

ATTRACTING AND RETAINING WOMEN PROFESSIONALS IN CONSTRUCTION: A WORK-STRESS MANAGEMENT PERSPECTIVE

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Construction is one of the most male-dominated industries and excessive work stress is blamed for its failure to attract and retain women professionals. This research investigates the causes of excessive work stress experienced by women construction professionals and their impacts on the psychological wellbeing of women professionals. An online questionnaire survey was conducted in the Australian construction industry, in which 119 responses were obtained from female construction professionals. Descriptive statistics were first computed to rank causes of work stress for women construction professionals, which revealed that the topmost causes are: time pressure, excessive workload and long work hours. The t-test analyses were then conducted to compare the psychological wellbeing of this cohort with the Australian general population and it was found that female construction professionals suffer significantly higher depression, anxiety and acute stress. Finally, correlation analyses were performed to investigate the associations between the stressors and psychological health issues among female construction professionals; 10 out of 38 stressors studied showed significant correlations with the psychological health issues. The findings inform construction organisations of management and employment aspects that they need to revisit for creating more conducive work environments and cultures that support attracting and retaining women professionals.

Keywords: gender diversity, women professionals, wellbeing, work stress

INTRODUCTION

Gender diversity has the potential to bring about many business benefits to organisations by improving corporate social responsibility (Soares *et al*, 2011), fostering novel solutions leading to radical innovation (Díaz-García *et al*, 2013), increasing productivity (Sahoo and Lenka, 2016) and improving financial performance (Campbell and Mínguez-Vera, 2008). Furthermore, an increase of female participation has the potential to reduce the occurrence of conflicts (Loosemore and Galea, 2008) and alleviate skill shortages prevalent in the construction industry. Despite these benefits, the construction industry is still a male-dominated industry. In Australia, for instance, women account for only 11% of the workforce and they leave the industry at a much higher rate than men (Turnbull, 2016).

The National Association of Women in Construction (NAWIC, 2013) proposed that the construction industry must promote itself to women at an early stage to help them make an informed decision about pursuing a career in construction. The industry should also

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promote female role models who can dispel negative perceptions about the industry. Support programs, such as mentorship, sponsorship, career development, flexible hours and diverse forms of networking, should be introduced and then strengthened by genuine commitment from the top management. In a similar vein, the Australian Human Rights Commission (2013) developed a toolkit of strategies to increase women's representation in male-dominated industries, including the construction industry. The toolkit recommends implementing an integrated gender diversity strategy led by the top management; attracting women by addressing the negative perceptions of and promoting the opportunities offered by the industry; diverse recruitment strategies using merit-based processes; organisational culture that embraces diversity and flexibility; and career development based on a transparent and merit-based approach. Despite all these efforts, the construction industry still fails to attract and retain women in the workforce.

Research has indicated that women in construction experience high levels of work stress due to unique challenges they face (Bowen *et al*, 2014), which lead to low job satisfaction, poor health and wellbeing and high turnover intentions (Sang *et al*, 2007). Therefore, the construction industry should understand and address the unique work stress challenges faced by women if they want to attract and retain them. To this end, this research addressed two research questions: (1) Do female construction professionals suffer more severe work-related psychological symptoms than the general population? (2) What are the critical work stressors that impact on the psychological wellbeing of female construction professionals?

Literature Review

Nearly 70% of construction professionals suffer from psychological injuries such as anxiety, depression and stress-induced burnout/acute stress as a direct consequence of working in the construction industry (Campbell, 2006). The work stressors in the construction industry can be classified into four factors: physical, organisational, job demand and job role.

The physical factors are mainly related to the physical work environment and conditions. People working in construction projects are exposed to the external environment when working on site, such as exposure to the sun, humidity levels, high or low temperature, rain, snow, etc. In addition, there are poor workplace conditions that increase work stress, such as inadequate ventilation, poor lighting, excessive noise and unsafe work conditions.

There are organisational factors that can promote the occurrence of work-related stress. Work culture, or the system of shared belief and values that develops within an organisation, is a significant factor that influences attitudes, directs behaviours and establishes performance expectations and the motivation to fulfil them (Schermerhorn *et al*, 2014). Reflected in the leadership style and the conduct of managers and supervisors, this culture can affect employees' stress levels and their commitment to the organisation (Samuel, 2015). Work culture also affects the norms in the workplace and can unconsciously nurture negative norms, such as discrimination and harassment. Women and ethnic minorities in the construction industry have suffered from workplace discrimination, particularly in relation to a lack of career progression (Arditi *et al*, 2013; Dainty and Lingard, 2006), while sexual harassment is also an entrenched feature of life on construction sites (Watts, 2007). Furthermore, the involvement of various stakeholders who have differing agendas is a fertile ground for conflicts. Coupled with competitive tendering that can worsen the already tense work environments, it is easy for the blaming game to begin when mistakes happen, which will bring additional pressure

for construction professionals (Zou and Sunindijo, 2015). Other organisational factors that should be considered are inadequate staffing, poor planning, lack of training and lack of feedback (Campbell, 2006).

Job demand factors, such as too much work, working long hours, high job pressure and unrealistic deadlines, are common work stressors in construction (Campbell, 2006). The construction industry expects its professionals to work long hours even though this practice has adverse impacts on productivity and performance. They are also expected to work non-standard work schedules, including on weekends (Lingard *et al*, 2010). Long work hours and presenteeism have become symbols of excellence and commitment. These values are difficult to change, particularly in the construction industry that has shown itself resistant to change of any kind (Watts, 2009) and have led to all sorts of psychological injuries and work- family conflicts (Lingard *et al*, 2010).

The job role factors that cause psychological injuries include: unclear job role and responsibility, conflicting demands, inadequate management support, lack of career progression, job insecurity and poor remuneration as compared to job demands (Campbell, 2006). These challenges make women less satisfied with the job (Dabke *et al*, 2008). Moreover, the traditional male career model in the construction industry is predominated with expectations of full-time professionals on unbroken career pathways. This indirect form of discrimination rooted in the traditional male career model causes lack of career progression for women in the construction industry (Dainty and Lingard, 2006). As such, women are obliged to either conform to the existing masculine culture or become marginalised (Arditi *et al*, 2013; Loosemore and Galea, 2008). Trying to prove themselves in the male-dominated work environment and continuously confirming to a less fit career model result in stress and burnout among women who eventually leave the construction industry (Department of Employment, 2016).

Research Method

An online questionnaire survey approach was adopted to collect primary data, which were then analysed using statistical techniques for deriving insights. The questionnaire consisted three sections. The first section requested demographic and professional background information of respondents. The second section captured the severity of mental illness suffered by the respondents, using Depression, Anxiety and Stress Scales (DASS) 21, developed by Lovibond and Lovibond (1995), which has been widely used in a variety of settings by researchers and clinicians. It is a list of 21 statements that assess the levels of depression, anxiety and acute stress present in an individual's mind. The prevalence of symptoms is assessed by a four-point ordinal scale comprising never, sometimes, often and almost always. The final section sought respondents to indicate their experience as to what degree they encounter each of the 38 listed stressors at work on a four-point ordinal scale comprising never, sometimes, often and almost always. The list of stressors was derived from a comprehensive literature review. The same four-point ordinal scale of the DASS questions was used to collect data on stressors to maintain consistency across questions in the questionnaire and to reduce confusion. Although the ordinal responses were collected using textual descriptors, they were assigned numerical values, such as 1 = never, 2 = sometimes, 3 = often and 4 = almost always, to facilitate quantitative analyses.

Random sampling technique was used to achieve a representative sample whereby professionals in construction organisations in Australia were approached through different channels to participate in the survey. Email requests with the link to the online survey were sent to members of The Australian Institute of Building and The National

Association of Women in Construction who are professionals in the construction industry. Additionally, employees in individual construction organisations were sent the requests via corporate communications. In total 1019 requests were sent and 286 valid responses were received, yielding a response rate of 28%. Out of the respondents, 167 were male and 119 were female. To achieve the aim of this paper, responses from female professionals were separated and statistically analysed. Nearly 60% of them were aged between 18 and 39 years old and 92% worked in medium and large-sized organisations. This does not reflect the proportion of organisations in the Australian construction industry where more than 95% of organisations are small, employing fewer than 20 people. Fifty-four percent of them had an annual salary of \$100,000 or more, confirming the typical high salaries in the construction industry and 50% were married or in a de-facto relationship.

DATA ANALYSIS AND FINDINGS

The first part of data analysis concerned answering the first research question of "Do female construction professionals suffer more severe work-related psychological symptoms than the general population?" and Table 1 presents the analysis results. Column 2 of Table 1 shows the magnitude of psychological issues suffered by the surveyed women professional in the construction industry. Depression scored 3.74 and anxiety yielded 3.67 while acute stress that is responsible for burnout scored 6.55. Column 3 shows the respective values for the Australian general population. T-tests were conducted to check if the differences in values between the two groups are statistically significant and the p-values are shown in column 4 of Table 1. It is evident that female construction professionals experience significantly higher levels of depression, anxiety and acute stress symptoms than the Australian general population does. According to the well-known inverted-U theory that plots the relationship between work stress and performance, there is an optimum level of stress/arousal that causes the best performance; higher or lower stress than this level results in steadily decreasing performance (Yerkes and Dodson, 1908).

Table 1: Mental wellbeing of construction professionals

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Rank	Female construction professionals	Australian general population (Crawford et al., 2011)	Significance
Depression	3.74	2.57	0.000
Anxiety	3.67	1.74	0.000
Stress	6.55	3.99	0.000

It is not known what the optimum level of stress is among the working population in Australia. Assuming the levels among Australian general adult population found by Crawford *et al*, (2011) as the standard, the construction industry should be aware of the relatively high mental health issues suffered by female professionals, which may be causing lower performance.

Table 2: Stressors at work and psychological issues among female construction professionals

Rank	Stressor	Descriptive statistics		Correlation		
		Mean	SD	Depression	Anxiety	Acute stress
1	High level of time pressure	2.7227	.86283	.272**	.301**	.468**
2	Excessive workload	2.6891	.79987	.206*	.299**	.394**
3	Long work hours	2.6807	.93820	.252**	.331**	.329**
4	Unpleasant nature of work (high physical/mental demand, meaningless work, high uncertainty/sudden changes)	2.3529	.75451	.281**	.261**	.447**
5	Inadequate communications between work colleagues & superiors	2.1345	.86283	.250**	.230*	.299**
6	Lack of appreciation /rewards for efforts	2.1092	.90000	.369**	.369**	.465**
7	Role ambiguity (unclear job roles and responsibilities)	2.0924	.82330	.182*	.178	.129
8	The tasks you perform do not match your skills (under use of skills or over expectations)	2.0504	.69926	.317**	.307**	.233*
9	Differential treatment due to gender, ethnic background, etc.	1.9496	.97293	.231*	.263**	.309**
10	Under valuing of your skills/qualifications	1.9412	.85662	.317**	.308**	.372**
11	Work-home conflicts, i.e., lack of family time due to work	1.9328	.82061	.219*	.208*	.315**
12	Insufficient salary/wage for the work	1.9328	.91810	.219*	.268**	.279**
13	Career stagnation / lack of career development opportunities	1.8992	.91499	.264**	.256**	.234*
14	Lack of job autonomy (lack of control over workload/content or participation in decision making)	1.8403	.77002	.297**	.307**	.294**
15	Dual career challenges (working couples struggling to balance family affairs)	1.7899	.88177	-.005	.053	.131
16	Inflexible work schedule	1.7647	.80996	.192*	.336**	.395**
17	Low level of support for problem solving	1.7647	.69752	.346**	.335**	.338**
18	Excessive responsibilities in personal life	1.7395	.82813	.169	.366**	.347**
19	Excessive formalisation/centralisation and rigidity in the organisation	1.7395	.84835	.263**	.325**	.359**
20	Social or physical isolation from others	1.6723	.80369	.260**	.236**	.127
21	Bullying, i.e. slander/humiliation, intimidation, abusive language, aggressive behaviours, etc.	1.6723	.83473	.344**	.334**	.330**
22	Poor relationships with superiors	1.6639	.80546	.226*	.235*	.187*
23	Conflicts with co-workers/colleagues	1.6387	.60690	.367**	.302**	.284**
24	Job insecurity	1.6303	.83225	.225*	.213*	.107
25	Previous exposure to traumatic events or depression episodes, e.g., death of relatives/friends, assault, depression, etc.	1.5882	.62993	.308**	.314**	.259**
26	Sexual harassment at work, e.g., unwelcome / inappropriate comments/ behaviours by colleagues, superiors, clients, etc.	1.5546	.77784	.218*	.246**	.181*
27	Poor work environment (space constraint, extreme weather, excessive noise, poor air/water quality, odours/chemical, unsafe)	1.5042	.73501	.240**	.173	.213*
28	Unpredictable work hours/shifts	1.4874	.63600	.288**	.158	.173
29	Lack of welfare	1.4706	.73443	.167	.248**	.170
30	Financial difficulties	1.4622	.66115	.123	.228*	.146
31	Poorly functioning home, i.e., tensed relationships between couples /family members	1.4622	.67384	.101	.219*	.261**
32	Poor personal health conditions	1.4370	.57694	.296**	.372**	.445**
33	Low support at home	1.4202	.58939	-.009	.115	.154
34	Unfavourable equipment conditions (unsuitable, faulty or inadequate)	1.3782	.58210	.211*	.238**	.168
35	Extra care needs for family members, e.g., caring for disabled family members, elderly parents, etc.	1.3697	.63600	-.019	.124	.058
36	Working night shifts	1.3445	.68193	.184*	.059	.053
37	Housing/accommodation/living conditions	1.1849	.46880	.056	.316**	.153
38	Violence at work, e.g., assault, threat, etc.	1.1345	.41013	.093	.300**	.147

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The second part of the analysis sought to answer to the research question of "what are the critical work stressors that impact on the psychological wellbeing of female construction professionals? The survey sought respondents to rate as to what degree they experience

the 38 stressors at work. Mean and standard deviation values of the ratings were calculated and the stressors were then ranked based on them. Table 2 shows the analysis results. Attention is paid to the top ten stressors to optimise solutions, following the 80:20 principle.

Job demand factor related issues such as high level of time pressure, excessive workload and long work hours were ranked as the top three most frequent causes of work stress. While this confirms with previous research by Savery and Luks (2000), Campbell (2006) and Watts (2009) who identified working long hours, unrealistic deadlines and high job pressure as causes of work stress in construction, this research categorises them as the top stressors. Unfortunately, these have become the norms of the present-day construction industry. The second group of stressors within the top 10 concerns the job role factor and suggests that women face challenges more frequently in dealing with issues related to their role. Stress due to gender discrimination appears to be less frequent than job demand and role induced stress.

Surprisingly, work-home conflict was ranked 11. Moreover, stressors that are related to family life/personal life appear at the bottom of the list, indicating these are not of major concern for female professionals. This may be due to the presence of a high proportion of unmarried/ single female professionals in the respondents, which might as well be the reflection of the actual situation in the construction industry. This also prompts that less number of married women continue to stay in the industry.

Bullying and sexual harassment, which are often highlighted issues for women, were rated low in this research. On the other hand, factors related to career progression (career stagnation, low salary and job autonomy) are more of a concern than harassment for women professionals. Collins *et al*, (1997) claimed that sexual harassment at work, traditional work culture tailored towards the male career model and discrimination in hiring and assessing performance contribute to mental health issues faced by women. While this study found the prevalence of these issues, sexual harassment is ranked lower than career progression issues.

Associations between Stressors and Psychological Injuries

Pearson correlation analyses were performed to investigate the associations between the stressors and the different DASS subscales of psychological injuries. The results are shown in columns 5, 6 and 7 of Table 2. Stressors are simultaneously associated with depression, anxiety and acute stress were extracted and depicted in Table 3. Fifteen out of 38 stressors have strong correlations with all three DASS subclasses of psychological injuries. Eight out of the 19 appear in the top 10 stressors shown in Table 2, suggesting that the top 10 stressors need to be managed seriously to ensure wellbeing of women professionals in the construction industry. Moreover, four stressors out of the 19 appear to be of serious concern, which have stronger correlations with depression, anxiety and acute stress than the other 15 stressors. These are: lack of appreciation/ rewards for the efforts, under valuing of skills/qualifications, low support for problem solving and bullying. These are largely interpersonal challenges facing women professional in construction and have significant implications for their wellbeing.

Table 3: Correlations analysis

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DISCUSSION

The construction industry is making efforts to increase gender diversity through various mechanisms. It is critical the industry makes the work environment more favourable and appealing to women's nature to achieve the social target. Women are generally more susceptible to emotional stress symptoms than men. This can be seen, for example, from those who experienced mental disorders in the past 12 months in Australia, women had higher rates than men (22% vs. 18%) (Australian Bureau of Statistics, 2008) and epidemiologic studies found that women develop anxiety disorders at twice the rate of men (Kessler *et al.*, 2005). This may be due to their different biological mechanisms; Felmingham *et al.* (2012) found that there is an enhanced consolidation of negative images under stress in women that may be a potential mechanism for the greater female prevalence for developing anxiety disorders. These conditions are also reflected in workers' compensation data, where women were more likely than men to file stress claims and suffer depression.

This research has found that the degrees of anxiety, acute stress and depression suffered by female construction professionals are even higher than the levels of the Australian general population. Hence, managing work stress to curb the onset of psychological

injuries is a critical requirement for attracting and retaining women in construction. The top three stressors at work that are most frequently experienced by female construction professionals are: high level of time pressure, excessive workload and long work hours. These are the work norms of the present-day construction industry. There is a wider believe that sexual harassment and discrimination are the most important stressors for female construction professionals. This research has found that these are not the most critical stressors though they appear later in the list. The main stressors are the industry norms mentioned above. Thus, any intervention aimed at attracting and retaining female construction professionals should first focus on improving these norms. Additionally, uplifting inclusiveness and ethical conduct within the industry by introducing measures to eradicate discrimination, bullying and sexual harassment is also important to attract and retain female construction professionals. All these, however, cannot be achieved by making changes in one or few organizations; rather through a collective effort of the entire industry. The change also requires the cooperation and involvement of influential stakeholders of the industry, such as the government, major construction clients, large construction organisations and construction industry associations.

CONCLUSION

Work stress appears to be a threat to gender diversity in the construction industry and as such the industry is missing out on numerous performance gains derived from gender diversity. Its reputation for excessive work stress, resulting in poor psychological health, is among the reasons for women not entering the industry or for them leaving the industry prematurely. Based on the findings of this research, it is suggested that the construction industry and relevant stakeholders endeavour to reform/ improve three aspects through policies and procedures to make the industry attractive to women workforce, which are: (1) industry norms on acceptable work practices and hours, (2) fair recognition of efforts and talents and fair rewards across genders and (3) interpersonal relations protocols. These, when implemented, would pave the way for a gender diverse construction industry. The present research investigated that the work stressors frequently experienced by female construction professionals and their impact on their psychological wellbeing. Another study can be conducted to study male professionals and then conduct comparisons. The research can be further extended to develop complete causation model of work stress and psychological wellbeing in construction, which accounts for the mediating influences of the gender.

The research has two limitations that are common to questionnaire surveys and should be acknowledged. First, the data collected through the questionnaire survey were self-reported and subjective, thus response bias might have occurred. For instance, respondents might have different interpretations concerning the levels of mental health issues or work stressors that they experienced. Thus, the same level of stress and mental health issues confronted by two different people might have been rated differently on the measurement scale. Second, the survey might have been responded by only professionals who are motivated to complete it or had strong opinions on the subject matter, thus violating a representative sample and thereby causing response bias. There is no information about the attitude and motivation of the respondents and there is no guarantee that they make a representative sample of the industry. It is hard to control or judge these aspects in a random survey. Nevertheless, it can be equally assumed/argued that they do make a representative sample.

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