Effect of Flexible Work Arrangements on Work-life Balance among Mineworkers in Ghana

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Abstract

Recently, there has been a significant shift in the way that work is organized, and this situation appears to be the same in Ghanaian workplaces, as mobile communication devices and flexible work arrangements like working from home are becoming more popular, particularly among mineworkers. This study developed and evaluated a regression model while also determining the interactions and processes by which flexible work arrangements (FWAs) impact work-life balance (WLB) in the mining industry. The survey's findings showed that FWAs and WLB were positively and significantly correlated, and that mine workers believed to a large extent that various FWAs advanced WLB, although there appeared to be a low-level incorporation of FWAs into their work schedule. The study therefore recommends that mining firms take a serious interest in providing FWAs for employees while ensuring that they are well-managed.

Keywords

Flexible work arrangements, Work-life balance, Flextime, Satisfaction, and Mining.

1. Introduction

Mining is a cornerstone of Ghana’s economy, contributing significantly to GDP and employment (Aryee, 2020). However, the mining sector is also known for its physically demanding and hazardous working conditions, often involving long hours and shift work. Thus, for mineworkers, achieving work-life balance

(WLB) can be particularly challenging, inevitably calling for flexible working arrangements. Flexible work arrangements (FWAs) have been proposed as a strategy to enhance WLB (Ibeh et al., 2023), yet their implementation in sectors like mining appears limited. FWAs encompass various practices that allow employees greater control over when, where, and how they work (Ibeh et al., 2024; Ramachandran et al., 2012). These include flexible scheduling, compressed workweeks, telecommuting, and part-time options (Henderson, 2019). In industries such as mining, implementing FWAs is often complicated by the need for physical presence at mining sites and the rigid nature of operational schedules. Broadly, between individuals and the organizations, FWAs are largely provided and allowed by organizations (Pretorius, 2020). Also, there is equally the increasing desire of workers to be able to balance their work and personal lives. That is, as much as workers wish to advance in their careers, the current and emerging Ghanaian workforce equally seeks to enjoy their personal lives and invest time to raise and manage a family (Asiedu-Appiah, 2015). The essence of this is confirmed by a good number of studies that have established that WLB policies come with considerable positive outcomes to beneficiaries (Pretorius 2020; Lau et al., 2018). However, on the contrary, in other studies the concept of WLB has also been found not to yield considerable benefits to organizations and individuals (Fang et al., 2019), predominantly as a result of the interacting or mediating variables (Aryee et al., 2013). This study therefore delves into the matter to see if the situation is the same or differs in the mining sector in Ghana.

The mining sector in Ghana often demands extended hours, night shifts, and rotational schedules, which can disrupt family life and personal well-being (Mensah et al., 2021). Prolonged separation from families, coupled with the physically demanding nature of mining, increases stress and burnout among workers. Thus, achieving WLB is not merely a personal aspiration but a necessity for maintaining productivity, mental health, and job satisfaction (Baffoe & Antwi, 2022). In line with this, prior studies have found FWAs to help employees stay in employment for a long time and contribute to higher levels of work-life balance satisfaction, especially among highly skilled employees (Chung and van der Horst, 2018). Consequently, some attention has been given to some intervening mechanisms (Asiedu-Appiah and Zoogah, 2019). Regardless of these intervening mechanisms, notably FWAs, there is still a need to conduct more studies to resolve some pertinent quandaries associated with WLB (Falola et al., 2018). In practice, FWAs are primarily intended to yield family-friendly opportunities for employees to be able to engage in

family-life roles (Sirgy and Lee, 2018; OECD, 2016). Contrastingly, conflict has been associated with these FWAs, especially in studies carried out outside Ghana (Kim et al., 2019; Beutell et al., 2018). and hence making the paucity of studies in the Ghanaian context a lacuna for this study to be conducted. Therefore, the drive of this study is to investigate the effect of FWAs on the WLB of employees in Ghana's mining sector.

2. Review of the Literature

Flexible work arrangements (FWAs) refer to policies and practices that allow employees greater control over their work schedules, locations, or hours (Henderson, 2019; Bharathi et al., 2018). These include options such as compressed workweeks, flexible schedules, job sharing, and remote working. Globally, FWAs have been associated with improved job satisfaction, productivity, and reduced stress (Aryee, 2020). However, industries requiring physical labor, such as mining, face unique barriers to implementing FWAs effectively (Osei, 2020). Work-life balance is defined as the ability of individuals to manage work and personal responsibilities effectively without undue strain on either (Mensah et al., 2021). In the mining sector, it is particularly difficult to achieve due to extended shifts, rotational schedules, and the physically demanding nature of the work. Research by Baffoe and Antwi (2022) shows that prolonged absences from families increase stress and strain relationships, impacting workers' mental health and job performance. In Ghana, where mining is a key economic activity, addressing these challenges is essential for sustaining the workforce. Also, despite limited implementation, FWAs hold promise for Ghana's mining industry. Studies emphasize the need for tailored solutions, such as compressed workweeks and rotational flexibility, to address operational challenges while supporting WLB (Osei, 2020). Additionally, on-site wellness programs and supportive policies, such as paid leave for family events, are highlighted as practical interventions (Mensah et al., 2021). Although FWAs have been widely studied in various sectors, research on their applicability in labor-intensive industries like mining remains limited, particularly in the Ghanaian context.

3. Research Methodology

The study adapts a quantitative research approach which involved some numerical estimation and inference. By using a convenient sampling technique, data was collected from 150 mine workers across Ghana for the study. According to Cochran (1977), when the population size is unknown,

determining the sample size typically involves using a formula based on desired confidence levels and margin of error. Cochran (1977) developed a formula to calculate a representative sample for proportions as:

$$N_0 \frac{z^2 pq}{e2}$$

n = The Sample Size
Z = the number of Standard Deviation from the mean corresponding to the desired confidence level. That is, for 95 percent confidence level, Z= 1.21
P = is the estimated proportion of an attribute that is present in the population,
q = *1-p* (Using 0.5 for maximum variability).
E = the margin of error, which is 0.05.
For a confidence level of 95 percent and a margin of error of 5 percent, assuming p = 0.5: n = 146. 41. Therefore, the sample size of the study is approximately 150.

Table 1:- Demographic Background

Variables	Attributes	Frequency	Percentage
Gender	Male	86	57.3
	Female	64	42.7
Age	Below 25yrs	43	28.7
	25-35yrs	100	66.7
	36-45yrs	7	4.7
Work Duration	less than 2 years	102	68.0
	2-5 years	38	25.3
	Above 5 years	10	6.7
Educational Level	Post graduate	18	12.0
	Bachelor's Degree	99	66.0
	HND	13	8.7
	SHS	15	10.0
	Others	5	3.3
Marital Status	Married	20	13.3
	Single	126	84.0
	Others	4	2.7
Dependents	Yes	79	52.7
	No	71	47.3

Variables	Attributes	Frequency	Percentage
Number of Dependents	1-3	78	52.0
	4-6	17	11.3
	7-9	2	1.3
	Others	53	35.3
Total		**150**	**100**

Source:- Field Data, 2025

The demographic statistics discusses the background information of individuals involved in this study, which comprises their gender, age, educational level, work experience, marital status and dependents.

Table 2:- Normality Test

Descriptive Statistics	FWA	WLB	SFWA
Mean	2.98	3.22	3.78
Std. Deviation	0.53	0.58	0.52
Skewness	-0.282	-0.146	0.767
Std. Error of Skewness	0.198	0.198	0.198
Kurtosis	0.296	-0.651	0.786
Std. Error of Kurtosis	0.394	0.394	0.394

Source:- Processed Data 2025

The researchers adopted kurtosis and skewness as tools in measuring normalcy of the data collected. This is because, as Fidell and Tabachnick (2007) point out, a key criterion for the application of statistical test like regression analysis is that the variables involved have a normal distribution. The skewness and kurtosis of all the main variables were within $\{-2 \leq x \geq 2\}$ which means that the variables were regularly distributed and fit for further analysis.

Table 3:- Reliability

Variable	No. of Item	Cronbach Alpha
Flexible Work Arrangement	10	0.766
Work Life Balance	15	0.847
Satisfaction with Flexible Work Arrangement	6	0.735

Source:- Processed Data 2025

It can be observed from the results of the reliability test that high reliability coefficients were recorded for each construct employed in the study. For instance, the construct of FWAs was measured with 10 items and these items were reliable at 76.6 percent (i.e. .766). The highest reliability coefficient (.847, that is 84.7 percent) was recorded for the work life balance scale, also measured with 15 items. With the other scales recording values above .735 it can be advanced that the items used in this study are highly reliable (Downing, 2004).

Table 4:- Descriptive Statistics on Flexible Work Arrangement

Statements	Min	Max	Mean	Std. dev
I have the freedom to change the times that I begin and end each workday due to my personal preferences/needs	1	5	2.52	1.21
I have the freedom to change the department where I conduct my work each day	1	5	2.30	1.07
I have the freedom to choose the location where I complete my work	1	5	2.49	1.13
I have the freedom to choose my work schedule	1	5	2.50	1.15
I am satisfied with my current work arrangements	1	5	3.49	0.92
I would prefer to be involved in structuring my working times in the company	1	5	3.49	0.89
I find it difficult to balance my work life commitments	1	5	2.77	0.98
Flexible work arrangement will help me balance my work life	1	5	3.81	0.89
I often need time off during a working day to take care of personal commitments	1	5	3.51	1.08
My work hours do not allow me to spend time with my family	1	5	3.01	1.11

Source:- Processed Data 2025

The main independent variable in this survey was FWAs and it was measured using 10 indicators. The composite variable for this construct suggests an absence or limited use of FWAs in the work domain of participants. The

predominant disagreement of participants (shown M= 2.99 and SD = 1.04) can be interpreted as most of them were not exposed to flexible work arrangements such as flexible time schedule (flextime), flexible location schedules (flexplace) and flexible work schedules. With inference from these statistical findings, it can be advanced that there is a low level of FWAs among mineworkers.

Table 5:- Descriptive Statistics on Work Life Balance

Statements	Min	Max	Mean	Std. dev
I struggle with trying to juggle both my work and non-work responsibilities	1	5	2.93	1.04
I feel overwhelmed when I try to balance my work and personal life	1	5	3.27	0.92
I have difficulty scheduling vacation time because of my workload	1	5	3.33	1.05
I am unable to relax at home because I am preoccupied with work	1	5	2.99	1.06
I am happy with the amount of time I spend doing activities not related to work	1	5	3.35	1.02
I often have to make difficult choices between my work and my personal life	1	5	3.15	0.99
I have to put aspects of my personal life “on hold” because of my work	1	5	3.19	1.14
I am able to accomplish what I would like in both my personal and work lives	1	5	3.39	0.93
I often neglect my personal life needs because of the demands of my work	1	5	3.08	1.00
My personal life suffers because of my work	1	5	2.97	1.03
I have to miss out on important personal activities due to the amount of time I spend doing work	1	5	3.14	1.09
I feel that I allocate appropriate amounts of time to both work and non-work activities	1	5	3.45	0.98
I make personal sacrifices to get work done	1	5	3.65	0.91

Statements	Min	Max	Mean	Std. dev
I come home from work too tired to do things I would like to do	1	5	3.31	1.06
My job makes it difficult to maintain the kinds of personal life I would like	1	5	3.11	1.04

Source:- Processed Data 2025

Unlike most of the other constructs where there was generally some level of agreement with the indicators provided, the results of the descriptive test of work life balance were contrary. Given M= 3.22 and SD = 0.95. the greater proportion of participants in this research indicated that they are unable to achieve balance in the roles they play in their work and personal lives. To a larger extent, they reported that they are unable to simultaneously handle both work and non-work demands, make trade-offs in both spheres, neglect "personal life" for career, suffer stress in personal life and are unable to achieve a desired personal life. Based on these findings, it can be argued that this study identified a low level of work life balance among participants in the study area.

4. Results

In a bid to further understand the relationships between the variables considered in the study, a correlational analysis was conducted. The results of this test show some noteworthy associations among control variables (gender, age, educational level and marital status) and the other constructs comprising work life balance, occupational role reward value, occupational role commitment, homecare role reward value and flexible work arrangements.

Table 6:- Correlation Analysis

Particulars	Gender	Age	Work	Education	FWA	WLB	SFWA
Gender	1						
Age	-.248**	1					
Work	-.147	.353**	1				
Education	.105	-.002	-.111	1			
FWA	.001	-.014	.063	.048	1		
WLB	-.007	-.033	.177*	-.058	.472**	1	
SFWA	.126	-.016	-.029	-.071	.181*	.024*	1

Source:- Processed Data 2025

For instance, flexible work arrangement has a positive and substantial association with WLB, given B= .472 and p< .01. This can be interpreted as, an increase in the flexibility of one's work arrangement to increase their ability to balance work and domestic demands. Also, age was found to have a significant but inversely proportional relationship with FWA given B= -.014 and p<.05. This result further suggests that as most employees advance in age, they have less expectation of having flexible work arrangement. Since FWA was also found to relate significantly with WLB, this finding offers an interesting area for further enquiries. Furthermore, the educational level of respondents had a positive and substantial association with FWA (B= 0.048, p<.05).

The Effect of Flexible Work Arrangement on Work Life Balance

The correlational analysis carried out in the preceding section (see section 4.8) indicates that there is a positive and significant association between FWAs and WLB given *r* = .472. This coefficient suggests as FWAs are utilized increasingly there is the likelihood that WLB will increase. By considering the results of the regression analysis carried out on the two constructs in the table below, a clearer insight into this relationship is established.

Table 7:- Regression Analysis

Direct Effect	**Beta**	**S. E**	**T**	**P-value**
FWA→ WLB	0.472	0.079	6.520	0.00
R	*R-Square*	*F-Statistics*	*P-Value*	
0.472	0.223	42.509	0.00	

Source:- Processed Data 2025

Given the regression values (B= .472; t-value= -6.520; p-value =.00), it can be explained that the shared variance between FWAs and WLB is 22.3 percent (percentage of .223 r-square value) and that FWAs explains 22.3 percent variance in WLB. Additionally, this change is significant, considering the f-statistic of 42,509 and its associated p-value of .000 (which is lesser than the threshold of p<.05). Furthermore, the beta-value of .472 suggests that a unit change in FWAs is likely to result in a 47.2 percent increase WLB, although this change is also statistically significant, given the p-value (.000) and t-statistic (6.520).

5. Discussion

Principally, this study was aimed at ascertaining the association between flexible work arrangements and work-life balance among mine workers in

Ghana. The findings from this study provide some pertinent academic, theoretical, and practical (managerial) insights. For instance, the relationship between FWAs and WLB has been largely studied by scholars; however, the results have generally been somewhat contradictory. It does appear that researchers have usually found positive relationships between FWAs and WLB (Gudep, 2019; Rawashdeh et al., 2016; Aziz-Ur-Rehman and Siddiqui, 2019; Brosch and Binnewies, 2018). Nevertheless, contrary to the findings made in this study, some scholars have also established negative relationships between the two constructs (Dizaho, Salleh, and Abdullah, 2017; Wilson, 2009). The results of this current study affirm the earlier researchers' findings that a positive relationship exists between FWAs and WLB. The primary argument given for the negative relationship is that FWAs have the tendency to create work and family conflicts (Young and Schieman, 2018; Kim et al., 2019), and therefore they do not entirely benefit the employee positively. It is also advanced by Bjarntoft et al. (2020) that WLB can be adversely affected in the face of FWAs due to other attendant factors that are largely work-related. It is asserted that inflexible work arrangements have the likelihood to cause work-family conflicts among individuals, as it makes it challenging to be concurrently engaged in one's job and also meet family demands (Gamor, Amissah, and Boakye, 2014). Further, while an employee would prefer to work from home, probably due to family demands, there is likely to be no change or maybe even an increase in family-work imbalances or conflicts (Chung and Van der Lippe, 2018). This is confirmed by a study by Quansah et al. (2020), which shows that in Ghana's mining industry, family-work conflict already significantly contributes to job stress. Additionally, by working from home (telecommuting), it is possible for attention to be shared and most likely biased towards occupational duties (Bjarntoft et al., 2020; Galea, Houkes, and De Rijk, 2014). This is also likely to cause "absentmindedness" at home (Hollanda, 2020), resulting in domestic conflicts. With these contrasting views from previous studies, the current study goes on to, however, affirm that implementing FWAs in the mining sector offers several benefits that contribute to improved WLB among mineworkers in Ghana and that it can be inferred that FWAs, such as flexible scheduling and compressed workweeks, allow mineworkers to plan their work around personal and family obligations. Henderson (2019) argues that employees who have control over their schedules experience reduced stress and greater satisfaction in managing work and life commitments. For instance, compressed workweeks enable mineworkers to work longer shifts over fewer days, providing extended periods for rest and family time. Also, studies show that FWAs significantly reduce stress levels by giving workers the opportunity

to allocate time for personal well-being and relaxation. According to Baffoe et al., (2022), mineworkers who are offered flexible scheduling report improved mental health and reduced burnout, and by balancing work demands with personal priorities, employees can maintain a healthier lifestyle, resulting in greater productivity at work. Further, FWAs create opportunities for mineworkers to spend more time with their families, fostering stronger relationships. In Ghana, where family is central to social life, FWAs enable workers to attend important family events and fulfill caregiving responsibilities (Osei, 2020). This strengthens family bonds and reduces guilt associated with prolonged absences due to work. Yet again, workers who achieve a healthy WLB through FWAs are generally more satisfied with their jobs and less likely to leave their organizations. In the mining sector, where turnover rates can be high (Boohene et al., 2024), FWAs help retain skilled workers by improving their quality of life. Mensah et al. (2021) note that employers offering FWAs benefit from increased employee loyalty and motivation. Regarding the inverse relationship between age and FWAs in the mining sector, it could stem from generational differences in work preferences, technology adoption, and the sector's operational demands. For instance, according to Salminen et al. (2016) and Chimamise et al. (2013), emerging mining companies require young personnel, such as operators or laborers, who have less experience and expertise to work for shorter hours but usually older miners, who are more susceptible to distractions, to work for longer hours (Stemn, 2016). Thus, it can be inferred that while younger workers embrace flexibility as a key component of job satisfaction, older employees often prioritize routine and stability.

6. Conclusion

The findings suggested that FWAs had a positive and significant association with WLB. Therefore, as more FWAs are provided by mining firms and used by individuals, WLB is likely to increase. The study also revealed that, to some extent, mine workers feel comfortable with flexible work arrangements; however, older mine workers are less comfortable with flexible work arrangements compared to younger ones. The study recommends that FWAs should be properly managed so that they do not contribute to work-life conflict. Also, mining companies should seek to balance the dynamics associated with the inverse relationship between older mine workers and FWAs, which is in contrast to younger mine workers and FWAs, by leveraging technology and creative policies to implement FWAs that benefit a diverse workforce while maintaining operational efficiency.

7. References

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