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Long Distance Commuting, Psychosocial Stress & Gender in the Mining Sector

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ABSTRACT
The research sought to establish the psychosocial stressors among female employees who practice onboarding/ long distance commuting (LDC) in the mining sector with specific focus on Murowa Diamond Mining Company. The study distributed 54 survey questionnaires out of a population of 87 female employees. Data was analysed using descriptive statistics. Spearman correlation was computed to examine the impact of age and marital status on psychosocial stress among female employees at Murowa Diamond Mining Company. The study found out that female employees perceive the mine as offering more opportunities than disadvantages but they needed more time to rest and socialize with family and friends. The study also found that long-distance commuting was affecting the marital statuses of female employees and was a major source of stress. The study established that age and marital status have positive relationship with stress levels. It was recommended that mining companies which practice onboarding should promote use of social media communication technologies during work shifts, enhance the socialization activities among female employees, re-schedule off days so that female employees are afforded more time to socialize with friends and family. The study also recommended that employees should set aside time to relax and rest during their off days and knock-off times.

KEY WORDS: Stress, onboarding, psychosocial stress, long distance commuting, mining

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I. INTRODUCTION

Globally, there has been an increase in the number of females joining the working class, and this had been necessitated largely by improved educational and economic opportunities, as well as legislature that supports the girl child (Botha & Cronje, 2015). There has also been a corresponding increase in the number of female employees entering previously male dominated industries. One such industry is the mining sector, which contributes more than 8% of Zimbabwe's Gross Domestic Product (Ministry of Mines and Mining Development, 2019).

1.1 Background to the Study

Business operations in many parts of the world are such that employees may need to travel long distances from their homes to work, and are often domiciled at workstations for periods ranging from a fortnight or more at a time, staying in company provided accommodation at the workplace, away from their families and friends. Such work arrangements have had a toll on female employees in the mining sector especially the married ones who have family obligations. This new form of employment has been growing, particularly in the mining and resources industry, and is known as long distance commuting (LDC) or onboarding. In a paper published by the Parliament of Australia, this work practice has become known as "the cancer of the bush"(Parliament of the Commonwealth of Australia, 2013). Other terms frequently interchanged with long distance commuting (LDC) or onboarding include the most common variations such as the fly in, fly out commute system, BIBO (Bus In, Bus Out), SISO (Ship In, Ship Out) and DIDO (Drive In, Drive Out)(McKenzie, McKenzie & Hoath, 2014).

In all instances, the underlying principle is that the company provides transportation for its employees coming from other cities and staying in company provided accommodation for a defined shift; away from their families and friends. Long distance commuting is defined as "a work cycle in which employees reside in a different setup from their families for an extended period of time" (Misan and Rudrik, 2015). It is key to note that both formal and informal mining (also known as artisanal mining) have adopted this system in Zimbabwe. Female employees have not been spared from this mobility, as many of them are employed in various capacities across mines. There are several psychological and social stresses that have been associated with this kind of employment.

Statistics at a local diamond company, Murowa Diamonds, show that at least 26% of the total permanent labour workforce are women employees in a variety of professional roles, including engineering and processing.

The nature of diamond mining requires strict adherence to security procedures and this has resulted in the creation of commute schedules that keep employees away from home for fairly long periods of time.

Women have always held a unique role in society as homemakers and caregivers and their absence on that front creates another level of difficulties for working mothers and married women. Female employees generally have unique needs in the workplace which can sometimes be overlooked and downplayed in a camping set up far away from their homes, creating an unhappy and demoralized section of the workforce. Issues of motivation, stress management, fatigue, burnout, promotion and advancement as well as inclusivity remain contentious. Generally, perceptions are that women have several psychosocial challenges that work against them than their male counterparts.

1.1.1 Global Perspective

Globally, long distance commuting and the attendant psychosocial impact of this phenomena has been studied extensively. Australia has the most extensive research in the area of mining, followed by continents such as Asia, Africa and North America (Karakaya & Nuur, 2018). The impact of long distance commuting not only affects the employees themselves, but also their families and communities (Weeramanthri & Jancey, 2013). Potential stressors include extended rosters, being away from friends and family, shift work, being unavailable to attend important family roles and occasions, estrangement and fatigue.

The Rio Tinto group which operates mining sites in Australia and Canada has a massive fly in fly put programme. Research outside the business has estimated that Rio Tinto's expenditure on FIFO of approximately A$425 million has created over 1,250 jobs in Western Australia (Bailey-Kruger, 2012).In India, employees from various sectors also engage in long distance commuting. The system of commuting helps to maintain the work-life balance for Indian employees (Mondal, 2015). In Chile, the main industries that have resulted in the adoption of long distance commuting are construction and mining (Cristaldi, 2013).

1.1.2 Regional Perspective

South Africa has the longest history of long distance commuting (LDC) or onboarding in the region stretching from the 1940s right up to the 1970s (Schutte, 1977). Popularly known as WENELA, the Witwatersrand Native Labour Association was set up by the gold mines in South Africa as a recruiting agency for migrant workers on a cross border form of LDC.It had its own buses, depots, train service and aeroplanes spread over Southern Africa covering South Africa, Basutoland (Lesotho), Swaziland, South West Africa (Namibia), Bechuanaland (Botswana), Northern Rhodesia (Zambia), Southern Rhodesia (Zimbabwe), Nyasaland (Malawi), Angola, Mocambique (Mozambique) extending into the Belgian Congo (Democratic Republic of Congo) and Tanganyika (Tanzania) during the colonial days. Staff were recruited by agents and transported to South Africa where they worked in gold mines away from their families while living in some form of inhumane 'barrack houses' for extended periods. It is because of these tough conditions, most WENELA recruits were males. Putting together workers from different countries created a different kind of a worker with unique culture, language and behavior patterns (Schutte, 1977). Needless to mention, many families broke up and some such migrant workers never returned to their home countries as long distance commuting took its toll. What made matters worse was that agents' interest was in recruiting and they downplayed the need to commute the workers back to their families and homes during off days or leaves. The exploitative nature of this form of employment lead to its collapse as more and more countries in Southern Africa gained their independence.

A recent study done in a South African underground mine focused on the challenges and coping strategies that female mine employees adopt as they navigate the largely male dominated playfield.

1.1.3 Zimbabwean Perspective

Onboarding is not new in Zimbabwe. Mining companies such as Murowa Diamonds, formerly part of the Rio Tinto portfolio, adopted long distance commuting system. Diamond mines in Zimbabwe predominantly use the system, with other mining houses such as Zimplats and Mimosa being operated within mining communities that allow employees to live with their families and commute to work on a daily basis. In the informal mining sector, known as artisanal mining, miners adopt a loose variation of the onboarding system.

In the case of Murowa, employees are drawn from as far as Mutare and are scattered across the country. Employees are bussed in and out on different commute rosters like 10/4 (10 days on duty, 4 days off) and 14/7 (14 days onsite and 7 days off). Those on the 5/2 commute system are flown in on Monday and flown out for their time off on Friday every week. Thus Murowa's FIFO system is on a 5/2 roster.

A similarly run operation is Zimbabwe Consolidated Diamond Company (ZCDC), which is more commonly known as Chiadzwa. This mine is situated in the Marange communal lands of Mutare. ZCDC also runs on the 10/4 and 14/7 commute systems, with a slight variation regarding transportation of employees. Whilst Murowa wholly provides transportation, ZCDC on the contrary leaves employees to their own plans, although accommodation arrangements are similar. Employees are all accommodated on site although in different lodgings

depending on level of seniority. Female employees at the mine are also awarded special leave such as 6 months maternity leave, and also face the same anxiety pangs when returning to work for resumption of duty.

1.2 Statement of the Problem

Whilst the history of mining has included women since time immemorial, the industry predominantly remains a male environment. Most female employees have reservations about the long distance commuting arrangement. One area of contention that prodded the interest of this study was that female employees are required to leave six month old babies at home after maternity leave, and the employee is required to resume normal roster such as 10/4 and 14/7, which is a cause of anxiety among most working mothers. Onboarding also known as long distance commuting (LDC), is centred around a system of work cycles that require extended periods of time away from the family unit (Misan, 2015). This arrangement has caused stress, low morale and anxieties among female employees who have families and friends. Traditionally, women have enjoyed their place as homemakers and mothers. Working women in Zimbabwe face several psychosocial pressures due to their unavailability at home. The work-life balance challenges become topical for female employees, and this often leads to disengagement and demotivation. This study sought to establish the associated challenges and psychological stressors that affect women who practice onboarding in the formal mining industry.

1.3 Research Objectives

1.3.1 To investigate the psychosocial stressors which affect female employees who practice onboarding/ long distance commuting in the mining industry.

1.3.2 To assess whether variables of age and marital status have an impact on the psychosocial stress levels among female mining employees who practice onboarding / long distance commuting.

1.3.3 To recommend practical solutions that reduce the problems caused by onboarding/ long distance on female mining employees.

1.4 Hypotheses

H1. Onboarding of female mining employees creates psychosocial challenges that can affect their work performance.

H2 Age and marital status have an effect on the level of stress that female employees face in the mining sector.

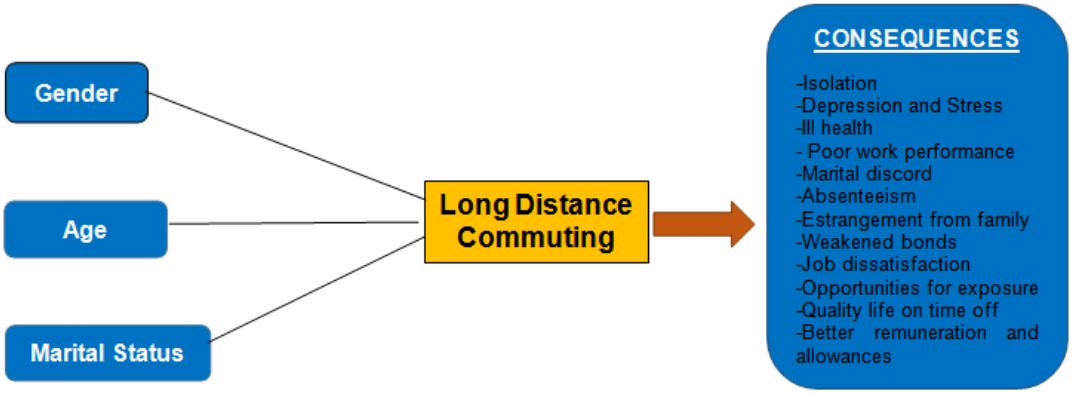
II. LITERATURE REVIEW

Long distance commuting is a common feature of several industries including energy and medical fields, but notably the mining and construction landscapes. Its tentacles have reached out as far afield as the oil and gas production fields of Siberia, particularly to address the needs for non-conventional forms of work practice as well as availability of skilled labour force in the extreme climatic conditions that characterise Russia (Silin, 2015). It was projected that about 50% of Western Australia's mining complement was operating under FIFO systems (Macdonald, Sainsbury & Maher, 2015).

2.1 Long Distance Commuting

Long distance commuting (LDC) can be defined generally as a selection of commuting work methods in which employees travel via air, road, rail or water transport to and from operational sites that are normally too far away to make daily commuting feasible (Storey, 2010;Misan and Rudnik, 2015). The Parliament of the Commonwealth of Australia (2013) defines Long Distance Commuting as a work practice in which employees "travel long distances to work and then return to their permanent place of residence at regular intervals". Thus Long Distance Commuting refers to employment arrangements where the place of work is so distant from a worker's place of residence that daily commuting is impractical.

2.2 Fig. 1 Conceptual Framework



A conceptual framework is defined as the researcher's account of how the research problem can possibly be explored (Adom, Hussein & Ado, 2018). It illustrates the relationship between the main impressions behind a planned research. Grant &Osanloo, (2014) posit that a conceptual framework is normally arranged in a logical structure to aid and provide a picture or visual display of how ideas in a study relate to one another. In this study, the problem is centered on the psychosocial stress that female mining employees on long distance commuting system face at Murowa Diamonds. The independent variables of gender, age and marital status were impacted differently by long distance commuting, giving rise to a spectrum of positive and negative consequences as stated in the in the illustration above.

2.3 Theoretical Framework

2.3.1 Theory of Work-Life Balance

Work-Life Balance (WLB) is a broad view which alludes to the balance one attains between career aspiration goals on one hand, and family life on the other (AIHazemi& Ali, 2018). Work-Life Balance speaks of the effective management of several responsibilities that employees have, that is, at work and in the home context. AIHazemi & Ali (2018) define work-life balance as the concordant integration of one's work and personal life. Several theories of work-life balance have been advanced and the most prominent are summarized below:

2.3.2 Segmentation Theory

Propounded by Blood and Wolfe (1960), the basic tenet of the theory is that for jobs that are mundane and not satisfying such as blue-collar jobs, the segmentation of work and home into separate compartments is almost an automatic process. The two spheres of life are seen as separate and one does not influence the other. This perspective was refuted by other scholars who concluded that work and home life are closely related (Burke &Greenglass, 1987; Voydanoff, 1987).

2.3.3 Enhancement Theory

Enhancement theory refers to the extent to which practices from influential sources such as individual skills, capabilities and intrinsic values or emotional sources such as one's mood or level of satisfaction, add to the richness of the other sphere (Morris and Madsen, 2007). This theory is a positive perspective on work-life balance and asserts that one is able to attain balance between work and home by determining how to expend energy and effort between the two spheres and obtain positive outcomes in both areas. The notion is that work-life balance has two parts - instrumental and affective avenues. The instrumental path relates to key aspects that can assist one to perform better in the other sphere. The affective path looks at the extent to which one's emotions from one segment can affect their behaviours and emotions in the other domain

2.3.4 Facilitation Theory

This theory emanates from Enhancement theory, and its basic premise is that one's involvement in one life sphere (e.g., work) may result in the availing of means that bring enjoyable and fulfilling experiences to another domain (Marks, 1977; Thoits, 1991; Barnett and Hyde, 2001). Facilitation theory discusses what happens when involvement in one sphere increases commitment in another sphere. Facilitation typically happens when contributions in work and home roles are mutually beneficial.

2.3.5 Spillover Theory

The Spillover Theory is by far the most popular of the work-life balance theories. Spillover Theory states that employees transfer the attitudes, abilities and practices that they learn at work into their family lives (Belsky et al., 1985; Kelly &Voydanoff, 1985; Piotrkowski, 1979; Piotrkowski & Crits-Christoph, 1981) and vice versa.

Spillover can either be negative or positive. Spillover theory defines the circumstances which result in positive or negative spill over from home to work.

2.4 Border Theory

Clark (2000) stated that each individual's role occurs in a precise domain, and these domains are divided by borders that can be physical, temporal, or psychological. Temporal boundaries may include an employee deciding to knock off at precisely 7pm to enable them to call their children at home before they sleep. The theory highlights the issue of "crossing borders" between domains of life, specifically the domains of home and work. Physical boundaries are actual places that personal and work functions occur in. Lastly, psychological boundaries may be characterised by the insights associated with the activities of work and home roles (Ashforth *et al,* 2000; Clark, 2000). The theory states that less conflict will occur when an individual manages work and their private life separately.

2.5 Work-related or occupational stress

Work stress is a global phenomenon that is known to result in negative health and general wellness, thus affecting an individual's overall work performance (Babatunde, 2013). Research has noted that in Australia for example, the mining industry has a high prevalence of work related stress (Street, Lacey & Somoray, 2019). Interestingly, conditions such as long working hours, overly long rosters and working in remote areas were attributed to the increase in stress levels among mining employees, a finding that resonated with the local Zimbabwean set up. Stress is generally seen in the context of physical and psychological responses invoking negative cognitive or physiological health when an individual fails to adapt to a given situation(Li, Sun, Ge, Liu & Chen, 2019).Often conditions within the job or surrounding the job can be potential sources of stress, and this includes jobs involving shift work (Anbazhagan & Rajan, 2015). Several factors contribute to occupational stress as cited by many scholars, including irregular working hours (e.g. working night shift or prolonged rosters such as 14/7); as well as individual factors such as gender, ability to cope with stress and age(Li *et al*, 2019). For the working woman, an added dimension of children seemed to add to their stress as compared to their male counterparts (Lundberg & Cooper, 2011).

III. RESEARCH METHODOLOGY

The study was mixed research anchored on pragmatism as a research philosophy. Questionnaire were the main data collection instrument for quantitative responses. For qualitative analysis, follow up face to face interviews were carried out with key informants in order to get a deeper understanding of the quantitative responses. The research was a case study of the Murowa Diamonds Mining Company which had a population of 87 female employees on the long distance and commute system. Computations showed that out of a population of 87 female employees, at 95% confidence level, with a ±5% margin of error, the resultant representative sample size was 54.

Purposive sampling was used in order to access a specific subset of the pool of female employees at Murowa Diamonds Mining Company because not all female employees fitted the criteria of working on the long distance commute system as some female employees were local and stayed with their families.

IV. DATA PRESENTATION, ANALYSIS AND DISCUSSIONRESPONSE RATE

Fifty-four questionnaires were distributed to a sample of54 female employees and 38 managed to complete and return the questionnaires representing a response rate of 70%. However, of the returned questionnaires, 6 of them could not be used due to a number of reasons. Four of these questionnaires had the major part (Question 7 to 18) not completed and the other two contained gross errors that including such data in the study would have distorted the conclusions and results.

An analysis of the age groups of respondents showed that 75% were of the 19 to 26 years cohort. These are young employees who are at the prime of their lives needing partners for marriage, friends or could have started young families of their own. 22% were of the 35 to 42 year category while only 3% were aged 43 years and older.

Seventy-eight percent of the female mining employees who were respondents reported that they were single while 16% stated that they were married. Only 6% were widows. This indicates that a majority of the female employees were still single. Further probing of this statistic during interviews was explained by one interviewee:

Most married women shun the long distance commuting system as they find it unsuitable for their families. While we have a high number of single employees, past experience has shown that once they marry, the probability of them resigning becomes very high. **Interviewee 1**

Fifty-three percent of the respondents reported that they had no children while 47% had on average one child to look after. This finding supported the above finding that most women with families find that the long distance commuting system affected their mothering roles.
The respondents had to report on their perceptions and views about the general aspects of onboarding system as indicated on the table below:

Table 1: Female mining employees' perception of commuting life

		Frequency	Valid Percent	Cumulative Percent
Do you have adequate time with family and friends?	Agree	8	25.0	25.0
	Not sure	3	9.4	34.4
	Disagree	19	59.4	93.8
	Strongly disagree	2	6.3	100.0
	Total	**32**	**100.0**	
Do you have enough time to rest on shift?	Disagree	27	84.4	84.4
	Agree	5	15.6	100.0
	Total	**32**	**100.0**	
Does the organisation support female employees on shift?	Agree	22	68.8	68.8
	Not sure	6	18.8	87.5
	Disagree	4	12.5	100.0
	Total	**32**	**100.0**	
Do you have strong feelings to be with family while away at work?	Agree	26	81.3	81.3
	Disagree	6	18.8	100.0
	Total	**32**	**100.0**	
The commute roster has more advantages than disadvantages?	Agree	19	59.4	59.4
	Disagree	11	34.4	93.8
	Strongly disagree	2	6.3	100.0
	Total	**32**	**100.0**	
Does mine site support your social life?	Agree	19	59.4	59.4
	Disagree	11	34.4	93.8
	Strongly disagree	2	6.3	100.0
	Total	**32**	**100.0**	

Source: survey data (2019)

The female employees indicated that Murowa Diamond Mining Company does not offer enough time for female employees to be with their friends and family, and they replied that they do not have enough time to rest. 66% of the respondents showed that they did not have enough time with friends and family, a large percentage of 84% stated that they had no time to rest. However, the employees allude to the company offering support opportunities both at the site and at home. In fact, 67% agreed that the mining company offered them the support they need and 81% reported that they receive strong support for their families while they are on work shift. Furthermore, 59% of the female employees said that the mining site had adequate entertainment and social life support events. The majority of the respondents reported that Murowa Diamond Mining Company's commute roster has more advantages than disadvantages.

4.1 Psychosocial stressors for long distance commuting female employees in the mining sector

This section sought to establish the kind of psychosocial stressors which affected female mining employees at Murowa Diamonds in Zimbabwe. The survey included categorical data in which the respondents had either to select or not select the stressors which they perceived as most relevant to their lived experiences. Their responses were coded as 1 for accepting (yes) and 2 for rejecting (no) options. The respondents were both tabulated in Table 3 and visually displayed in bar graphs.

Table 2: Types of psychosocial stressors experienced by female mining employees

Effects of Long Distance Commuting (LDC) being Encountered by Female Mining Employees		Frequency	Percent
Do you experience anxiety and worries?	Yes	3	9.4

	No	29	90.6
	Total	**32**	**100.0**
Do you experience loneliness?	Yes	0	0
	No	32	100.0
	Total	**32**	**100.0**
Do you think you suffer from depression?	Yes	2	6.3
	No	30	93.8
	Total	**32**	**100.0**
Do you feel that you are neglecting your family duties?	Yes	5	15.6
	No	27	84.4
	Total	**32**	**100.0**
Do you suffer from fatigue?	No	13	40.6
	Yes	19	59.4
	Total	**32**	**100.0**
Are you able to cope with pressure?	Yes	6	18.8
	No	26	81.3
	Total	**32**	**100.0**
Do you experience marital problems as a result of LDC?	Yes	14	43.8
	No	18	56.3
	Total	**32**	**100.0**

Source: Survey data (2019)

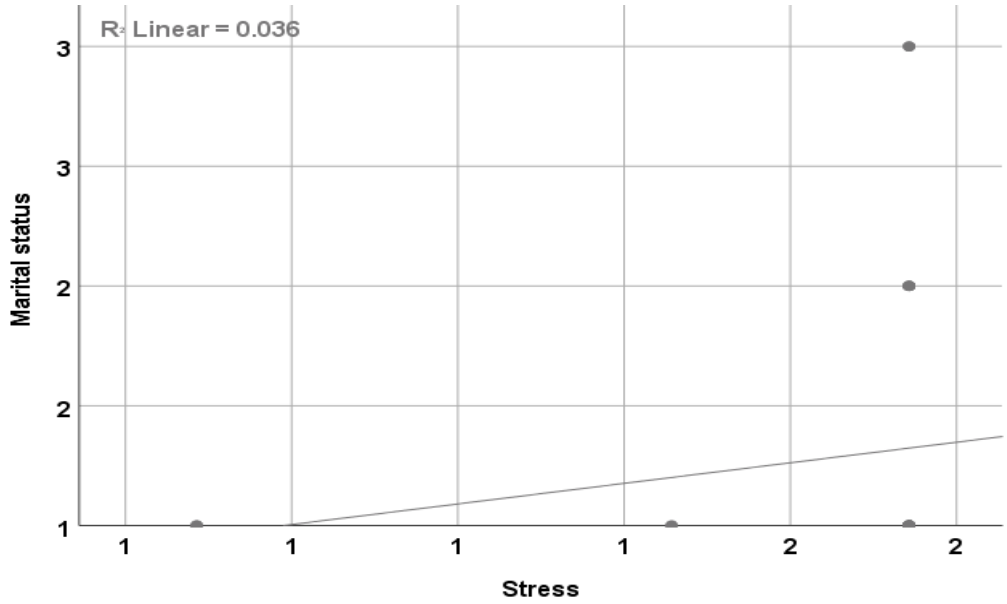
Based on the Table above, 91% of the respondents reported that they did not experience worries and 100% reported that LDC does not cause loneliness. Furthermore, 94% stated that the onboarding system is not the source of depression and does not contribute to negligence of family duties. This could be because most female employees making up the respondents were single. Furthermore, 81% acknowledged that the commute system makes them unable to cope with pressure. 59% of the respondents agreed that the commute system stimulates fatigue and44% of the respondents experience marital problems.

While a number of prior generic publications including works by McPhedran& De Leo (2014) and Markey, Ryser & Halseth (2015) seem to suggest that all onboarding systems are major sources of psychosocial stress among mining employees in general, this study found slightly different results. This contradiction could be explained by the composition of the sample of this study where most respondents in the sample were single.

4.2 Impact of age and marital status on the level of psychosocial stress among female employees in the mining sector

This section sought to understand how demographic features particularly age and marital status affected female employees' psychosocial stress levels. Spearman ranking correlation was conducted to establish the relationship between stress, age and marital status. The scatter plots were drawn for marital status and age against the stress levels.

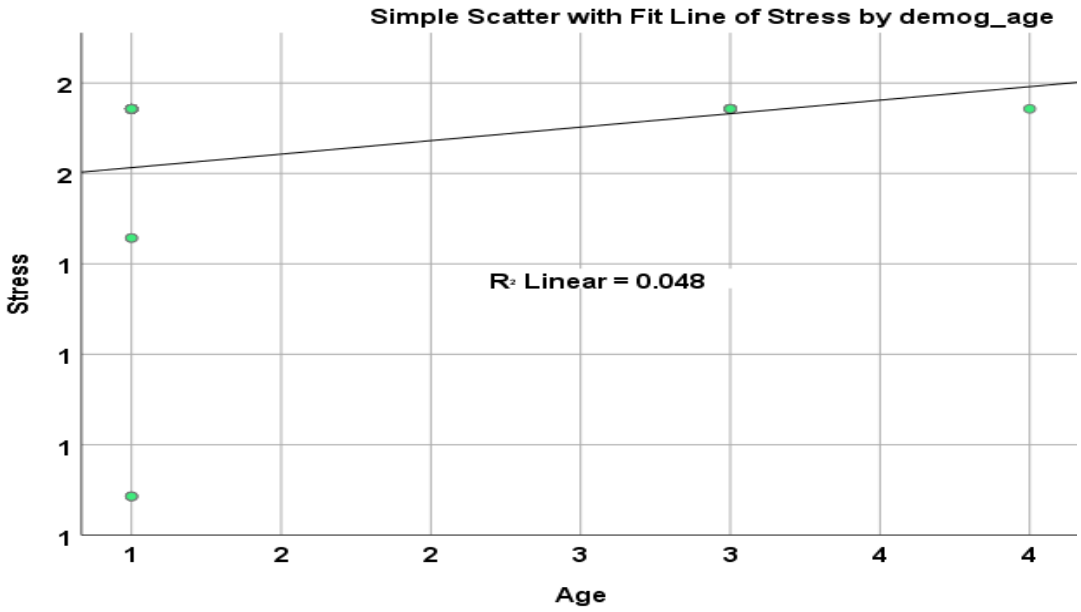
Figure 2 Spearman correlation between marital status and female employee stress



Source: *Survey data (2019)*

The scatter diagram to plot the relationships between stress and marital status indicated that there is a very weak positive correlation between marital status and stress levels with a coefficient determination of 0.036. This indicates that only 4% of the stress found in females is attributed to their marital status. However, the relationship is positive indicating that changing the marital status of someone might affect the female employee's stress levels.

Figure 3 Correlation between age and stress



Source: Survey data (2019)

The scatter plot of the relationship between age and the level of stress among female employees indicated that there is a positive weak link between demographic age and stress. The coefficient of determination was 0.048 suggesting that 5% of the variation in the stress level could be attributed to the age differences among the female employees.

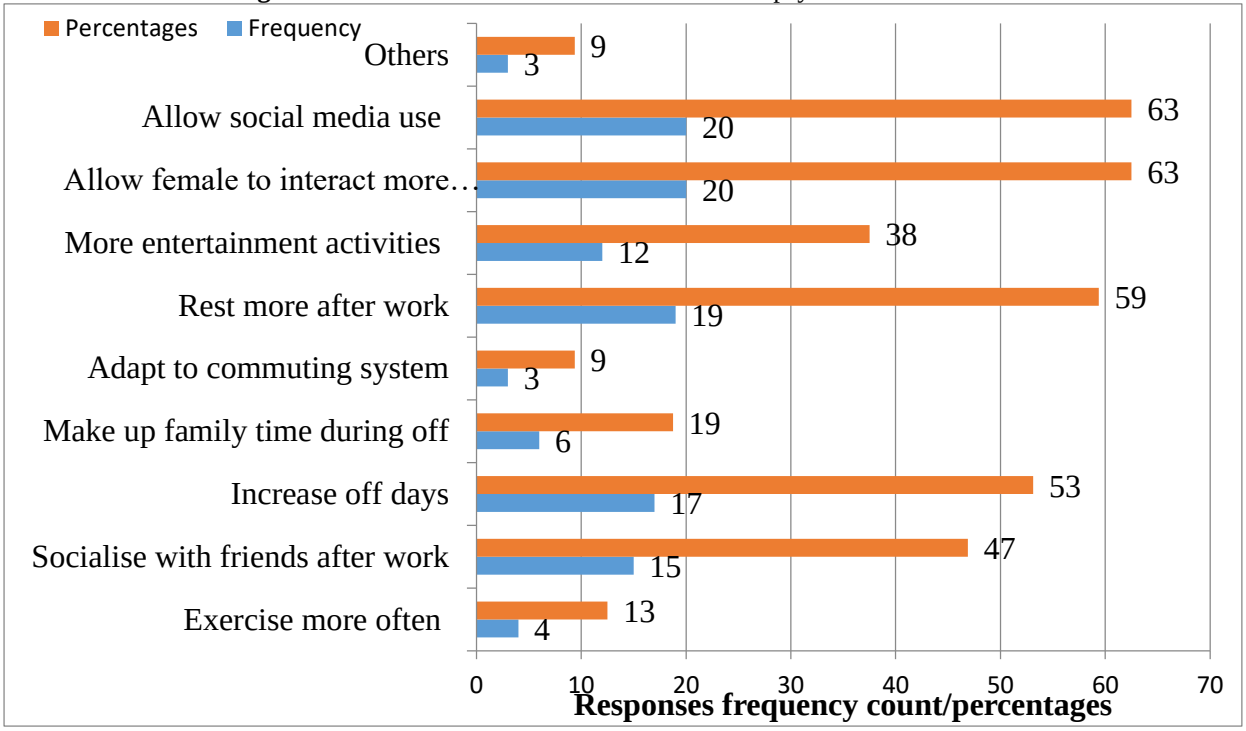
While this study suggests that there is a weak positive link between age, marital status, work performance and female employee stress levels, previous studies seem to cast that the link is significant and worth paying attention.Lahiri-Dutt (2011); Brown et al (2014); Botha & Cronje (2015); and MacDonald et al (2015) assert that female employees in the mining sector are significantly affected more than men. Though the studies do not take

a quantitative approach to their conclusions, they seem to concur that age and marital status significantly affect the level of psychosocial challenges.

3.3 Possible solutions to psychosocial stress among onboarding female mining employees

Twelve respondents did not complete Question 17 and fourteen did not respond to 18.

Figure4: Possible solutions to reduce incidents of psychosocial stress



Source: Survey data (2019)

In this section, female employees were asked to proffer what they considered as appropriate in order to reduce the levels of psychosocial stress at the mining site. A number of personal and company initiatives were indicated to understand how employees perceived their contributions in managing psychosocial stress at work. The responses indicated that female employees believed that use of social media, allowing more interactions among female workers at the site, increasing the number of off days and ensuring that employees rest more after work were some prominent measures that could be implemented to manage psychosocial problems among female employees.

4.4 Hypothesis testing

The study sought to understand whether the psychosocial challenges experienced among female employees were linked to age, marital status and the onboarding system. The testing procedure basically followed five steps: determining the null and alternative hypothesis and stating the significance level. In this research, a significance level of 0.05 was set. Since the sample size was small, the t-test statistic was used. Null hypothesis: H_o and alternative hypothesis as Ha.

4.5 Whether onboarding of female mining employees creates psychosocial challenges that can affect their work performance.

It was necessary to explore the relationship that exists between the psychosocial challenges created by onboarding facilities for Murowa Diamond and the level of work performance. The psychosocial challenges were considered as the aggregate measure of stress as a result of a combination of loneliness, depression, anxiety, neglect, fatigue, inability to cope with pressure and marital problems among others. A female employee who is able to cope with pressure and does not succumb to fatigue is considered to be performing well.

Following the five steps obtained the results on Table 3 below:

Step 1	Ho	Performance (P) is not affected by the stress (S) levels
	Ha	P is affected by a female employee's S levels
Step 2	Significance level = 0.05	

Step 3 Student test statistic

			Stress	performance
Spearman's rho	Stress	Correlation Coefficient	1.000	.328
		Sig. (2-tailed)	.	.067
		N	32	32
	performance	Correlation Coefficient	.328	1.000
		Sig. (2-tailed)	.067	.
		N	32	32

Step 4 The two-tailed test indicated a p-value of 0.067 which is larger than the critical region of 0.05.

Step 5 It can be concluded that there is no evidence to reject the null hypothesis in favour of the alternative hypothesis.

The findings indicate that there is inadequate evidence to reject the null hypothesis. There is no significant relationship between stress and female employee work performance.

4.6 Age and marital status have an effect on the level of stress that respective female employees may face

Question 15 and 16 focused on finding out how age and marital status affected respondents' stress levels at Murowa mining company.

Table 4:Age and stress

Step 1 Ho Age does not contribute to one's stress (S) levels
Ha Age affects the stress

Step 2 Significance level = 0.05

Step 3 Student test statistic

			Stress	Age
Spearman's rho	Stress	Correlation Coefficient	1.000	.246
		Sig. (2-tailed)	.	.174
		N	32	32
	Age	Correlation Coefficient	.246	1.000
		Sig. (2-tailed)	.174	.
		N	32	32

Step 4 The two-tailed test indicated a calculate p-value of 0.174 which is larger than the critical region of 0.05.

Step 5 It can be concluded that there is no evidence to reject the null hypothesis that age does not affect a female employee's stress levels.

4.7 Table 5: Marital status and stress levels

Step 1 Ho Marital status does not contribute to one's stress (S) levels
Ha Marital status affects the stress

Step 2 Significance level = 0.05

Step 3 Student test statistic

			Stress	Marital status
Spearman's rho	Stress	Correlation Coefficient	1.000	.226
		Sig. (2-tailed)	.	.215
		N	32	32
	Marital status	Correlation Coefficient	.226	1.000
		Sig. (2-tailed)	.215	.
		N	32	32

Step 4 The two-tailed test indicated a p-value of 0.215 which is larger than the critical region of 0.05.
Step 5 It can be concluded that there is no evidence to reject the null hypothesis that marital status does not affect a female employee's stress levels.

The study found out that there is no statistical evidence to reject the null hypothesis that age, marital status and performance at work can affect and be affected by the level of stress among female employees.

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of main findings

Respondents perceive onboarding at Murowa Diamond mine as offering more opportunities than disadvantages. They need to be given more time to rest and socialize with family and friends. The respondents acknowledged that the commuting system is affecting their marital status and was a major source of fatigue. The study established that age and marital status have positive relationship with stress levels. The mining company should promote use of social media communication technologies during work shifts, enhance the socialization activities among the female employees, re-schedule its off days so that female employees are afforded more time to rest and be able to socialize with friends and family.

5.2 Recommendations

This study recommends that:

5.2.1 Murowa Diamond mining company should consider to increase its off days for female employees so that they have ample time with families and friends and to give them more time to rest in order to reduce the possibility of psychosocial stress.

5.2.2 Murowa Diamond mining company should relook at its employee policy on social programmes and socialization activities so as to incorporate modern technologies such as social media so that employees can easily socialize virtually while physicaly performing their duties.

1.6.3.3 Murowa Diamond mining company should improve its working conditions so that it becomes an equal opportunity employer. The current situation where married women shun working in mines should be reversed.

5.3 Areas for further study

This study could not establish the effects of gender disparities on the level of psychosocial challenges among mining employees. Most past studies seem to suggest that women have unique psychosocial problems compared to men. Unfortunately, such past studies especially by Jenkins (2014) remain suggestive and not empirical in nature. It might be intriguing to study how demographic feature of gender really affects the psychosocial challenges among mining employees.

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