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Appraising the Prevalence of Task Demands among the Construction Workforce in South Africa

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Abstract

This study investigates occupational stress among the South African construction workforce. The study focused on the task demands/stressors directly linked to the job a worker is performing. Task demands in relation to the type of occupation, job security, workload, and lack of innovation can result in low morale among the workforce. A combination of these factors results in job stress which affects employee's mental health and subsequently their overall well-being. In this quantitative cross-sectional study, survey questionnaires were distributed among a convenient sample of contractors in South Africa. The study achieved 201 valid responses and the internal reliability was 0.777 and deemed acceptable. Convenience sampling was favoured due to the proximity of the respondents to the researcher and also, to speed up the data collection process due to the timeline of the study. Data were analysed using descriptive statistics methods in IBM SPSS v28. The findings of the study revealed that contrary to expectation, most workplaces promoted equality and had internal policies to prevent bullying, discrimination of race; sex and xenophobia, which are unique in South African. Further, workers received support from their organisations in relation to tasks, and adequate tools and equipment for tasks. However, workers identified some challenges relating to multi-tasking, strict work environment and job insecurity. Although these responses had received high agreement levels, they were not fully satisfactory indicting that they are still a problem to some degree. This study achieved the desired homogeneity in relation to the representation of worker groups. This study is important in appraising task stressors in the South African construction industry and how they compare to those in developed countries. Also, in determining similarities and differences, stakeholders will focus on specific aspects unique to South Africa.

Keywords

Task Demands, Occupational Stress, Mental Health, Construction Workforce, Construction Industry

1. Introduction

The construction industry is plagued with fatalities that emanate from several known and unknown factors. Early research focused on safety and little attention was given to health, more so, mental health. Mental health may be defined as the state of well-being whereby an individual can manage the normal stress of life based on their perception, working fruitfully and productively and also being able to make contributions to society (WHO, 2001). Mental-ill health, an antonym of mental health, is defined as an individual's inability to realise their potential and to work productively to make contributions to their society (Herrman and Jané-Llopis, 2012). Psychological stress is often a precursor to mental ill-health. Stress emanates from non-specific demands/stressors placed on the body (Selye 1976), and in the context of workplaces, these demands relate to an individual's inability to satisfy the work demands or tasks (Topper, 2007; Vermunt and Steensma, 2005; Varca, 1999; Randall and Ross, 1994; Beehr, 1995).

Occupational stress is a dangerous illness for industrialised economies and threatening production as it affects the both the physical and the mental health of the workers (ILO, 2014). Occupational stress has become a critical public health concern in recent years with detrimental effects on human health (WHO, 2019; Kawakami et al., 2004). Psychosocial risks and occupational stress are increasingly becoming some of the most challenging issues in

occupational health and safety (EU-OSHA, 2021) with reports indicating that about half of the European workforce consider stress to be common at their workplaces, contributing to about half of all lost workdays. Further, stress was reported to be the second most prevalent work-related health problem and it is believed that the number of workers suffering from occupational stress-related illnesses is likely to increase (ILO, 2014). As with many other mental health-related issues, stress is often stigmatised or misunderstood (EU- OSHA, 2021). However, occupational stress can be manageable and treated like any other occupational health and safety risk when addressed at an organisational level rather than addressing it as an individual burden (ibid). The prevalence of occupational stress is now widely accepted and is known to have a high cost in terms of workers' health, absenteeism, and low job performance (ibid).

Although the construction industry is regarded as one of the most stressful occupations, the focus on mental health issues such as stress, depression, anxiety and suicide have not received enough attention (Leung et al., 2005; Ng et al., 2005; Liang et al., 2021). Therefore, it essential to monitor and to address the issues of mental health among the construction workforce in order to better understand their effects and to subsequently prevent occupational injuries and increase productivity (Boschman et al. 2013). A considerable amount of literature has been published on the causes of occupational stress among the construction workforce and the issues have remained somewhat similar throughout the studies (Molen, 2000; Boschaman et al., 2013; Bowen et al., 2018; CIOB, 2006; Leung et al., 2016; Sheratte, 2018; Jepson, 2017; Langdon and Sawang, 2018; Bryson and Duncan, 2018; Tijani et al., 2020). Researchers have shown that the adverse working conditions in construction can contribute to stress. The workforce in construction experiences long hours working under pressure with tight deadlines, high levels of conflicts, low job control, lack of managerial support, job insecurity, and lack of work-life balance (Bowen et al., 2018; Langdon and Sawang, 2018; Panahi et al., 2017; Love et al., 2010; Cattell et al. 2016, Sherratt 2018).

The aim of this study is to examine the prevalence of task demands which lead to psychological stress among the South African workforce. Most studies on occupational stress in the construction industry have been conducted in developed countries especially in the UK, USA, Australia and New Zealand with little focus on African countries (Bowen et al., 2013). Developing countries are characterized by extreme socio-economic issues, such as inequality and crime (Bowen et al., 2013). It has also been reported that in South Africa specifically, the nature of mental health issues requires a uniquely South African solution (SACAP, 2019). Furthermore, there exists both a population and a knowledge gap within the South African context on the causal effects of occupational stress among the general workforce and not only on construction professionals as with other previous studies.

2. Methods

From literature, task demands refer directly to the job a worker is performing and includes the type of activity, job security, workload, and use of new equipment and tools (Tijani et al., 2020; Chan et al., 2021). An extensive literature review on the topic was done and questionnaires were formulated from the literature. A snap survey was also conducted (Raliile et al., 2022) and the findings informed how the current study should be structured in terms of which task demands to include especially those formulated by the researcher. A total of 23 task demands were identified as suitable for inclusion and to ensure face validity and content validity, measures were adapted from existing stress and mental health instruments whose validity was reported. Where certain measures did not exist, new measures were developed and the conceptualisation and operationalisation of these new measures was based on theory and literature to ensure both face and content validity. Structured questionnaires were distributed to contractors in South Africa to explore the constructs underlying the research topic. The sample was selected using convenience sampling, and the respondents were South African contractors sampled based on proximity and familiarity to the researcher. This form of sampling maximised the response rate as the study was conducted over a limited period. Some respondents were referrals recommended by other participants – a variant of snowballing sampling technique. Self- administered questionnaires with a series of close-ended questions were emailed. A total of 201 valid questionnaires were received from the respondents after rejected after screening data for missing values, disengaged responses, outliers and extreme values. The study employs a quantitative research approach and data were analysed using IBS SPSS v28.

3. Results

This section presents the analysis of the data collected and discusses the findings. Data were analysed using IBM Statistical Package for Social Sciences (SPSS) version 28. Descriptive statistics was used for data analysis and further interpreted using inferential statistics. Tables were used to present data and key findings.

3. 1 Profile of the respondents

The participants in the study were the general construction workforce working for contractors. The respondents were artisans, construction professionals and construction labourers. Table 1 outlines the demographics/profile of the respondents:

Table 1 Respondents Profile

	Frequency	Percent
Gender		
Male	164	81.6
Female	37	18.4
Total	201	100.0
Age		
18 to 24	16	8.0
25 to 34	87	43.3
35 to 44	65	32.3
45 to 54	24	11.9
55 to 64	9	4.5
Total	201	100.0
Education Level		
Primary/Elementary School	24	11.9
Secondary/High School	119	59.2
Technical/Vocational Qualification	19	9.5
University Degree	35	17.4
No formal schooling	4	2.0
Architect	4	2.0
Construction Manager	7	3.5
Health and Safety Manager/Officer	10	5.0
Project Manager	5	2.5
Quantity Surveyor	11	5.5
Civil Engineer	6	3.0
Forman/Supervisor	15	7.5
Artisan	15	7.5
Construction Worker/Labourer	124	61.7
Other (site clerk and storage managers)	4	2.0
Architect	4	2.0
Total	201	100.0

From Table 1, there were more male respondents (81.6%) than female respondents (18.4%) in the sample. This finding differs from the general gender distribution of the construction workforce in South Africa which usually has approximately 12% female workers (MBAWC, 2018). Most respondents were between the ages of 25 to 34 years (43.3%). And the second most prevalent age group was between 35 to 44 years (32.3%) of age followed by 45 to 54 years (11.9%), 18 to 24 years (8.0%) and lastly 55 to 64 years (4.5%). The construction workforce consists of older workers relative to other sectors as a result of the ageing workforce and lack of interest from the youth to seek employment in the sector. The average age of construction workers is 42.5 (BLS, 2019). However, from Table 1, most respondents were between the ages 25 and 34 years. This can be attributed to recent changes because of Covid-19 as employment trends resulted in the youth experiencing the highest employment between February 2020 and March 2021 (32.5% to 35%), while older workers experienced a decrease from 45% to 41%. Therefore, the findings represent the current employment-to-population ratios in the industry. The responses were obtained from site personnel working for contractors, and are representative of the construction workforce. Construction workers (labourers) and artisans make up about 55% to 70% of its workforce, while construction professional between 30% to 45%. When categorising the working groups into CPPs, and artisans/labourers, the percentage distribution is 29%:71%. Therefore, the sample represents the population of interest adequately.

3.2 Reliability

Cronbach's Alpha reliability test was conducted in IBM SPSS v28 to determine the reliability and internal consistency of the scales that had been used to examine task demand stressors among the workforce. The reliability was deemed acceptabled, as indicated in Table 2. The Cronbach's Alpha coefficients between $0.70 \leq \alpha \geq 0.80$ are 'acceptable' while between $0.80 \leq \alpha \geq 0.90$ are considered 'good' and coefficients $0.9 \leq \alpha$ are 'excellent' (Tavakol and Dennick, 2011). Therefore, the internal consistency of the various scales was deemed acceptable for further interpretation.

Table 2 Reliability Test

Cronbach's Alpha	N of Items
0,770	23

The findings from Table 3 revealed that 57.2% of the respondents work between 0-45 hours a week while 36.8% work between 46-55 hours per week and the rest work for 56+ hours. According to the Basic Conditions of Employment Act in South Africa, workers are permitted to work for 45 hours per week under normal circumstances. The majority of the respondents had indicated working hours between 0-45 (57.2%). However, 36.8% revealed working overtime. Maximum allowable hours per week is 10 hours a week. Therefore, based on the findings, 6% of the workers had worked beyond the legal allowable times. The findings suggest working overtime which is in line with several literature findings (Tijani et al., 2020).

Table 3 Number of working hours

	Frequency	Percent
Between 0 -45 hrs	115	57.2
Between 46-55 hrs	74	36.8
56+ hrs	12	6.0
Total	201	100.0

Table 4 indicates a cross tabulation of the number of working hours in relation to the worker's position. From the findings, construction labourers (61.7%), artisans (7.5%) and supervisors (7.5%) worked most hours than any other personal on site.

Table 4 Number of working hours and Job Title Cross tabulation

		Job Title										Total
Work. Hours		Architect	CM	H&S Personnel	PM	QS	Civil Engineer	Forman/ Supervisor	Artisan	Construction Worker/Labourer	Other	
56+ hrs	Count	0	1	1	0	0	2	0	1	7	0	12
	% within Number of working hours	0,0%	8,3%	8,3%	0,0%	0,0%	16,7%	0,0%	8,3%	58,3%	0,0%	100,0%
	% of Total	0,0%	0,5%	0,5%	0,0%	0,0%	1,0%	0,0%	0,5%	3,5%	0,0%	6,0%
Between 46-55 hrs	Count	2	3	3	2	5	2	5	3	48	1	74
	% within Number of working hours	2,7%	4,1%	4,1%	2,7%	6,8%	2,7%	6,8%	4,1%	64,9%	1,4%	100,0%

	% of Total	1,0%	1,5%	1,5%	1,0%	2,5%	1,0%	2,5%	1,5%	23,9%	0,5%	36,8%
Between 0 - 45 hrs	Count	2	3	6	3	6	2	10	11	69	3	115
	% within Number of working hours	1,7%	2,6%	5,2%	2,6%	5,2%	1,7%	8,7%	9,6%	60,0%	2,6%	100,0%
	% of Total	1,0%	1,5%	3,0%	1,5%	3,0%	1,0%	5,0%	5,5%	34,3%	1,5%	57,2%
Total	Count	4	7	10	5	11	6	15	15	124	4	201
	% within Number of working hours	2,0%	3,5%	5,0%	2,5%	5,5%	3,0%	7,5%	7,5%	61,7%	2,0%	100,0%
	% of Total	2,0%	3,5%	5,0%	2,5%	5,5%	3,0%	7,5%	7,5%	61,7%	2,0%	100,0%

3.3 Data Interpretation

Table 5 presents the data range interpretation based on the 5-point Likert scales used in the study. The group interval coefficient value for the 5-point Likert scale was calculated as (5) / 3 = 1.67. The range interpretations for the 5-point Likert scale were used in Table 4-5. For further ease of interpretation, the mean values for the 5-point Likert scale were interpreted as; high, medium and low.

Table 5. Data Interpretation Ranges

Range	5-Point Likert Scale	
	Agreement Scale	Ease of interpretation
5.00 - 3.34	Strongly Agree	High (H)
	Agree	
3.33 – 1.68	Neutral/Unsure	Medium (M)
≤1.67	Disagree	Low (L)
	Strongly Disagree	

3.4 Data Analysis

In Table 6 the respondents were presented with 23 statements based on literature about the most prevalent task demands that lead to job stress. Although several working conditions lead to distress, only 23 statements were selected because they were the most prevalent in most studies (Christodoulou, 2021; Tijani et al., 2020; Chan et al., 2021). Therefore, the respondents were requested to indicate their level of agreement on working conditions leading to psychological stressors based on a 5-point Likert scale where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree.

Table 6. Task Demands

	Mean	Std. Deviation	Rank	
My input is valued at work	3,71	1,172	1	H
I multitask	3,63	1,165	2	H
I get support from my organisation to do work	3,62	1,132	3	H
I have enough resources/tools to help me do my work	3,57	1,150	4	H
My organisation has internal policies which prohibit any form of discrimination	3,44	1,157	5	H
I work under strict discipline and authority by management	3,42	1,151	6	H

Instances of alleged bullying are taken seriously by management	3,40	1,177	7	H
My organisation promotes equality	3,39	1,169	8	H
I worry about my job insecurity	3,34	1,180	9	H
There is too much workload	3,30	1,114	10	M
I work with tight timelines	3,17	1,181	11	M
It is easy to talk back to my boss	3,14	1,269	12	M
My boss is confrontational	3,13	1,210	13	M
There is too much bureaucracy at work	3,05	1,075	14	M
I work long hours	3,03	1,250	15	M
There is lack of innovation in the workplace	2,87	1,149	16	M
I am afraid of my boss	2,84	1,248	17	M
There is poor communication on how to execute tasks	2,84	1,243	18	M
I receive unfair job assignments that are not part of my job description	2,66	1,278	19	M
I feel like I am being looked down upon because of my race	2,56	1,304	20	M
I do not have sufficient knowledge about the project	2,53	1,298	21	M
I feel like I am being belittled because of my gender	2,48	1,269	22	M
I am not given enough work to do	2,47	1,242	23	M

The findings in Table 6 revealed high levels of agreement for statements my input is valued at work (mean=3.71), getting support from organisation to do work (mean=3.62), getting enough resources (mean=3.57), having internal policies against any form of discrimination (mean=3.44), prevention of bullying (mean=3.40) and promotion of equality (mean=3.39). This indicates a good organisational culture. Although the overall responses were good, they are still far from satisfactory. Contrarily, factors of concern with high levels of agreement were multi-tasking (mean=3.63), strict workplace environment (mean=3.42) and job insecurity (mean=3.34).

While some responses were highly ranked, some receive medium response rate. Responses receiving medium level of response were too much workload (mean=3.30), working within tight timelines (mean=3.17), ease of communicating with superiors (mean=3.14), confrontational boss (mean=3.13), bureaucracy (mean=3.05), long working hours (mean=3.03), lack of motivation at work (mean=2.87), afraid of boss and poor communication (mean=2.84), unfair job assignment (mean=2.66), discrimination by race (mean=2.56), insufficient project knowledge (mean=2.53), gender discrimination (mean=2.48) and work under load (mean=2.47).

4. Discussion

Contrary to exception, the findings of this study were not consistent with most literature finding especially in relation to organisational culture. Most workers felt valued at work, received support and resources from the organisation to do work, had internal policies against any form of discrimination and there was prevention of bullying and promotion of equality. However, with multi-tasking and job insecurity the findings were consistent with most literature and a systematic review conducted by Tijani et al. (2020) (from 1997 to 2020) and Chan et al. (2021) (from 1992 to 2020) about the causes of occupational stress in construction. Job insecurity has been linked to financial stress. Most construction workers in South Africa are bread winners which means they support not only their immediate families but also, extended families. Financial stress has been linked to suicide among the workers (Martin et al., 2016) and occurs when these individuals are unable to meet their financial obligations. inability to meet financial obligations as a result of job insecurity leads to esteem issues and feelings of inadequacy. Hobfall (1989) postulated the Conservation of Resources (COR) theory which assumes that stress occurs in any of three situations identified as when people experience loss of resources, when resources are threatened and when individuals invest their resources without subsequent gain. Therefore, the premise of COR theory maintains that individuals are in constant pursuit to acquire, preserve, nurture, and safeguard the things they value (Hobfoll et al., 2018; Hobfoll, 1996). This is true for job insecurity which leads to financial stress. Workers may not be able to meet their basic financial obligations.

Further, multi-tasking leads to cognitive distractions and this can be attributed to the distraction theory which posits that workers have a higher probability achieving a specific task when their attention is focused, and distractions are minimal (Hinze, 1997). Workers in a distracted state may not recognise hazards easily and this not only hinders productivity but leads to accidents on construction sites. Although task demands such as long working hours and work overload which are attributed to tight deadlines were the most prevalent causes of occupational stress among the

respondents in our previous study (Raliile et al., 2022) and literature, the current study revealed that they not much of a concern. Furthermore, contrary to previous studies on the lack of support by management, this study revealed that they did receive support from their superiors although not fully. While this was the case with our previous study, the current study sheds more light due to the larger sample size employed. Therefore, it may be inferred from these findings, a positive organisational culture mitigated the effects of other task demands or workers have adapted to the work condition. This requires further investigation by conducting a mixed method study.

5. Conclusions

This study examined task demand stressors that contribute to occupational stress among the workers in the South African construction industry. The research reveals new findings which contradict previous findings and contributes to an understanding of how the workforce is affected by occupational stress in a developing country. However, several limitations need to be acknowledged. The type of sampling used in the study faces challenges associated with self-report questionnaires such as response bias, social desirability, introspective ability, understanding and limitations with rating scales. Future research should validate the questionnaires for any violation of assumptions using EFA and determine the validity of the instrument. Only face validity was conducted for the current study. Further, future research could focus on conducting a mixed method study to gain an in-depth understanding of some of the responses. This exploratory study contributed to existing knowledge by examining task demands that impact worker psychological health. These findings are important in revealing specific areas of concern among the workforce and for informing intervention.

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