and uneven workload as the most popular work-related factors contributing to poor mental well-being for both male and female construction workers in the Australian construction industry. The study elaborates on an important aspect of the machoism culture of the construction industry. Even though the general notion is that male construction workers are comfortable within a macho culture, the study points out that male workers have an added pressure to maintain their "expected behaviour". Lastly, the findings stressed the importance of an accessible management system in organisations that make workers feel heard and respected to improve the mental well-being of individuals.

Hence, it is recommended to develop a better support system specifically designed for construction workers considering the implications of machoism characteristics of the industry culture and the high-risk fast-paced work environment highlighted in the study. The research has also indirectly identified some current management systems that aim to support construction workers. The philosophy is that a more detailed understanding of factors affecting the mental well-being of construction workers will contribute to changing the culture allowing for it to be more inclusive for all.

The research covers a wide array of interviewees with office-based roles and site-based roles. It is a limitation of the current study. Another limitation is the quality of responses provided by the participants, as the research is aimed at a private and sensitive topic, an individual's mental well-being. Some participants were hesitant to provide detailed information regarding their experiences. Further research can be conducted on office or site-based roles and how male or female construction workers perceive work-related factors on their mental health. The research could also be expanded upon by looking into a diverse range of various tiers of construction companies within South Australia. Collecting a range of data from various-sized organisations would build a more accurate picture of the construction industry stemming from small businesses to multinational corporations. This would result in the concluded analysis being broader than the current research's limited representation of the industry and is a recommendation for further research. Other contributing factors which could be used to expand the research would be to further explain the different geographical and cultural variants of the construction industry. The findings within this research were limited to the confines of South Australian projects. They could be expanded to include other states and territories within Australia to provide a more accurate conclusion about the industry within this country.

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