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Content Details:

Muhammad Tayyab(Author) <i>The University of Lahore</i> Saba Saira(Co-Author)	Impact of Role Stressors on Turnover Intention and Affective Commitment: The Mediation Role of Happiness at Workplace and Job Burnout
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Abstract

This study aimed at evaluating the impact of role stressors on affective commitment and turnover intention, both directly and indirectly through mediation effects of happiness at workplace and job burnout. Also, this study aims to investigate the moderating role of psychological empowerment on the relationship of role stressors with happiness at workplace and job burnout. The researcher has collected data from 205 doctors, nurses and administrative staff of private and public hospitals of Lahore, Pakistan. The collected data was tested through structural equation modelling (SEM) technique. Findings revealed that role stressors have significant negative influence on happiness at workplace and affective commitment, while role stressors have positive impact on job burnout and turnover intention. Moreover, the findings of this study supported the moderating effects of psychological empowerment on the relationship of role stressors with happiness at workplace and job burnout. As study was conducted in the context of private and public hospitals of Lahore, Pakistan; therefore, findings may not be generalized on other areas. This study has both theoretical and practical contributions for students, management and practitioners.

Keywords: Role Stressors, turnover intention, affective commitment, happiness at workplace, job burnout, psychological empowerment.

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1. Introduction

Unlike traditional firms, modern organizations are much concerned about the wellbeing of their employees (Prasad, Vaidya, & Mangipudi, 2020). Especially, the pandemic has further enhanced the concern of organization about their employees in order to raise their commitment level and to retain them. As increasing level of turnover intention has negatively affected the goodwill and revenues of organizations; therefore, many scholars have recently highlighted the importance, determinants and outcomes of emotional attachment or affective commitment of organizations as well as the turnover intention (Bufquin, Park, Back, de Souza Meira, & Hight, 2021; Hoa, Ngan, Quang, Thanh, & Quyen, 2020). Some scholars believe that the major reason behind increasing level of turnover is lack of role clarity and over burden (Chang, 2008; Chenevert, Vandenberghe, Doucet, & Ayed, 2013; Nazir, Ungku, Nawab, & Shah, 2016). However, some others believe that lack of organizational support is also the leading cause of increasing turnover intentions (Huning, Hurt, & Frieder, 2020).

Similarly, the decreasing level of affective commitment is also majorly linked with different forms of stress, dissatisfaction, depression and lack of organizational support (Enos, 2020). Some scholars also believe that centralized systems restrain employees from enjoying empowerment; therefore, employees feel lack of attachment as well as working as outsiders, who are not valuable for the organization (Ibrahim, 2020). In order to change this perception, organizations empower their employees, which in turn help them to achieve loyalty, engagement and commitment of employees. Also, Tripathi and Bharadwaja (2020) asserted that psychologically empowered employees are comparatively more committed, loyal, engaged and creative. Safari et al. (2020) also believes that psychologically empowered employees are comparatively more resilient, committed and quick to recover from crisis, shocks or stress.

Recently, some scholars have found that the turnover ratio of doctors and other staff, has considerably increased owing to increasing level of burden and recent pandemic situation (Hussain, Hussain, & Hussain, 2020). While Nazir et al. (2016) highlighted the increasing level of stress, cynicism and turnover intentions owing to lack of clarity of role, over-burden, conflict of role, lack of organizational support and appreciation (Jan, Haque, & Naveed, 2015). Mufarrih et al. (2019) also noted that the stress level among medical students and healthcare professionals is increasing with the passage of time. While Zehra et al. (2017) compared the stress level of males and females in the hospitals of Karachi and Lahore cities of Pakistan. These studies have highlighted that healthcare professionals are increasingly becoming the victim of stress, dissatisfaction, job burnout and turnover intentions. In such situation, it is very necessary to conduct a research study to investigate the causes of turnover intentions as well as to examine the effective factors which prove to be helpful for reducing the level of turnover intentions.

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Previously many scholars have investigated the impact of role stressors on turnover intention (Chang, 2008; Chen, Lin, & Lien, 2011; Jan et al., 2015; Kim & Stoner, 2008; Park & Min, 2020). Similarly, many scholars have explored the relationship of role stressors and job burnout (Garwood, Werts, Varghese, & Gosey, 2018; Pflügner, Maier, & Weitzel, 2021; Smith, Emerson, & Everly, 2017). However, there is still need to explore the relationship between role stressors and affective commitment. Similarly, there is a lack of evidence regarding the relationship of role stressors and affective commitment in the mediation role of happiness at workplace. Similarly, less studies are available to highlight the influence of role stressors on turnover intention in the mediating role of happiness at workplace. Particularly, there is a need to conduct these relationships in the context of private and public hospitals of Lahore city in Pakistan.

Up to the knowledge of researcher, there is no previous study available to find out the moderating effects of psychological empowerment on the relationship of role stressors with happiness at workplace and job burnout. Therefore, this study aimed at investigating the following research questions.

- Do role stressors influence affective commitment and turnover intentions?
- Is there a mediation role of happiness at workplace between role stressors and affective commitment as well as turnover intention?
- Is there a mediation role of job burnout between role stressors and affective commitment as well as turnover intention?
- How the moderating effect of psychological empowerment influences the relationship of role stressors with happiness at workplace and job burnout?

Following sections are comprised upon reviewing the theoretical background in the second chapter, followed by methods to conduct this study. In the fourth chapter, results are calculated with the help of SPSS, AMOS and Process Macro. Finally, in the fifth chapter, researcher has included discussion on results, followed by highlighting the limitations and future indications.

2. Literature Review

Humans are naturally in crave of happiness not only in routine life but also in professional life (Bhatia & Mohsin, 2020). Usually, happiness is considered as a joy, fun and positive emotions, which provides only the half understanding of the concept. However, the other researchers have connected happiness with success and goals achievement, which completes the sense of the concept (Rao, Vijayalakshmi, & Goswami, 2018; Rego, Ribeiro, e Cunha, & Jesuino, 2011). During working in an organization, employees can better perform if they are happy and in a good mood. However, sometimes, the goals of organizations require employees to put extra efforts. In order to gain competitive edge, organizations have to take some critical steps which lead to strict policies and implications for employees; thus, often lead to stress (Adnan Bataineh, 2019; Naseem, 2018a). Previous scholars have identified three common role stressors including role conflict, ambiguity, and overload (Addae, Parboteeah, & Velinor, 2008; Garwood et al., 2018; Udod, Cummings, Care, & Jenkins, 2017).

Despite of strong relationship of happiness and productivity, employees perform well when they are happy at workplace (Bellet, De Neve, & Ward, 2019; Graziotin & Fagerholm, 2019). On the contrary, role stressors are totally opposite to happiness at workplace; thus, have negative influence. Naseem (2018a) has found that job stress decreases the happiness and satisfaction at workplace; however, those employees who have high level of emotional intelligence, they can better cope with this situation and receive less effect of role stress. Comparatively, employees with lower level of emotional intelligence are more likely to get high effect of role stress; thus, their happiness is more negatively influenced by role stress. Rao et al. (2018) have noted that happiness comes from goals achievement, positive emotions, appreciation, acknowledgement, organizational support and good environment; however, happiness is possible if environment is stress free. The effect of this stress can be reduced through empowering employees regarding their work-related decisions. Scholars have asserted that psychological empowerment reduces employees' stress, and they work with more enthusiasm (Pines et al., 2012; Tripathi & Bharadwaja, 2019). Therefore, following hypotheses are developed to test above mentioned relationships.

H1a: Role stressors have negative influence on happiness at workplace.

H1b: Psychological empowerment has a moderating role on the relationship of role stressors and happiness at workplace.

Apart from above, researchers have extensively explored that happy and satisfied employees are less intended to leave their organization (Al-Ali, Ameen, Isaac, Khalifa, & Shibami, 2019; Rasheed, Okumus, Weng, Hameed, & Nawaz, 2020). Similarly, Yang, Fan, Chen, Hsu, and Chien

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(2018) has evaluated that when employees are unclear about their role, they are stressed and unhappy; while unpaid overload also causes stress and unhappiness. Authors further noted that continuous stress and lack of happiness force employees to think about leaving the organization. In addition, Rasheed et al. (2020) has also noted the negative relationship between role stressors and happiness as well as negative relationship between happiness and turnover intention. Thus, following hypotheses are developed to test these relationships.

H1c: Happiness at workplace has negative relationship with turnover intention.

H1d: Happiness at workplace plays a significant mediating role between role stressors and turnover intention.

As happiness is negatively connected to turnover intention, there are other positive outcomes which appear due to happiness at workplace. Out of these outcomes, researchers have highlighted the importance of affective commitment, which is the emotional attachment of employees with the organization. For instance, Rego et al. (2011) noted that happy employees are more engaged and emotionally committed with their jobs as well as their organization. Similarly, Semedo, Coelho, and Ribeiro (2019) asserted that happiness is the strong predictor of affective commitment at workplace. Likewise Fisher (2010) highlighted that stress reduces the happiness of employees, while unhappy and unsatisfied employees have lack of emotional attachment with their organization. Therefore, in order to test these relationships, following hypotheses are developed.

H1e: Happiness at workplace has positive impact on affective commitment.

H1f: Happiness at workplace plays a significant mediating role between role stressors and affective commitment.

Accomplishment of goals and encouragement at work is always important for an employee; however, sometimes organizations put extra burden on their employees in order to get maximum output for competitive advantage (Kissi, Asare, Agyekum, Agyemang, & Labaran, 2019). For the short period of time, this situation may not appear to be much disturbing for the employees; however in the long run and continuous overload, lack of clarity and extra roles enhance the stress level of employees (Altinay et al., 2019; Jalagat, 2017). When employees feel this continuous stress for a long time, at a point of time, they feel exhausted. This situation often leads to quit the job or lose confidence and motivation level, which is termed as job burnout (Chiang & Liu, 2017; Mullen, Malone, Denney, & Santa Dietz, 2018; Zhou et al., 2017). While studies have presented a positive influence of psychological empowerment on role stressors. Schermuly, Schermuly, and Meyer (2011) found that psychologically empowered employees can better handle the stress; thus, less likely to move towards burnout. While Malik and Waheed (2010) asserted that not only role

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stressors result in job burnout and turnover intention but also lead to decreasing the level of employees' affective commitment and satisfaction. Based on above discussion, following hypotheses are developed.

H2a: Role stressors have positive influence on job burnout.

H2b: Psychological empowerment has a moderating role on the relationship of role stressors and job burnout.

H2c: Role Stressors have positive influence on turnover intention.

H2d: Role Stressors have negative influence on affective commitment.

Apart from above, Mullen et al. (2018) have found that role stressors are the strong predictors of job burnout and turnover intention and; however, role stressors are negatively connected to job satisfaction. Similarly, Cui et al. (2018) have found that not only the higher level faculty staff but also the basic school level teachers may found to be the victims of job burnout owing to continuous higher authorities pressures, especially in private schools where teachers are also pressurized regarding their job security. In addition to this, Chiang and Liu (2017) have noted that role stress positively increases the job burnout, and leads to turnover intentions. Labrague et al. (2017) have noted a positive relationship amid job burnout and turnover intention. Similarly, Wen, Zhou, Hu, and Zhang (2020) asserted that continuous stress creates a situation of burnout, which forces them to think about leaving the organization. Thus, following three hypotheses are developed.

H2c: Job burnout has positive effect on turnover intention.

H2d: Job burnout has a significant mediation role between role stressors and turnover intention.

As job burnout results in employees' exhaustion, it leads to negative behavioral aspects of employees. Khan, Jehan, Shaheen, and Ali (2018) have found that employees who are continuously facing stress and pressure, they are more likely to face the situation of job burnout, which will lead to lack of affective commitment among employees. Similarly, Setti et al. (2018) stated that the situation of burnout reduces emotional attachment with job as well as organization because employees perceive lack of organizational support. Furthermore, Akar (2018) and Koo, Yu, Chua, Lee, and Han (2020) found a positive relationship between stress and burnout; while, author found a negative relationship between job burnout and affective commitment. Thus, following hypotheses are developed.

H2e: Job burnout has negative impact on affective commitment.

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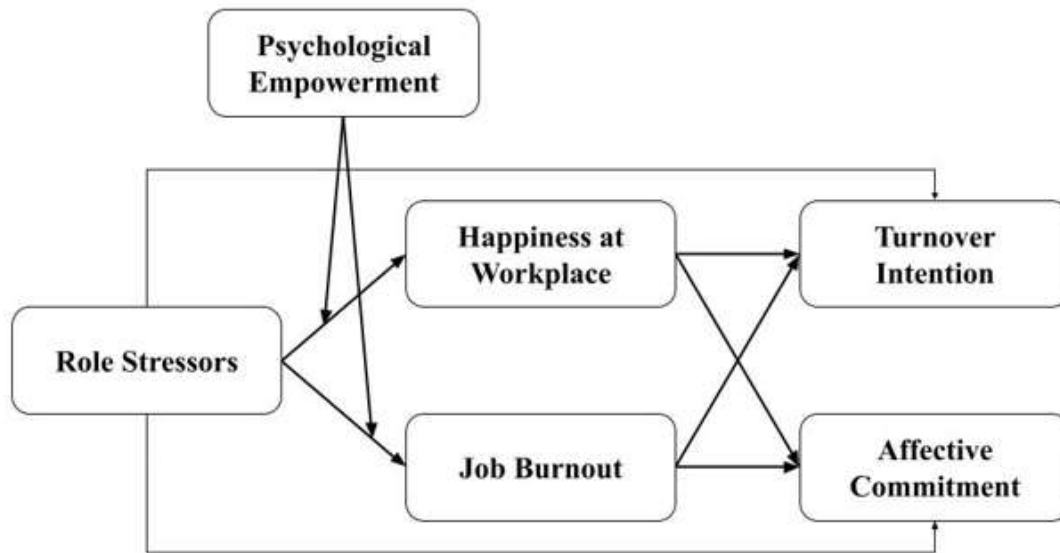
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H2f: Job burnout has a significant mediation role between role stressors and affective commitment.

Figure 1
Research Framework



Note. This figure is generated by the author.

Based on the developed hypotheses, above research framework is presented (see figure 1). In this framework, role stressors predict the happiness at workplace and job burnout in the moderating effects of psychological empowerment. However, turnover intention and affective commitment are the outcome variables, which are directly and indirectly predicted by role stressors.

3. Methodology

3.1. Population and Sampling Techniques

Majid (2018) defined research population as the comprehensive group of individuals, organizations or any objects with common characteristics, which are the interest of a researcher. In addition, Saunders, Lewis, and Thornhill (2009) asserted that sample is the sub-part or small portion, which represents the entire population. In this study, the targeted population includes all the nurses,

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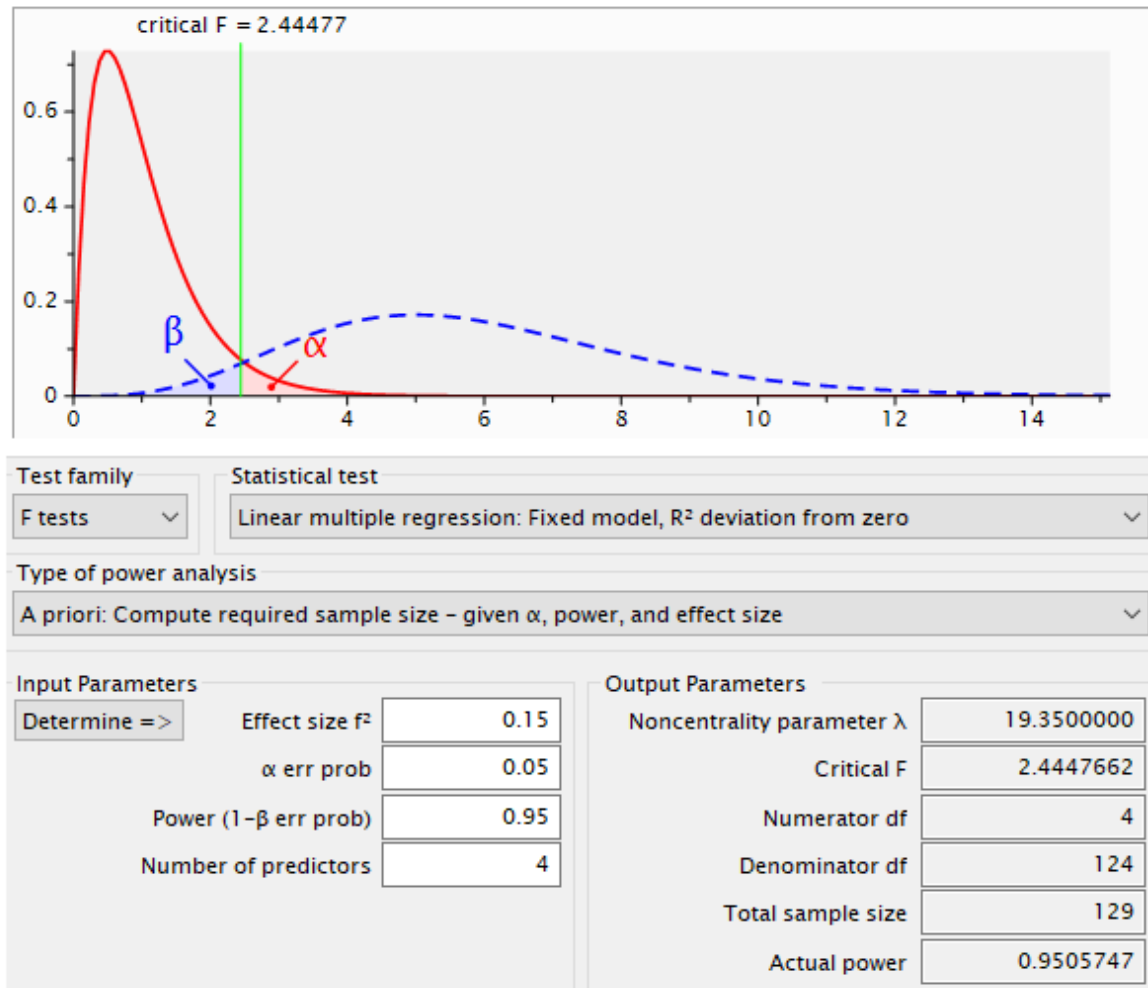
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administrative staff, and doctors in public and private hospitals of Lahore, Pakistan.

Figure 2
GPOWER Sample Size Calculation



Note. This figure is generated by the author.

Particularly, the prevailed situation of COVID-19 has increased the stress as well as burnout among medical staff; therefore, this sector is selected for this study in order to examine their happiness, affective commitment and intentions towards turnover. As the exact population is unknown; therefore, convenience sampling technique (a technique of non-probability) is utilized, in which researcher selects respondents in accordance with his/her ease (Elfil & Negida, 2017). Before collection of data, it is important to measure the required sample size, which may be

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appropriate to represent the population. Previous scholars have identified various sample size formulas and software, amongst which G*Power software is common and popular to calculate the minimum required sample size. Figure 2 shows that the sample size is calculated through G*Power software while considering 15% effect size, 5% probability, 95% confidence interval and 4 predictors of this study. After putting this information, software displayed 129 as the minimum required sample size. However, in this study the sample size is larger as Majid (2018) asserted that higher sample size more accurately represent the population.

3.2. Research Design

Based on the research onion proposed by Saunders, Lewis, and Thornhill (2007), choices are made in this study. Firstly, researcher has selected positivism philosophy as this study is quantitative, and positivism philosophy requires researchers to not interfere or manipulate the data (Saunders et al., 2009). Besides, this research is based on deductive approach, where hypotheses are tested, in contrast to inductive approach where new theories are developed (Quinlan, Babin, Carr, & Griffin, 2019). Furthermore, data was collected through survey strategy and cross sectional time horizon as Zikmund, Carr, and Griffin (2013) proposed the appropriateness of these selections along with positivism philosophy.

3.3. Data Collection and Analysis

Before approaching decided hospitals for data collection, researcher took appointments from hospital management; therefore, each hospital was visited one by one in accordance with the given date by the management. There were three kinds of respondents including nurses, administrative staff, and doctors, who were requested for their volunteer participation. A total of 210 questionnaires were distributed among respondents, out of which 205 were finalized after scrutinizing inappropriately filled responses. For this study, three software were used including SPSS, Process Macro and AMOS. The researcher mainly used descriptive statistics and SEM technique to examine the collected data. The detailed analysis and results are mentioned under section 4.

3.4. Instruments

The second part of structured questionnaire was consisted upon scales regarding the variables of the study. These scales were adapted from previous studies. For three kinds of role stressors, a 7 items scale was adapted from House, Schuler, and Levanoni (1983). Turnover intention was measured with a 3 items scale developed by Mobley, Horner, and Hollingsworth (1978). These

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above two scales were measured on a 5-points Likert scale, where 1 is considered as “strongly agree”, while 5 is considered to be “strongly disagree”. Happiness at workplace is measured with a 6 items scale, which was adapted from Bhattacharjee and Bhattacharjee (2010). These questions were related to four different kinds of dimensions including economic wellness, environmental wellness, social wellness, and democratic wellness. Affective commitment was measured through a 4 items scale, which was developed by Allen and Meyer (1990). Above two scales were measured on a 5-points Likert scale where 1 is considered as ‘strongly disagree’, while 5 is considered as “strongly agree”. Job burnout was measured with a 10 items scale, developed by Malach-Pines (2005). Job burnout was measured on a 5-points Likert scale where 1 is equal to “never” and 5 is equal to “always”. Finally, psychological empowerment is measured on a 5 points Likert scale ranging from 1=strongly disagree to 5=strongly agree. The 5 items scale for psychological empowerment was adapted from Spreitzer (1995).

3.5. Ethical Considerations

Many scholars have highlighted the importance of ethical considerations (Hsu, Hendriks, Ramos, & Grady, 2021; Ingham-Broomfield, 2017). Saunders et al. (2009) asserted that ethical standards are the moral principles that a researcher needs to follow during his/her research process, and these standards enhances the credibility of the research. For this study, researcher has not forced or bribed any individual to participate or give biased responses. During this research process, nobody was physically or psychologically got hurt. Moreover, participants provided informed consent, and their responses were anonymized to protect their privacy

4. Results

4.1. Demographic Profile

Elaborating the demographic profile enhances the authenticity and validity of the study in accordance with the selected methodology (Bell, Bryman, & Harley, 2018). Therefore, table 1 presents the demographic information. Although both males and females were participants in this study; however, almost 74% respondents were males, while around 26% respondents were females. Also, table 1 highlights that more than 55% respondents fall in the age range of 21 to 30 years, while least number of respondents are above 50 years of age. Around 54% respondents are doctors, while most of the respondents have graduation or equal education in the field of medicine. Out of 205 respondents, mostly hold 1-5 years working experience.

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Table 1
Demographic Characteristics

		Frequency	Percent
Gender	Male	152	74.1
	Female	53	25.9
	Total	205	100.0
Age	21-30 Years	113	55.1
	31-40	60	29.3
	41-50	24	11.7
	More than 50 Years	8	3.9
	Total	205	100.0
Designation	Administrative Staff	73	35.6
	Doctor	110	53.7
	Nurse	22	10.7
	Total	205	100.0
Qualification	Intermediate or Equal	31	15.1
Experience	Graduation or Equal	91	44.4
	Master/Equal or Above	72	35.1
	Specialized Qualification	11	5.4
	Total	205	100.0
	Less than one year	34	16.6
	1-5 year	90	43.9
	6-10 year	67	32.7
	More than 10 years	14	6.8
	Total	205	100.0

Note. This table is generated by the author.

4.2. Descriptive Statistics

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Researchers commonly utilize descriptive statistics to highlight a summarized form of results in the form of mean and standard deviation (SD) values. Apart from this, the reliability and correlation are also incorporated for descriptive statistics (George & Mallery, 2016; Pérez-Vicente & Ruiz, 2009; C. B. Thompson, 2009). In table 2, the mean values of happiness, psychological empowerment, and affective commitment are greater than 3 and show same direction of relationship, while the mean values of role stressors, job burnout, and turnover intention are less than 3, and show opposite direction to the above mentioned three variables.

Table 2
Descriptive Statistics

	Mean (SD)	α	1	2	3	4	5	6
(1) Role Stressors	2.149 (1.081)	.868						
(2) Happiness at workplace	3.057 (1.016)	.811	-.477**	-				
(3) Job Burnout	2.245 (1.018)	.833	.493**	-.559**	-			
(4) Psychological Empowerment	3.997 (.971)	.840	-.534**	.570**	-.525**	-		
(5) Affective Commitment	3.868 (1.085)	.791	-.617**	.317**	-.384**	.461**	-	
(6) Turnover Intention	2.989 (1.054)	.779	.562**	-.361**	.484**	-.470**	-.730**	-

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According to Hair, Black, Babin, Anderson, and Tatham (2006), the threshold for coefficient alpha is 0.5; however, values greater than 0.7 are preferred to prove the internal consistency of scale. In

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table 2, there is no value lower than 0.7; therefore, reliability is proved. Besides, table shows that role stressors, job burnout, and turnover intention have positive relationship with each other, while negative relationship with happiness, psychological empowerment, and affective commitment, that also have positive relationship with each other. In case of positive correlation, both correlated variables move in the same direction; however, under negative correlation, both moves in the opposite direction (Benesty, Chen, Huang, & Cohen, 2009).

4.3. Confirmatory Factor Analysis (CFA)

Scholars have highlighted that CFA is a pre-liminary necessary part of structural equation modelling (SEM), which confirms the model fitness, reliability and validity. Table 3 presents factor loadings, composite reliability (CR), average variance extracted (AVE) and variance inflation factor (VIF). Although some scholars have proposed to remove factor loadings which are below 0.3 (Hair, Money, Samouel, & Page, 2007; Kline, 2014), Shevlin and Miles (1998) asserted that if factor loadings are significant at 0.05; there is no need to remove them. All the factor loadings, presented in table 3, were significant at 0.05. While the reliability is also proved through CR as values are greater than 0.7 (Bacon, Sauer, & Young, 1995). Besides, dos Santos and Cirillo (2021) noted that the convergent validity is acceptable at AVE greater than 0.5, which is also proved in table 3. For discriminant validity, researcher used the criterion proposed by Fornell and Larcker (1981), in which the squared correlation among any two variables should be lower than the AVE values. From table 3, the discriminant validity is also proved. While the multicollinearity is measured through VIF, and values are lower than 5 (C. G. Thompson, Kim, Aloe, & Becker, 2017); thus, there is no multicollinearity among variables.

Table 3

Confirmatory Factor Analysis

Variables and Items	Loadings	CR	AVE	VIF
Role Stressors		.871	.521	1.804
RS1	.61			
RS2	.78			
RS3	.72			
RS4	.75			
RS5	.70			
RS6	.76			
RS7	.80			

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Happiness at Workplace		.831	.506	1.766
HAPP1	.64			
HAPP2	.68			
HAPP3	.77			
HAPP4	.80			
HAPP5	.78			
HAPP6	.72			
Job Burnout		.815	.511	1.776
JB1	.68			
JB2	.80			
JB3	.77			
JB4	.68			
JB5	.67			
Psychological Empowerment		.831	.501	1.838
PE1	.60			
PE2	.86			
PE3	.83			
PE4	.75			
PE5	.67			
Affective Commitment		.799	.572	1.695
AC1	.77			
AC2	.82			
AC3	.68			
Turnover Intention		.784	.549	1.636
TI1	.69			
TI2	.79			
TI3	.74			

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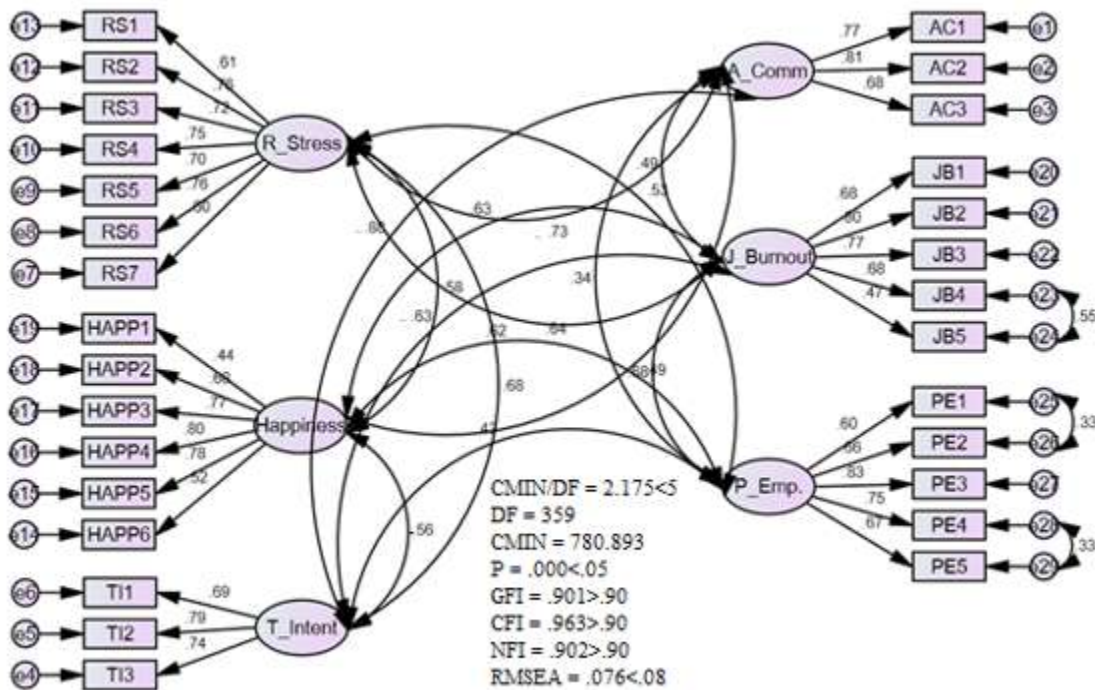
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Apart from above, it is necessary to prove the fitness of employed model; therefore, CFA shows the values of CMIN/DF, CFI, NFI, GFI and RMSEA along with threshold values. Figure 3 shows that all of these fit indices are proved; therefore, model is fit for SEM.

Figure 3
Confirmatory Factor Analysis



Note. This figure is generated by the author.

4.4. Structural Equation Modelling (SEM)

Hair et al. (2006) and Ullman and Bentler (2003) noted that SEM is more appropriate approach to find the causal relationships as compared to regression analysis. Through this technique, the path coefficients and indirect effects are measured. Table 4 shows that role stressors have 44.8% negative influence on happiness at workplace, which means the increasing role ambiguity, conflict and overload lead to reduction of happiness at workplace. This effect is significant at $p < 0.01$ and supported the first hypothesis ($H1a$). Similarly, table 4 shows that happiness at workplace has only 8% negative effect on turnover intention, which means the increasing happiness at hospitals, decrease the turnover intention of doctors, nurses and administrative staff in hospitals. This impact

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is significant at $p < 0.01$ and supports the *H1c* hypothesis of this study. Moreover, table 4 highlights that happiness at workplace has 20.1% positive effect on affective commitment at $p < 0.01$, which supports *H1e* hypothesis. Furthermore, role stressors have 46.4% impact on turnover intention at $p < 0.01$, which means increasing role stressors in hospitals, enhance the job burnout; thus, *H2a* hypothesis is supported.

Table 4

Path Coefficients (Direct Effects à Unstandardized)

	Estimate	S.E.	C.R.	P	Hypothesis
Role Stressors à Happiness at Workplace	-0.448	0.058	-7.75	.000	Accepted
Happiness at Workplace à Turnover Intention	-0.080	0.032	-2.50	.002	Accepted
Happiness at Workplace à Affective Commitment	0.201	0.066	3.045	.000	Accepted
Role Stressors à Job Burnout	0.464	0.057	8.083	.000	Accepted
Role Stressors à Turnover Intention	0.415	0.069	6.036	.000	Accepted
Role Stressors à Affective Commitment	-0.572	0.07	-8.195	.000	Accepted
Job Burnout à Turnover Intention	0.279	0.066	4.231	.000	Accepted
Job Burnout à Affective Commitment	-0.121	0.067	-1.81	.000	Accepted

Note. This table is generated by the author.

Table 4 also shows that role stressors have 41.5% ($p < 0.01$) positive effect on turnover intention and 57.2% ($p < 0.01$) negative effect on affective commitment. These effects support *H2c* and *H2d* hypotheses. Moreover, job burnout has 27.9% ($p < 0.01$) positive impact on turnover intention and 12.1% ($p < 0.01$) negative effect on affective commitment. These relationships support *H3a* and *H3c* hypotheses. Unlike unstandardized effects represented in table 4, figure 4 shows the standardized effects. Not only the direct effects but also indirect effects are calculated through SEM, which are calculated on the same model as represented in figure 4. The results of indirect effects are represented in table 5 below. This table shows that role stressors have 13.7% positive effect on turnover intention in the mediation role of happiness at workplace. Here one thing is important, which is the difference between direct and indirect effects.

Figure 4

Path Coefficients through SEM

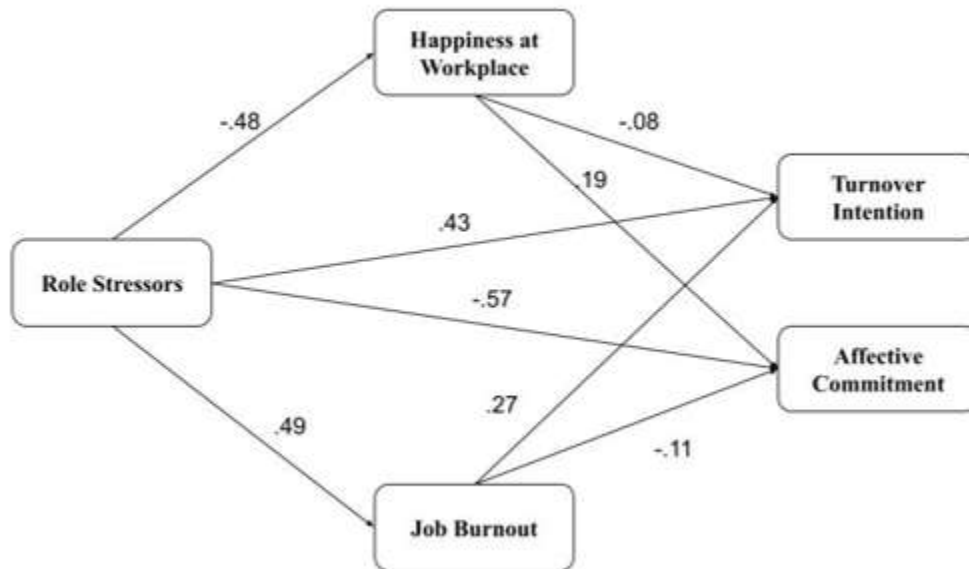
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Note. This figure is generated by the author.

According to table 4, role stressors have 41.5% direct effect on turnover intention; however, this effect is reduced to 13.7% in the mediation role of happiness at workplace (see table 5), which means the turnover intentions which are enhanced due to role stressors, can be reduced through happiness at workplace. This relationship has proved the *H1d* hypothesis of this study. Conversely, role stressors have 4.7% negative effect on affective commitment in the mediation role of happiness at workplace. Here the effect of role stressors on affective commitment is reduced from 57.2% to 4.7%. It means in the mediating role of happiness, the negative effect of role stressors on affective commitment will be considerably reduced. This relationship supports *H1f* hypothesis.

Table 5
Indirect Effects

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	Coeff.	P	Hypothesis
Role Stressors à Happiness at Workplace à Turnover Intention	.137	.000	Accepted
Role Stressors à Happiness at Workplace à Affective Commitment	-.047	.000	Accepted
Role Stressors à Job Burnout à Turnover Intention	.510	.000	Accepted
Role Stressors à Job Burnout à Affective Commitment	-.631	.001	Accepted

Note. This table is generated by the author.

Table 5 also shows that role stressors have 51% positive effect on turnover in the mediation role of job burnout. It means the mediating role of job burnout has increased the effect the effect of role stressors from 41.5% to 51%. Therefore, it can be concluded that the turnover intentions of hospital staff are more likely to increase when job burnout plays a mediating role between role stressors and turnover intention. This relationship has supported H3b hypothesis. Finally, role stressors have 63.1% negative impact on affective commitment in the mediating role of job burnout. It means job burnout has increased the negative impact of role stressors on affective commitment from 57.2% to 63.1%. Therefore, when role stressors create the job burnout, the emotional attachment of hospital staff with job and hospitals will reduce. This relationship has proved H3d hypothesis.

Table 6
Moderation Effects

	Coeff.	se	t	p	Hypothesis
Role Stressors * Psychological empowerment _ int à Happiness at Workplace	-.03	.011	2.73	.001	Accepted
Role Stressors * Psychological empowerment _ int à Job Burnout	.09	.04	2.25	.000	Accepted

Note. This table is generated by the author.

Finally, the moderating effects of psychological empowerment are calculated through Process Macro and results are presented in table 6 above. This table shows that psychological

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empowerment reduces the effect of role stressors on happiness at workplace. The direct effect of role stressors on happiness at workplace, represented in table 4, is -44.8% which reduced to -3% owing to psychological empowerment. It means when hospital staff is psychologically empowered, there is less effect of role stressors on their happiness. This effect has proved H1b hypothesis. Conversely, the positive effect of role stressors on job burnout is reduced from 46.4% to 9% due to psychological empowerment. This relationship has supported H2b hypothesis.

5. Discussion and Conclusion

In this study, researcher has investigated the impact of role stressors on turnover intention and affective commitment, directly and in the mediation role of happiness at workplace and job burnout. Also, this study has examined the moderating impact of psychological empowerment on the relationship of role stressors and happiness at workplace, as well as the relationship of role stressors and job burnout. The results show significant effects of all relationships tested. Not all of these effects are previously calculated together; however, the separate direct relationships of current study variables are consistent with the previous studies. Also, the mediating and moderating effects are not studied before, similar to the current study model. Chang (2008) have found that increasing level of ambiguity, conflict and overload enhance the level of stress, which lead workers to think about leaving the current organization. While, Kim and Stoner (2008) found that not only turnover intention but job burnout is also an outcome of role stressors. They further found that job burnout is the cause of role stressors and job burnout leads to turnover intentions. Similarly, Udo, Guimaraes, and Igbaria (1997) asserted that role stressors are the strong predictors of job burnout and turnover intention. However, this positive relationship can be reduced with the help of empowering employees to take their decisions along with responsibility of the work. In this way, they feel to be appreciated; thus, results in less burnout or turnover intention. Oyeleye, Hanson, O'Connor, and Dunn (2013) studied the relationship between job burnout, stress, turnover and psychological empowerment and found that stress, burnout and turnover intentions are positively correlated; however, psychological empowerment has negative relationship with these three variables.

Apart from above, role stressors not only influence job burnout and turnover intention but also decreases the happiness of employees. Naseem (2018b) found that continuous stress of employees leads to reduction of happiness as well as satisfaction of employees. However, those employees who have high level of emotional intelligence, can best cope with stress, which help them to maintain their level of happiness and satisfaction. Similarly, Yang et al. (2018) found that role stress, if continues for a long period, often lead to turnover intention; however, organizations try to keep their employees happy through offering them various rewards, facilities, appreciations and

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promotions, which make them feel valuable in the organization; therefore, they do not want to leave the organization. It means the impact of role stress can be mitigated through keeping employees happy at workplace. Malik and Waheed (2010) have noted that role stressors reduce the level of emotional attachment of employees with their job and organization; however, the effect is mitigated with the help of employees' satisfaction, which can be achieved through organizational support in manner of various facilities and employees' care. Chenevert et al. (2013) further noted that increasing level of stress on regular basis, decreases the level of satisfaction and affective commitment. Therefore, increasing level of role stressors can lead to lack of satisfaction, happiness (Parasuraman, Greenhaus, & Granrose, 1992), affective commitment (Chenevert et al., 2013), and increase the level of job burnout and turnover intention (Cho, Choi, & Lee, 2014).

Based on the results of this study, there are multiple theoretical and practical implications which are valuable for students, teachers, practitioners, executives and policy makers. This study has contributed theoretically to investigate the direct and indirect effect of role stressors on turnover intention and affective commitment in the context of public and private hospitals of Lahore, Pakistan. Also, it has measured certain new relationships. For instance, the moderating effects of psychological empowerment has not studied before similar to current study model. This study can also be used for practical purposes, especially in public and private hospitals, where doctors, nurses and administrative staff face continuous issues of role stressors owing to increasing level of role burden. Especially in the situation like COVID-19 that increases the workload of doctors, nurses and administrative staff of both private and public hospitals, which increases the level of stress, burnout and turnover intention. In this respect, hospital management can help such employees by enhancing those activities, which keep them happy during working hours. For instance, Hwang (2019) recommended to increase rotation, which will decrease the level of stress and burden.

This study has certain limitations, which can be covered in future research. It is conducted in the context of private and public hospitals of Lahore city of Pakistan; therefore, owing to cultural, social and economic differences across cultures, the findings of this study may vary. Future researchers can adopt a wider approach to represent a large population. Also, future researchers are suggested to use perceived organizational support in place of psychological empowerment as previous scholars have highlighted the importance of perceived organizational support in mitigating the effects of role stressors and turnover intention (Li, Bonn, & Ye, 2019; Lobburi, 2012; Srivastava & Agrawal, 2020).

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Assessment of the prevalence of Depression among Insulin and Oral Hypoglycemic Users with Diabetes and Associated Factors in Addis Ababa Public Hospitals: A Comparative Cross-Sectional Study

ABSTRACT

Introduction: Diabetes Mellitus (DM), particularly type 2 diabetes is a prevalent non-communicable disease with a significant association with depression. Alongside diabetes, depression is a common comorbidity that significantly impacts patients' quality of life and disease management. The estimated prevalence of depression among diabetic patients in Ethiopia was 39.73%, and its subgroup analysis showed that the prevalence is about 52.9% in Addis Ababa.

Objective: The main objective of this study is to assess the prevalence and associated factors of depression among insulin and oral hypoglycemic medication users with Diabetes Mellitus in public hospitals of Addis Ababa.

Methods: A comparative cross-sectional study was conducted in three selected public hospitals in Addis Ababa among 422 randomly selected study participants from October 1 2024, to November 30 2024. Data were collected, entered, and cleaned by Epi Info 7 and analyzed using SPSS version 25. Descriptive statistics for categorical variables were presented in frequencies and percentages, and mean and inter-quartile range were used to describe continuous variables. Then, bivariate logistic regression analysis was performed for each independent variable regarding the presence of depression among DM patients. An adjusted odd ratio (AOR) with 95% confidence interval was used to identify associated variables for depression, and p-values < 0.05 were considered to indicate statistical significance.

Results : The prevalence of depression among DM patient was 54.27%(95% CI:49.4%-59.1%), and the prevalence of depression was 44.9% among DM participants taking oral hypoglycemic agents and 63.4% among insulin users (eventhough the difference in their mean depression scale

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score (8.54 Vs 9.66) was not significant ($P=0.228$). From multivariable logistic regression analysis variables such as level of social support(AOR: 6.24; 95% CI:1.91-20.44), type of treatment(AOR: 0.095; 95% CI: 0.009-0.9), family history of depression (AOR:0.47;95% CI:0.29-0.75) and presence of diabetic complication(AOR: 3.22; 95% CI:1.97-5.27) were significantly associated factors at a P-value of <0.05 and a 95% CI.

Conclusion: . The overall prevalence of depression was un acceptably high and showed that more than half (54.27%) of DM patients stragle to live with depression and its bad qunesqences. According to the output from multivariable logistic regression analysis, poor level of social support and having diabetic complications were found to be risk factors for depression.Conversely,not having family history of depression and taking oral hypoglycemic agents were proven to be protective factors of depression.

Key Words:Depression, Diabetes Mellitus, oral hypoglycemic agent, insulin,

Introduction

Background

Diabetes mellitus (DM) is a major non-communicable disease (NCD) with a significant global health and economic impact. It is a metabolic disorder characterized by the body's inability to properly regulate blood glucose levels due to inadequate insulin production or insulin resistance. This leads to persistent hyperglycemia, which, if left untreated, can lead to serious complications such as cardiovascular disease, neuropathy, and nephropathy (1). The global burden of non-communicable diseases, including diabetes, is significant and affects both high- and low-income countries. In 2021, the global prevalence of diabetes in adults is estimated to be 10.5%, with type 2 diabetes accounting for approximately 90% of all cases(1). The International Diabetes Federation(IDF) predicts that this prevalence will increase by 46% by 2045, highlighting the urgent need of effective prevention and management strategies(2). In Ethiopia, the prevalence of diabetes is estimated to be between 2% and 6.5%(3, 4).

Due to the long duration of treatment and the chronic nature of the disease, a significant proportion of DM patients suffer from depression after diagnosis. Depression is a common mental disorder characterized by persistent unhappiness and a lack of interest in daily activities. The global prevalence of depression is about 35.1% of adults (1), and the estimated prevalence of depression among diabetic patients in Ethiopia is 39.73%, and a subgroup analysis showed that it is 52.9% in Addis Ababa (5). Several lines of evidence suggest a bi-directional relationship between diabetes and depression, highlighting the complex interaction between these two conditions. It is noted that people with diabetes are twice as likely to develop depression than those without diabetes. This increased susceptibility can be attributed to the chronic nature of diabetes, which requires ongoing self-management, life style adjustments and the psychological burden of dealing with a long-term condition (1). Conversely, depression itself is a significant risk factor for the development of diabetes. Some meta-analyses have shown that patients with major depressive disorder are more likely to develop type 2 diabetes compared to the general population. Depression can lead to unhealthy life styles such as unhealthy diet, physical inactivity and smoking, which are known risk factors for diabetes(6). In addition, depression can lead to changes in the

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hypothalamic-pituitary-adrenal axis and increase inflammatory markers, contributing to insulin resistance and impaired glucose metabolism. As a result, these people tend to have a reduced quality of life and a higher likelihood of developing diabetes related complications such as cardio-vascular disease and neuropathy, and the presence of depression in diabetic patients is associated with an increased mortality rate. The psychological distress and physiological effects of depression can exacerbate diabetes symptoms and complications, leading to poor health outcomes.

Evidences suggest the importance of early detection and integrated treatment approaches to effectively treat both conditions, improving the overall prognosis and quality of life of those affected. Several lines of evidence suggest a bi-directional relationship between diabetes and depression: Diabetes patients are twice as likely to develop depression as non-diabetics. In contrast, depression increases the risk of diabetes and impairs daily self-management. Diabetes patients with depression have poor glycemic control, a lower quality of life, and an increased risk of diabetes complications and thus a higher mortality rate(7, 8). The estimated prevalence of depression among diabetic patients in Ethiopia is 39.73%, and subgroup analysis shows that it is 52.9% in Addis Ababa (5). The World Health Organization (WHO) affirms lifestyle change as the main means of preventing and managing DM. It also recommends early treatment for both type 1 and uncontrolled type 2 DM to avoid complications.

The Federal Ministry of Health(FMOH) has published a guideline on how to manage DM and it clearly stated that a multi-disciplinary team should be involved to deliver best care for patients in which the center of the team is diabetic patients. It also describes the function of each tier system in managing diabetes. Starting from health post where clinical diagnosis are done up to tertiary hospitals where sub-specialty management is given (9). Understanding the prevalence of depression among diabetic patients using insulin versus oral hypoglycemic medications can inform treatment strategies and improve patient outcomes. This study aims to compare the prevalence of depression between these two medication groups in Addis Ababa public hospitals.

Conceptual Framework

The prevalence of Depression among Diabetic Patients can be seen from different perspectives as shown in the conceptual framework below. This conceptual framework was developed by reviewing different literatures (19-26).

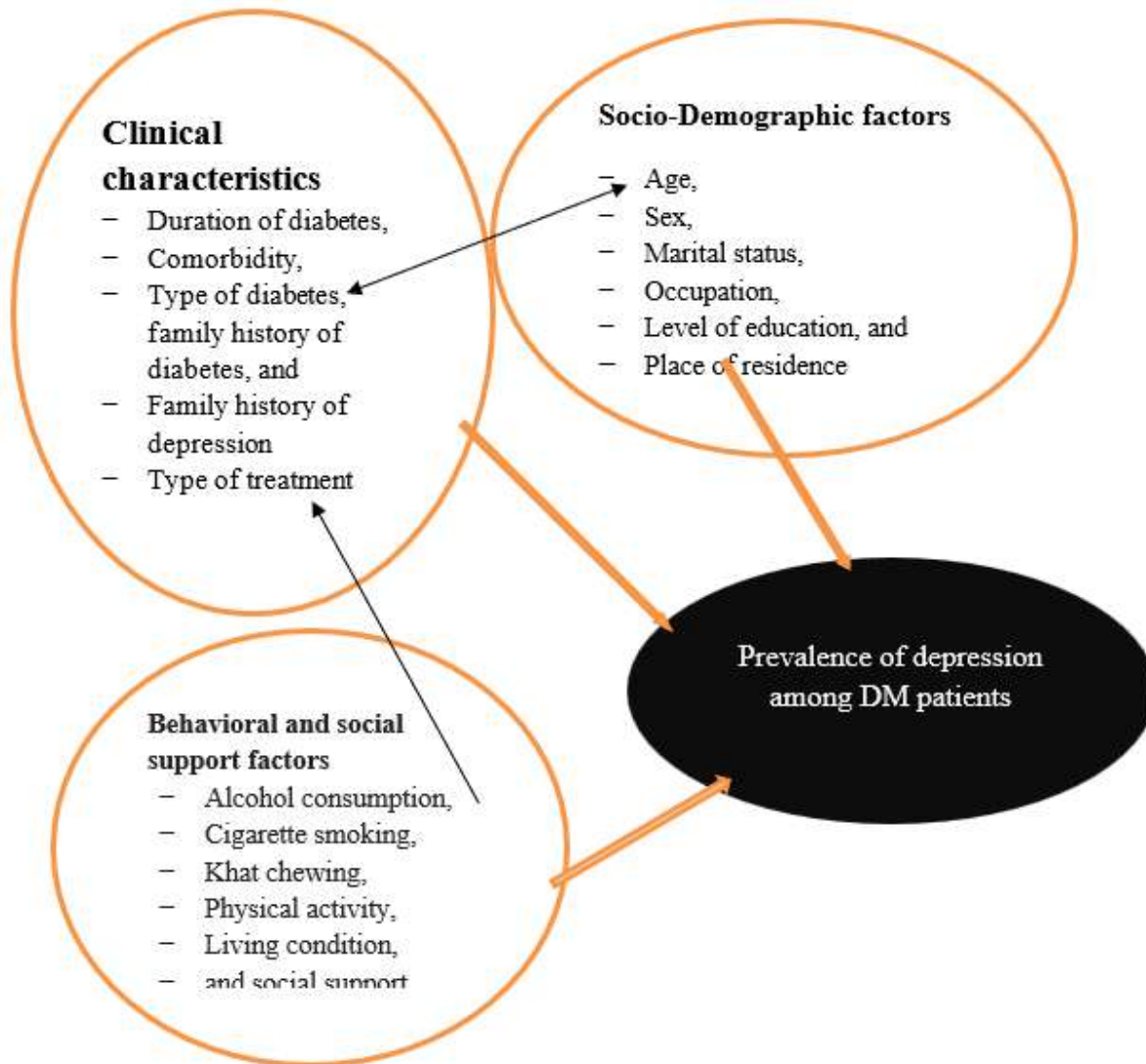


Figure 1- conceptual framework for the research on assessing the prevalence of depression among

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Insulin and oral Hypoglycemic medication users.

Methods and Materials

Study area and period

This study was conducted in 3 public hospitals located in Addis Ababa (Tirunesh Beijing Hospital, Zewditu Memorial Hospital, Menelik II Hospital). All the mentioned hospitals deliver comprehensive Diabetic mellitus follow-up and Treatment. Addis Ababa is the capital city of Ethiopia which is located in the central part of the country. It is located on a well-watered plateau surrounded by hills and mountains in the geographic center of the country. The city was founded in 1887 and was named Addis Ababa(41). It is geographically located at the heart of the nation, 9.02’N latitude and 38.45’E longitude. Its average altitude is 2,400 meter above sea level; and the city occupies a total of 540 sq. km. In 2023, there would be 5,461,000 people living in Addis Ababa. The city has 13 functional public hospitals that give service to the community from those 6 are under the region of Addis Ababa while the remaining are federal government hospitals(42). The study was conducted from October, 1 to November,30 /2024.

4.2 Study Design

A comparative cross-sectional study design was conducted among diabetic patients in three public general hospitals. The study participants were both Insulin and Oral hypoglycemic medication Users.

Population

Source Population

The source population were all DM patients who have regular follow-up in public hospitals located in Addis Ababa.

Study Population

The study population were all DM patients in selected public hospitals, who have follow-up appointments during the data collection period.

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4 Sample size determination

To determine sample size, single population proportion formula was used taking into account a study conducted in Eastern Ethiopia with a prevalence(P) of 48.9%(43) using the following formula.

$$n = \frac{(Z_{\alpha/2})^2 \times p(1-p)}{d^2}$$

$$d^2$$

Where, $Z_{\alpha/2}$ = the critical value of the normal distribution at $\alpha/2$ (e.g. for a confidence level of 95%, α is 0.05 and the critical value is 1.96), d = the margin of error, p = the prevalence of depression among DM patients from previous study which is 48.9% in Eastern Ethiopia (43).

$$n = (1.96)^2 (0.489 \times 0.511) / (0.05)^2 = 383.9 = 384$$

Finally, a 10% additional sample was added for non-respondents and the final sample size was 422.

Then, sample size for the 2nd objective was calculated by using double proportion formula as shown in the table below using EPI-info-7.

Table 1. The sample size calculation to assess the prevalence of depression among DM patients and associated factors in Addis Ababa public hospitals.

Variable	Proportion		Total sample size
	<u>P1</u>	<u>P2</u>	
Sex	26.9	21.9	302
Duration of illness	14.7	34.2	70
Current khat chowing	30.4	18.4	26

Keys: P1 is the proportion of exposed DM patients with the outcome, P2 is the proportion of

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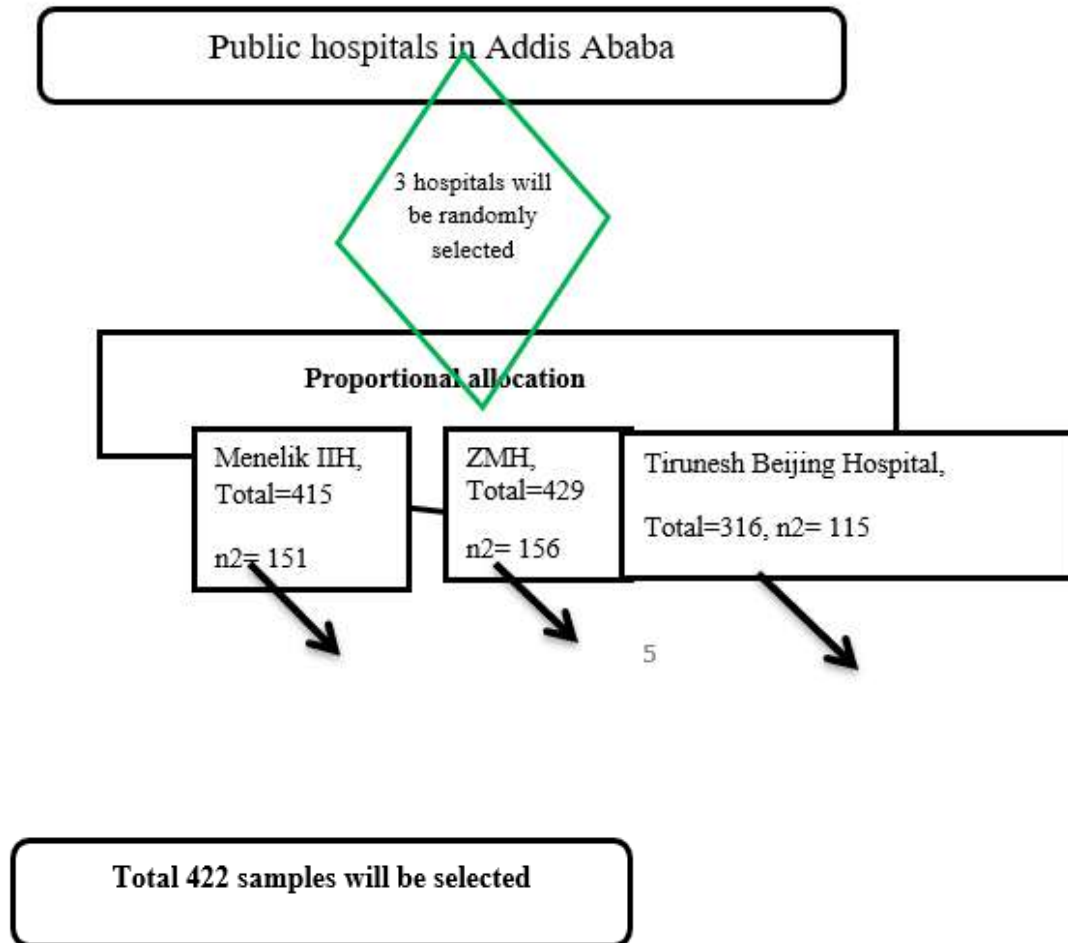
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non-exposed DM patients with the outcome, $Z_{\alpha/2}$ is taking CI of 95%, and Z_{β} is 80% power and, r is the ratio of exposed to non-exposed DM patients 1:1. While the sample sizes of the objectives compared to each other, the single population sample size was considered for data collection since it gave the maximum number. Consequently, 302 participants were the total sample size for the 2nd objective. However, the sample size calculated for the 1st objective was larger compared to the calculated sample size for the 2nd objective. Hence, took the larger sample size to improve the quality and reliability of the results. so the final sample was 422.

Sampling Technique



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Figure 2; Shows schematic presentation of sample hospitalsthat will be used for assesing the prevalence of Depression among insulin and Oral hypoglycemic medication users in public hopitals Addis Ababa Ethiopia.

Result

Socio-demographic characteristic

Table 2.shows distribution of socio-demographic variables among DM patients using insulin and/or oral hypoglycemic medication in selected public hospitals of Addis Ababa, 2024 (422).

Variable	Category	Frequency	Percentage (%)
Sex	Male	217	51.4
	Female	205	48.6
Residence	Urban	326	77.3
	Rural	96	22.7
Marital status	Married	189	44.8
	Single	138	32.7
	Divorced	61	14.5

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	Widowed	34	8.1
Educational status	Cannot read and write	97	23.0
	Read and write only	101	23.9
	Primarily school	31	7.3
	Secondary school and above	193	45.7
Occupational status	Governmental employer	182	43.1
	Privet worker	117	27.7
	Merchant	84	19.9
	Farmer	39	9.2

Clinical related characteristics

Table 3. Shows distribution of clinical and treatment related variables among DM patients using insulin and/or oral hypoglycemic medication in selected public hospitals of Addis Ababa, 2024 (n=422).

Variables	Category	Frequency (n)	Percentage (%)
Type of DM	Type 1	118	28.0
	Type 2	304	72.0
Type of treatment	Oral hypoglycemic agent	156	37.0
	Insulin therapy	112	26.5
	Both	154	36.5

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Glycemic control	Good	313	74.2
	Poor	109	25.8
Do you currently/ever have DM complication(s)	Yes	163	38.6
	No	259	61.4
Type of complication	Hypoglycemic	33	7.8
	Renal	27	6.4
	Neuropathy	17	4.0
	Vascular	13	3.1
	ophthalmologic	7	1.7
Is there any comorbidity	Yes	264	62.6
	No	158	37.4
Type of comorbidity	Renal disease	76	18.0
	Heart disease	68	16.1
	Hypertension	34	8.1
	Other	21	5.0
Family history of DM	Yes	141	33.4
	No	281	66.6
Past history of depression	Yes	126	29.9
	No	296	70.1
Family history of depression	Yes	174	41.2

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	No	248	58.8
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Behavioral factors

Table 4. Distribution of behavioral factors among DM patients using insulin and/or oral hypoglycemic medication in selected public hospitals of Addis Ababa, 2024 (422).

Variables	Category	Frequency (n)	Percentage (%)
Currently smoking status	Yes	93	22.0
	No	329	78.0
History of smoking	Yes	152	36.0
	No	270	64.0
History of alcohol within the past 12 months	Yes	218	51.7
	No	204	48.3
History of ever use alcohol	Yes	187	44.3
	No	235	55.7
History of Khat within the past 12 months	Yes	142	33.6
	No	280	66.4
History of ever use Shisha	Yes	31	7.3
	No	391	92.7

Social support factors

Table 5. shows frequency distributions of social support scale using OSSS-3 among DM patients using insulin and/or oral hypoglycemic medication in selected public hospitals of Addis Ababa, 2024 (422).

Variable	Category	Frequency(n)	Percentage(%)
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Number of people so close to you during serious personal problems	None	89	21.1
	1 or 2	106	25.1
	3-5	122	28.9
	More than 5	105	24.9
Level of concern people show in what you are doing.	No concern and interest	48	11.4
	Little concern and interest	60	14.2
	Uncertain	80	19.0
	some concern and interest	148	35.1
	A lot of concern and interest	86	20.4
Easiness to get practical help from neighbors	Very difficult	45	10.7
	Difficult	126	29.9
	Possible	81	19.2
	Easy	121	28.7
	Very easy	49	11.6
Social support level	Poor	141	33.4
	Good	281	66.6
Living circumstance	With family	357	84.6
	Alone	65	15.4

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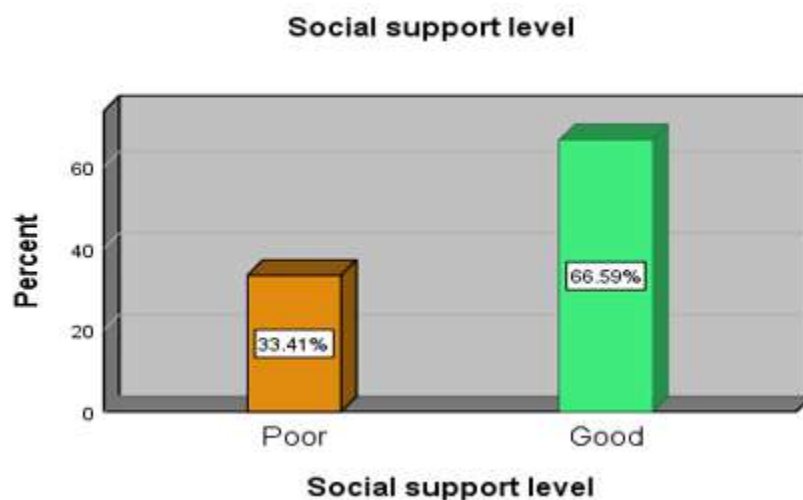


Figure 3. Shows the overall social support level of DM patients using insulin and/or oral hypoglycemic medication in selected public hospitals of Addis Ababa, 2024 (422).

Prevalence of depression among DM treated with insulin and/or oral hypoglycemic agents

Table 6. Shows the response of participants towards PHQ-9

Variable	Category	Frequency (n)	Percentage (%)
Little interest or pleasure in doing things	Not at all	213	50.5
	Several days	111	26.3
	More than half the day	40	9.5
	Nearly every day	58	13.7

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Feeling down, depressed, or hopeless?	Not at all	188	44.5
	Several days	112	26.5
	More than half the day	81	19.2
	Nearly every day	41	9.7
Trouble falling or staying asleep, or sleeping too much	Not at all	181	42.9
	Several days	143	33.9
	More than half the day	43	10.2
	Nearly every day	55	13.0
Feeling tired or having little energy	Not at all	147	34.8
	Several days	150	35.5
	More than half the day	50	11.8
	Nearly every day	75	17.8
Poor appetite or overeating	Not at all	160	37.9
	Several days	149	35.3
	More than half the day	45	10.7
	More than half the day	68	16.1
Feeling bad about yourself or that you are a failure or have let yourself or your family down	Not at all	145	34.4
	Several days	150	35.5
	More than half the day	53	12.6
	Nearly every day	74	17.5
Trouble concentrating on things, such as reading the newspaper or watching television	Not at all	171	40.5
	Several days	126	29.9
	More than half the day	61	14.5

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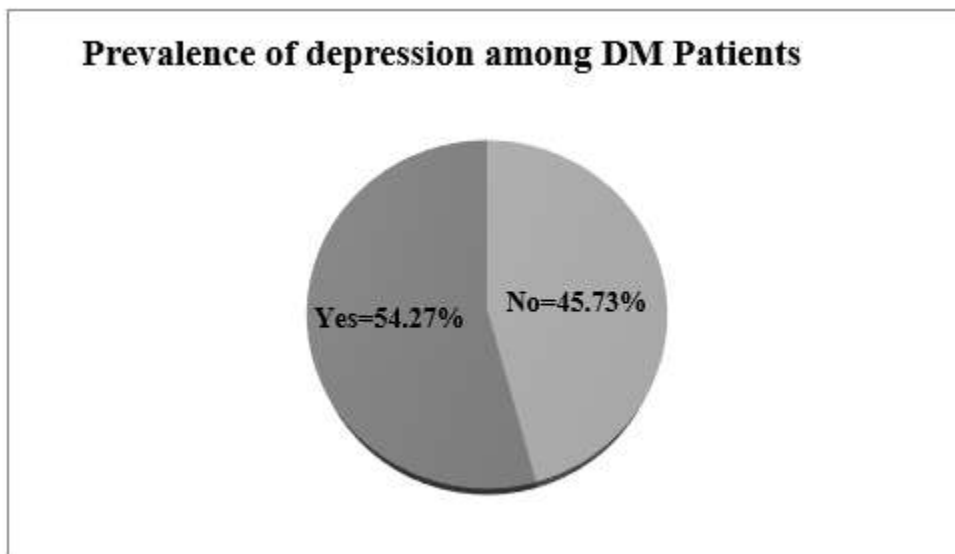
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	Nearly every day	64	15.2
Moving or speaking so slowly that other people could have noticed or the opposite being so fidgety or restless that you have been moving around a lot more than usual?	Not at all	115	27.3
	Several days	167	39.6
	More than half the day	65	15.4
	Nearly every day	75	17.8
Thoughts that you would be better off dead, or of hurting yourself in some way?	Not at all	165	39.1
	Several days	118	28.0
	More than half the day	85	20.1
	Nearly every day	54	12.8
Depression among insulin users	Yes	71	63.4
	No	41	36.6
Depression among oral hypoglycemic agent users	Yes	70	44.9
	No	86	55.1



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Figure 4. Shows the prevalence of depression among DM patients using insulin and/or oral hypoglycemic medication in selected public hospitals of Addis Ababa, 2024 (422).

Associated factors of depression among patients with Diabetes mellitus

Table 7. Shows bivariate and multivariate analysis to identifies associated factors of depression among DM patients using insulin and/or oral hypoglycemic medication in selected public hospitals of Addis Ababa, 2024 (422).

Variable	Category	Depression		COR (95% CI)	AOR (95% CI)	P-value
		Yes	No			
Occupational status	Farmer	16	23	1	1	
	Governmental employer	111	71	2.25(1.11-4.54)	0.51(0.19-1.34)	0.17
	Privet worker	56	61	1.32(0.63-2.75)	1.31(0.68-2.53)	0.41
	Merchant	46	38	1.74(0.81-3.75)	0.92(0.45-1.86)	0.81
# of close people for serious personal problems?	None	61	28	1	1	
	1 or 2	66	40	0.76(0.42-1.37)	0.92(0.31-2.71)	0.88
	3-5	54	68	0.36(0.21-.65)	0.79(0.32-1.92)	0.60
	More than 5	48	57	0.39(0.21-.70)	0.54(0.26-1.10)	0.09
How much concern do people show in what you are doing?	No concern and interest	36	12	4.59(2.10-10.04)	1.85(0.24-14.18)	0.55
	Little concern and interest	51	9	8.67(3.78-19.87)	4.06(0.73-22.51)	0.11
	Uncertain	47	33	2.18(1.17-4.05)	1.98(0.62-6.36)	0.25
	some concern and interest	61	87	1.07(0.62-1.84)	1.10(0.50-2.39)	0.81

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	A lot of concern and interest	34	52	1	1	
How easy is it to get practical help from neighbors if you should need it?	Very difficult	37	8	6.71(2.59-17.40)	1.65(.23-12.09)	0.62
	Difficult	84	42	2.90(1.47-5.72)	1.84(0.46-7.35)	0.39
	Possible	40	41	1.42(0.69-2.90)	2.01(0.60-5.88)	0.20
	Easy	48	73	0.95(0.49-1.88)	0.97(0.41-2.32)	0.94
	Very easy	20	29	1	1	
Length of time(years) since DM diagnosis	-	-	-	1.04(1.01-1.08)	1.03(0.98-1.08)	0.19
In the past, did you ever smoke any tobacco products?	Yes	103	49	2.40(1.59-3.64)	1.78(0.68-4.62)	0.24
	No	126	144	1	1	
Social support level	Poor	114	27	6.10(3.76-9.87)	6.24(1.91-20.44)	0.01
	Good	115	166	1	1	
Social support score				0.76(0.71-0.82)	1.24(0.87-1.78)	0.24
Glycemic control	Good	175	138	1.29(0.84-.10)	1.16(0.66-2.03)	0.61
	Poor	54	55	1	1	
Treatment (medication) type	Insulin therapy	71	41	1	1	
	Oral hypoglycemic agent	70	86	0.47(0.29-0.77)	0.095(0.009-0.9)	0.04
	Both	88	66	1.64(1.05-2.57)	5.57(0.54-57.21)	0.15
Type of DM	Type 1	72	46	1.47(0.95-2.26)	.20(.02-2.04)	0.17
	Type 2	157	147	1	1	
Family history of	Yes	75	99	1	1	

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depression	No	154	94	0.46(0.31-.69	0.47(0.29-0.75)	0.01
Do you ever/currently have any known diabetic complication	Yes	116	47	3.19(2.10-4.85	3.22(1.97-5.27)	0.01
	No	113	146	1	1	

Conclusion

The prevalence of depression was different among DM participants taking oral hypoglycemic agents (44.9%) and insulin users (63.4%) even though the difference in their mean depression scale score (8.54 Vs 9.66) was not significant. The overall prevalence of depression was unacceptably high and showed that more than half (54.27%) of DM patients struggle to live with depression and its bad consequences. According to the output from multivariable logistic regression analysis, poor level of social support and having diabetic complications were found to be risk factors for depression. Conversely, not having family history of depression and taking oral hypoglycemic agents were proven to be protective factors of depression.

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Onyinye Christiana Enendu(Author) <i>KICC Research Center</i> Dr. Ifeoma J. Nnaemeka(Co-Author) Dr. Chikelue A. Nwagbo(Co-Author)	Empowering Women through Entrepreneurship: The Role of Out-of-Job Women Startups on Family Happiness: A Qualitative Analysis
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Abstract

This qualitative study explores the experiences of women entrepreneurs who started their own businesses after being out of the job market. The objective of this study is to state that Women's entrepreneurial endeavors can significantly impact both their own happiness and their family's well-being. Studies show that women entrepreneurs experience increased happiness, flexibility, and fulfillment in their work, while also potentially boosting household income and fostering personal growth. However, successfully navigating this path also requires family support and understanding, as well as careful balancing of work and family responsibilities. Knowing that starting a business will be challenging, juggling the work-home interface and managing the growth of the business while managing the finances. Twenty women (20) who reside in Anambra state (AWKA) who have been in business for not less than 6 months were used for the in-depth interview study. Using thematic analysis, we examined the impact of entrepreneurship on family happiness, personal growth, and development. Our findings reveal that women entrepreneurs experience limited autonomy and decision making, altered confidence, and have a little sense of purpose because they feel they are at least useful, leading to improved family relationships from what was obtainable and a fluctuation of financial stability. However, they also face unique challenges, including balancing work and family responsibilities, accessing funding, and dealing with societal expectations. The study highlights the importance of support systems, including family, friends, and mentors, in overcoming these challenges. Our research contributes to the understanding of women's entrepreneurship and its impact on family happiness, providing insights for policymakers, practitioners, and researchers. The findings have implications for the

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development of programs and policies that support women entrepreneurs, promoting economic growth, social development, and family well-being.

Keywords: Women entrepreneurship, Family happiness, Personal growth, thematic analysis, Qualitative research

INTRODUCTION

Entrepreneurship has been acknowledged as a pivotal catalyst for economic advancement across numerous nations, particularly within the Southeast region of Nigeria. However, the intricate dynamics between female entrepreneurship and subjective well-being necessitate a careful examination. Although there is a prevailing consensus that entrepreneurship engenders job creation and stimulates innovation, the precise correlation with the overall well-being and happiness of female entrepreneurs within Southeast region contexts remains inadequately elucidated. Prior investigations have predominantly concentrated on the economic advantages of entrepreneurship, neglecting the potential implications of gendered interactions and wellbeing. Within this framework, it is imperative to scrutinize the nexus between female entrepreneurship and happiness and to delineate strategies that bolster women's entrepreneurial endeavors while concurrently fostering economic growth and enhancing well-being.

The construct of well-being is frequently overlooked by scholars engaged in the study of female entrepreneurship. Consequently, it appears pertinent to explore this concept further within the context of research on entrepreneurial initiatives, which hold substantial significance for economic advancement. "Well-being," as a psychological state, embodies the outcome of cognitive and emotional evaluations of one's existence, culminating in a profound sense of fulfillment, happiness and satisfaction. It is an emotional state that derives from self-actualization, a favorable assessment of one's life circumstances, and a minimized experience of stress (Niškiewicz, 2016). Individuals experience a condition of mental well-being when positive encounters and favorable emotions

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dominate their surroundings, overshadowing negative experiences and sentiments (Kasperek Golimowska, 2012).

It is widely acknowledged within academic circles that the equitable participation of women in the labor market is fundamentally essential for the overall prosperity of any nation, and female entrepreneurs, in particular, occupy a pivotal position in catalyzing economic growth and development (Waseem, 2018). By actively encouraging women to engage in business activities, there is a notable enhancement in economic growth, technological advancement, and the availability of consumer goods in the marketplace. Women who embark on entrepreneurial endeavors possess the capability to invigorate emerging economies by generating employment opportunities, increasing income levels, and fostering social cohesion among community members (Chatterjee, Das & Srivastava, 2019). The research conducted by Kato and Wiklund (2011) underscores the significance of emotional regulation among entrepreneurs throughout the various stages of the entrepreneurial process, highlighting the critical interplay between emotions and behaviors, as well as the intrinsic relationship that exists between entrepreneurship and the experience of pleasure and happiness. Despite the substantial economic contributions made by women, it is disheartening to note that they remain significantly underrepresented in entrepreneurial pursuits. The presence of successful female entrepreneurs has the potential to empower women to provide for their families, advance their professional aspirations, enhance their overall happiness, and contribute positively to the well-being of their communities (Sasakawa Peace Foundation, 2022). The primary objective of this research endeavor is to meticulously explore the relationship between female entrepreneurship and levels of happiness, aiming to analyze the impact that changes in female entrepreneurship exert on the happiness of individuals, which in turn catalyzes and promotes economic development and the general welfare of the region.

LITERATURE REVIEW

The existing body of literature extensively indicates that the phenomenon of entrepreneurship possesses the potential to exert a markedly positive influence on various aspects of society, particularly about the creation of employment opportunities, the stimulation of national economic growth, as evidenced by the findings of Carree and Thurik in the year 2010, as well as the enhancement of family income. Given the paramount importance of enhancing the quality of life for individuals, one must ponder whether entrepreneurship can indeed be substantiated as a valid and legitimate business endeavor worthy of pursuit; this question represents a significant dilemma that numerous individuals encounter as they deliberate the possibilities of either embarking on the journey of establishing their own businesses or opting to engage in employment within an already established corporate entity. It is crucial to recognize that certain inherent characteristics of entrepreneurship possess the capacity to adversely affect the quality of life experienced by female entrepreneurs, who often bear the brunt of these challenges.

According to the seminal work of Hashemi et al. (1996), it has been posited that women entrepreneurs are allowed to exert greater influence and authority in the decision-making processes within their households. Overall, access to financial resources engenders a “virtuous spiral” (Mayoux, 2001) that empowers women to challenge entrenched gendered cultural norms and to actively renegotiate existing social and political inequalities that may have historically constrained their agency. Women who embark on the entrepreneurial path derive happiness and a profound sense of satisfaction not solely from the attainment of financial success, but also from their journey towards personal growth and self-discovery. The capacity to innovate, to make autonomous decisions, and to pursue work that holds personal significance collectively contribute to the overall well-being and happiness of women entrepreneurs. When women cultivate a growth-oriented mindset and consciously direct their attention towards the journey of entrepreneurship rather than fixating solely on the final outcomes, they inevitably engage in a process of learning and personal development that is both enriching and transformative. This phenomenon represents arguably one of the most exciting and frequently underestimated by-products of the intersection between women

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and entrepreneurship, highlighting the profound potential for growth that exists within this dynamic landscape.

In fact, an increasing number of studies document that a large number of people start new ventures not because they look for financial gain but because they want greater freedom, more meaningful work, and an outlet for creative expression (Dellot, 2014; Parker, 2021;). In turn, numerous recent studies suggest that engaging in entrepreneurship holds promise in fulfilling people's basic psychological needs for autonomy, competence, meaning, and relatedness, and, in turn, can lead to higher levels of subjective well-being (e.g., Anderson, 2005). Therefore, if women are more likely to be "pushed" into self-employment, they will derive less satisfaction from their entrepreneurial activities, and hence their well-being will be lower. Finally, women may enter into self-employment for non-economic reasons, such as self-empowerment, independence, better work-life balance, and flexibility of schedule to allow them to better care for their family (Kirkwood, 2009). In most societies, women are still considered to be the primary housekeepers and caretakers of children (e.g., Rubio-Bañón & Esteban-Lloret, 2016). Their businesses are more often located in their homes, which makes it easier to juggle business and home demands. Thus, self-employment may give women important non-economic benefits (such as schedule flexibility or proximity to home), which they may value relatively more than self-employed men. However, for many self-employed women, greater freedom and flexibility of running a business is tempered by more stress and conflicting commitments: constant work demands, managing the interests of children and other dependents, and a sense of guilt for neglecting children and family (Duberley & Carrigan, 2013; McGowan et al., 2012).

Despite women's rising influence on advancement, the study of their well-being in the realm of entrepreneurship remains relatively uncharted territory (Lepeley et al., 2020). Women entrepreneurs worldwide are responsible for family care and comfort, childcare, children's education, elder parent care, and many other production duties in addition to operating a company. So, women entrepreneurs have a multiplier effect that benefits their families, the economy, and society. The multiplier effect is linked to women entrepreneurs' happiness and life-work balance, which benefits not just them but also their families and children. In particular, the well-being of

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‘mumpreneurs’ is strongly linked to their children’s success and their capacity to handle life’s problems and contribute to society (Lepeley, 2020). Theoretical and empirical studies that look at the link between women’s entrepreneurship and happiness give us important information about how entrepreneurship might affect the happiness of women. From a theoretical point of view, the idea of women’s entrepreneurship as a way to improve the economy and give women more power has been talked about extensively. Scholars have talked about how entrepreneurship gives women access to economic resources, gives them more freedom and power to make decisions, and improves their overall health and well-being. In several countries and regions, empirical studies have also looked at the link between female entrepreneurship and happiness. To figure out how entrepreneurship affects the well-being of women, these studies have used different ways to measure happiness, such as self-reported life satisfaction, happiness, and positive emotions.

Benefits and challenges of female led entrepreneurship

Benefits of female-led entrepreneurship Increased financial stability, Women-led start-ups can provide stable income, reduce financial stress and improve family wellbeing (Katz & Krueger, 2016).it also helps in Better work-life balance: which enables women to balance work and family responsibilities, leading to greater job satisfaction and family happiness (Greenhaus & Powell, 2006). Role models: Women entrepreneurs can be role models for their children and promote values such as hard work, perseverance and independence (Hisrich et al., 2007).

Women entrepreneurs face a lot of challenges; women-led start-ups often face difficulties in accessing finance, which may impede their growth and success (Brush et al., 2018). They women entrepreneurs can face social expectations and prejudices which affect their ability to balance work and family responsibilities (Ahl, 2006). Also building professional networks can give women entrepreneurs access to resources, mentoring and support (Singh et al., 2019). Seeking mentorship from experienced entrepreneurs can help women navigate the challenges and succeed (DeTienne & Chandler, 2007). By supporting female-led business start-ups, we can promote the well-being of families, economic growth and social development

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METHODOLOGY

This qualitative study used in-depth interviews with 20 women entrepreneurs who started their businesses after being out of the job market. Participants were selected using purposive sampling. The interviews were audio-recorded, transcribed, and analyzed using thematic analysis.

Research Design

1. Qualitative research: A qualitative approach was used to gather in-depth insights into the experiences of women entrepreneurs.
2. Phenomenological approach: This approach allowed researchers to explore the subjective experiences and meanings attributed to starting a business and its impact on family happiness.

Sampling Strategy

1. Purposive sampling: Participants were selected based on their experience as out-of-job women who started their own businesses.
2. Sample size: 20 women entrepreneurs participated in the study.
3. Inclusion criteria: Women who had started their own businesses after being out of the job market for at least 6 months.

Data Collection

1. In-depth interviews: Semi-structured interviews were conducted to gather rich, detailed data.
2. Interview guide: An interview guide was developed to explore topics such as motivations for starting a business, experiences as an entrepreneur, and impact on family happiness.
3. Audio recording: Interviews were audio-recorded to ensure accuracy and facilitate data analysis.

Data Analysis

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1. Thematic analysis: A thematic analysis approach was used to identify patterns and themes in the data.
2. Coding: Data was coded using an inductive approach, with codes emerging from the data.
3. Theme development: Themes were developed through an iterative process of coding, categorization, and refinement.

Ethical Considerations

1. Informed consent: Participants provided informed consent prior to participating in the study.
2. Confidentiality: Participants' identities and data were kept confidential.
3. Beneficence: The study aimed to benefit participants and contribute to the understanding of women entrepreneurship and family happiness.

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RESULTS

Coding Data using Inductive Approach

Initial Coding

Participant Quote

Initial Code

"Starting my business has given me a sense of purpose and fulfillment."	Sense of purpose, Fulfillment
I feel more confident and in control of my life."	Confidence, Control
My family is more supportive of me now that I'm my own boss	Family support
"It's challenging to balance work and family responsibilities, but I'm managing."	Work-life balance, Challenges

Focused Coding

Initial Code	Focused Code
Sense of purpose, Fulfillment	Empowerment
Confidence, Control	Self-efficacy
Family support	Support systems
Work-life balance, Challenges	Entrepreneurial challenges

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Theme Development

Focused Code	Theme
Empowerment, Self-efficacy	Personal growth and development
Support systems	Support and resources
Entrepreneurial challenges	Challenges and obstacles
Financial stability	Economic benefits

Themes and Subthemes

Theme	Subtheme
Personal growth and development	Empowerment, Self-efficacy
Support and resources	Family support, low Mentorship, wellbeing
Challenges and obstacles	Work-life balance, Financial challenges
Economic benefits	Financial stability, Increased income

This tables illustrates the coding process using an inductive approach. The initial codes are derived from the participant quotes, and then focused codes are developed by refining and grouping the

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initial codes. The focused codes are then grouped into themes, and subthemes are identified to further elaborate on the themes.

Theme Development through Iterative Process

Iteration 1: Initial Themes

1. Personal Growth and Development - Empowerment, - Self-efficacy, - Confidence
2. Support and Resources - Family support, - Mentorship, - Networking
3. Challenges and Obstacles - Work-life balance, - Financial challenges, - Societal expectations
4. Economic Benefits - Financial stability, - Increased income

Iteration 2: Refining Themes

1. Empowerment through Entrepreneurship - Sense of purpose, - Autonomy, - Confidence
2. Support Systems for Women Entrepreneurs - Family support - Mentorship - Peer support
3. Navigating Challenges - Work-life balance - Financial management - Overcoming obstacles
4. Impact on Family and Finances - Financial stability - Improved family relationships - Increased income

Iteration 3: Final Themes

1. Empowerment and Personal Growth - Sense of purpose and fulfillment - Increased confidence and autonomy - Personal development and self-awareness

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2. The Role of Support Systems - Family and peer support - Mentorship and guidance - Networking and community building
3. Challenges and Strategies - Work-life balance and time management - Financial management and planning - Overcoming obstacles and staying resilient
4. Impact on Family and Economic and psychological Well-being - Financial stability and security - Improved family relationships and dynamics, - Increased income and economic independence.

Through this iterative process, the themes are refined and developed to capture the essence of the women's experiences as entrepreneurs. The final themes provide a comprehensive understanding of the impact of entrepreneurship on women's lives.

INTERPRETATION AND DISCUSSION

The thematic analysis revealed four major themes:

Theme 1: Empowerment through Entrepreneurship

- Increased autonomy: some Women reported feeling more in control of their lives and businesses.
- Confidence boost: Starting a business enhanced their self-confidence and self-esteem.
- Sense of accomplishment: Women felt a sense of pride and accomplishment in building their own businesses.

Theme 2: Impact on Family Happiness

- Improved financial stability: Women's entrepreneurship contributed to increased financial stability and security for their families.

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- Enhanced family relationships: Women reported improved relationships with their family members, particularly children, due to increased flexibility and autonomy.
- Role modeling: Women entrepreneurs served as positive role models for their children, promoting values like hard work and resilience.

Theme 3: Challenges and Support Systems

- Challenges: Women faced challenges like balancing work and family responsibilities, accessing funding, and dealing with societal expectations. Lack of autonomy
- Support systems: Women relied on support from family, friends, and mentors to overcome challenges and achieve success.

Theme 4: Personal Growth and Development

- Skill development: Women developed new skills and competencies through entrepreneurship, such as leadership, marketing, and financial management.
- Personal growth: Starting a business led to personal growth, increased self-awareness, and a sense of purpose.

These results suggest that starting a business can have a positive impact on women's lives, including their family happiness, personal growth, and empowerment. However, women entrepreneurs also face unique challenges that require support and resources.

This study highlights the positive impact of out-of-job female start-ups on family happiness. By supporting women entrepreneurs and promoting a conducive business environment, economic growth, social development, and family well-being can be fostered. Starting a business can provide women with a sense of purpose, autonomy, and control over their lives. Entrepreneurship also allows women to use their skills and knowledge to create value that can be personally fulfilled. Additionally, running a successful business can provide financial stability, which contributes to overall life satisfaction. Entrepreneurship can also be challenging and stressful, particularly during

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the early stages of a business. The lack of mentoring has put a clog on the wheel of these initiatives. Many businesses are just hanging on and can hardly live above their business

Women entrepreneurs in Awka, Anambra State, face significant challenges in accessing funding. The primary financial resource available to them is a scheme known as LAPO, offered by a microfinance bank in the state. This limited access to funding constitutes a major impediment to their growth, as the interest rates associated with these loans are often unsustainable. Consequently, many of these women experience financial distress due to their inability to repay the interest, compounded by persistent demands from their financiers. Additionally, gender bias presents further obstacles, complicating the establishment and expansion of structured businesses. While entrepreneurship can offer numerous benefits to women, it does not necessarily guarantee happiness. Engaging in entrepreneurial activities in Nigeria, particularly in Anambra State, not only provides individuals with a sense of purpose and direction but also enables them to contribute to society. Entrepreneurs who establish businesses to address social or environmental challenges often experience a heightened sense of purpose, which positively influences their overall life satisfaction.

The entrepreneurial environment in Nigeria does not effectively encourage collaboration, networking, or support among entrepreneurs, mentors, investors, and organizations. As a result, it fails to enhance well-being or promote connections, guidance, and a sense of belonging. According to research by Eleren and Sadykova (2016), happiness is positively linked to innovation and independence but negatively associated with risk-taking. Entrepreneurs who introduce innovative products and services often experience a sense of fulfillment and success, which increases their happiness. However, this is not the case for women in Awka, Anambra State, whose businesses primarily focus on consumables. Many of them struggle to make ends meet due to low income and the instability of family finances, which impacts their business earnings. Independence and autonomy in decision-making and goal-setting can also enhance well-being. In Anambra State, women entrepreneurs often have their husbands making business decisions. Nonetheless, starting and managing a business requires them to feel fulfilled and successful, which enhances their happiness. Independence and autonomy in decision-making and goal-setting can also improve

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well-being. However, starting and managing a business involves taking risks. Excessive risk-taking or constant uncertainty can lead to stress, anxiety, and reduced happiness.

Recommendations

1. Training and mentorship: Provide training and mentorship programs to support women entrepreneurs.
2. Access to funding: Improve access to funding and resources for women-led startups.
3. Policy support: Implement policies that promote women's entrepreneurship and work-life balance.
4. Allow the women to take autonomy and decision making in their new business

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Abu Kai Kamara(Author) <i>University of Sierra Leone</i>	The Study of Accounting Information Systems and Its Impact on Decision-Making in the Banking Sector. A Case Study of Sierra Leone Commercial Bank (SLCB)
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Abstract

Accounting information is vital for the success of businesses worldwide, as it translates various events into a common financial language (Mai, 2016). It employs formalized procedures for collecting and reporting data, creating a shared language that promotes communication among members of an organization. This formalization simplifies information transfer, reducing the need for complex symbols and improving coordination among different functions involved in decision-making. The main goal of this study is to examine the impact of accounting information systems on decision-making at the Sierra Leone Commercial Bank (SLCB). A mixed-methods research approach was chosen for this study. The researcher developed questionnaires to assess the level of accounting information systems and their influence on management decisions. A 4-point Likert scale was used, ranging from "Strongly Disagree" (1) to "Strongly Agree" (4), because it effectively measures perceptions, attitudes, values, and behaviors related to accounting information systems and management decisions. The collected data were entered into a computer and analyzed statistically using the Statistical Package for Social Sciences (SPSS).

The results of this research revealed the following: First, the Accounting Information System (AIS) plays a key role in supporting management decisions, especially in resource allocation (Laudon & Laudon, 2016) and performance evaluation. Second, although SLCB uses both computerized and manual AIS components, there is a clear need to further optimize the computerized systems, particularly in data collection and financial analysis. Third, the focus on system controls within SLCB shows a solid foundation for AIS security. However, the identified vulnerabilities indicate a need for ongoing improvements in this area. Finally, while the decision-making process at SLCB is generally effective with a slight tendency toward centralized

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decisions, there is significant potential to increase employee involvement and skill development within these processes.

These findings illustrate that SLCB has established a solid foundation in AIS for decision-making. However, they also highlight specific areas where targeted improvements could significantly enhance the bank's operational efficiency and competitive position within the Sierra Leone banking sector.

Keywords: Sierra Leone Commercial Bank (SLCB), Accounting Information Systems (AIS), Enterprise Resource Planning (ERP), Decision Support Systems (DSS), Statistical Package for Social Sciences (SPSS).

1. Introduction

Access to clear and specific information for making management decisions is essential for the success and survival of an organization. The primary goal of any business is to achieve profitability and ensure long-term sustainability (Passari & Rey, 2015). In this context, accounting information plays a critical role (Srivastava & Lognathan, 2016). The accounting system is responsible for capturing, storing, processing, and communicating information in accordance with professional standards, industry practices, government regulations, and the organization's specific needs. Management accounting is vital to the economic information system, whether in small and medium-sized enterprises or large corporations, and it plays a significant role in decision-making. However, in many organizations, it often receives only superficial attention (Natalipa-Michaela & Adreea-Michaela, 2015). To enhance the effectiveness and dependability of a business and to empower decision-makers with the clarity they need, it is essential that the financial information they receive is not only accurate but also trustworthy. This dual commitment to validity and reliability forms the backbone of informed decision-making, ensuring that choices are guided by solid data rather than uncertainty (Kourdi, 2015).

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In recent years, businesses have experienced significant global growth, with the implementation of an accounting information system (AIS) being a crucial aspect of this transformation. Access to high-quality data and information is essential for facilitating organizational change. Therefore, companies must collect reliable data that produces trustworthy information (Abbasi et al. 2016). This information serves as a foundation for effective planning, control, and decision-making processes (Addai, 2013). Consequently, having an accounting information system is indispensable for all organizations (Jawabrech & Alrabei, 2012).

The adoption of International Accounting Standards set by the International Accounting Standards Committee (IASC) is increasing globally. For example, China is revising its accounting regulations to align more closely with these standards as part of a comprehensive overhaul of its accounting system. The global recognition and acceptance of accounting information are on the rise, and the concepts behind this information are widely considered to be thorough and reliable.

Accounting information is essential for the success of businesses around the world, as it translates various events into a common financial language. It uses formalized procedures for collecting and reporting data, creating a shared language that facilitates communication among members of an organization. This formalization simplifies information transmission, reducing the need for complex symbols and enhancing coordination among different functions involved in the decision-making process.

However, it is important to understand that accounting information is not a perfect representation of the underlying decision-making problem, as not all aspects can be accurately quantified in financial terms. Despite its limitations, accounting information is crucial in helping managers gain clarity and reduce uncertainty when making decisions (Sekaran & Bougie, 2016). Uncertainty often arises when decision-makers lack the information needed to make informed choices, which can negatively affect daily operations (Hunink et al., 2014).

Making informed decisions requires having appropriate, accurate, and up-to-date information presented in a clear and meaningful way. This study explores how effective accounting systems

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contribute to providing management with financial and other relevant information necessary to tackle decision-making challenges arising from banking operations.

1.2. Research Questions, Aim, and Objective

1.2.1. Research Questions

The research will elucidate the following points:

The research questions are as follows:

1. How does the adoption of Accounting Information Systems (AIS) in the Sierra Leone Commercial Bank (SLCB) promote efficiency and efficacy?
2. What are the fundamental elements affecting the decision-making process in the SLCB that should be considered in AIS?
3. What is the correlation between AIS and the decision-making process in the banking sector in SLCB, and what plan can be implemented for innovation?
- 4 How can AIS be leveraged to improve banks' decision-making process and performance in the SLCB?

1.2.2. Research Aim

The main aim of this study is to investigate the effect of accounting information systems on decision-making in the Sierra Leone Commercial Bank (SLCB).

1.2.3. Research Objectives

- i. To determine the importance of adopting AIS in the banking sector in SLCB in promoting efficiency and efficacy.
- ii. To determine the fundamental elements affecting the decision-making process in SLCB that should be considered in AIS.

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- iii. To determine the correlation between the AIS and the decision-making process in the banking sector in SLCB and explain a plan for innovation implementation.
- iv. To determine how AIS can be leveraged to improve the decision-making process and performance of banks in the SLCB.

1.3. Problem Statement

Accounting information is crucial for supporting strategic planning and decision-making processes in financial institutions (Ehrhardt, 2014). However, Sierra Leone Commercial Bank (SLCB) has faced challenges in ensuring the timely and proper availability of relevant accounting data for management use. Previous audit findings at SLCB indicated deficiencies in the accounting system and the handling of financial records, which led to issues such as poor planning, weak organizational controls, and inefficient administration (Audit Report, 2021). As the bank continues to expand its operations to serve more customers, the effective coordination of accounting activities becomes increasingly important.

SLCB is making efforts to address its challenges, but unresolved issues could hinder optimal performance. To gain a deeper understanding, further research is needed to explore how accounting information affects decision-making in banking operations. Investigating how financial data supports SLCB in achieving its strategic goals could offer valuable insights.

This study aims to evaluate how SLCB utilizes accounting information in management planning and decision-making processes. Both quantitative and qualitative case study approaches will be used, which will include document reviews and interviews with key stakeholders. The findings intend to identify gaps between the accounting information needed and the current practices in place. The recommendations will focus on strengthening the bank's accounting system and information management to support more informed strategic and tactical decisions (Fullerton et al., 2014) in the future. The goal of this study is to provide practical solutions that will support SLCB's long-term success and growth as it expands its operations. Additionally, the results aim to offer

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valuable insights that can be applied to accounting practices across the broader financial services sector.

1.4. Justification of the Study

Accounting information plays a critical role in supporting strategic decision-making (Caria et al. 2016) and performance monitoring for organizations. In the banking sector, having access to timely, reliable financial data is essential for effective planning and management control functions. Prior research has shown correlations between strong Accounting Information Systems (AIS) and improved decision-making capabilities within financial institutions (Rahman et al., 2021; Al-Shafeay & Al-Dujaili, 2020; Muhindo et al., 2019). However, inefficiencies in AIS implementation and usage have been reported at Sierra Leone Commercial Bank that may undermine optimal performance over time. Public reports have also indicated limitations in SLCB's financial disclosures that fail to adequately represent the true state of organizational assets and liabilities. Hence, a need to conduct this research.

1.5. Scope of the research

The collection of data and interviews will be undertaken at SLCB Freetown. The selected location was a perfect match for the researcher regarding firm type, researcher location, language proficiency, and data availability. The research believes that data collected in Freetown will be a true representation of data in the branches in the district, as the headquarters of SLCB is in Freetown. The research period is from 2020 to 2024

2. Literature Review

The literature pertaining to this research focuses on evaluating concepts, ideas, and relevant information. The literature review emphasizes the distinct differences between ordinary information and data-derived information. Furthermore, it discusses the diversity within accounting information systems, along with a comparison of the internal and external factors that influence information necessary for management planning and decision-making. This highlights the need for high-quality information.

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2.1. Contingency theory

The theory developed by Donaldson in 2018 builds upon contingency theory. It suggests that organizational effectiveness arises from the interplay between organizational characteristics and contingency factors. The performance of an organization improves as a result of the interaction between its structure and context (Ehrenberg & Smith, 2016; Gimenez et al., 2012). A greater alignment between context and structure leads to better organizational performance, as noted by Drury (2017). Various studies support this perspective by examining the interaction among contingency factors, accounting information systems (AIS), and organizational performance (Chong, 2016; Naranjo-Gil, 2016; Boulianne, 2017). These studies imply that there is an interaction between AIS and the factors influencing it, emphasizing that these factors are interdependent. Therefore, companies need to allocate their resources effectively to enhance this interaction.

Contingency theory posits that there is no one-size-fits-all accounting information system suitable for every situation. The effectiveness and utility of an AIS depend on certain external factors, such as market conditions and environmental context, as well as internal factors like technology and strategy (Mithas et al. 2013; Peppard & Ward 2016). Importantly, accounting information systems must align with the organization's strategic goals. Langfield and Smith (2017) conducted an extensive analysis of the relationship between strategy and AIS, concluding that AIS is often a consequence of the overall strategy.

Factors influencing AIS include input from managers and external computer experts. According to Donaldson (2021), any variable that moderates the effect of organizational characteristics on performance is considered a contingency. He also noted that the effectiveness of one variable on another often relies on a third contingent variable. Ma et al. (2016) argued that external factors, such as consultants, play an active role in the implementation stages of Enterprise Resource Planning (ERP) systems by transferring significant amounts of information and translating organizational requirements into system configurations. Ifinedo (2018) confirmed that the quality of external expertise affects the quality of information produced by the information system.

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Specifically, in the context of AIS, advice from external experts can lead to high-quality information and contribute to the overall effectiveness of the accounting information system (Ismail, 2019; Reitzig & Sorenson, 2013).

2.2. Decision Support Systems (DSS)

The Decision Support Systems (DSS) Theory, developed by Edward Alter in 1980, serves as a framework for understanding and designing computer-based systems that aid in decision-making. This theory highlights the importance of integrating data, models, and analytical tools to provide decision-makers with the necessary information for making informed choices (Curtis, 2020).

DSS Theory recognizes that decision-making is a complex process involving multiple stages, from problem identification to solution implementation. It identifies essential capabilities that a DSS should possess, including data access, modeling, analysis, and reporting. Additionally, the theory emphasizes that the configuration of a DSS should be tailored to meet the specific needs of the user and the task at hand (Alan, 2021).

The theory also outlines the process of implementing a DSS, which includes planning, design, development, and evaluation. Furthermore, it explores the potential impact of DSS on both individual and organizational decision-making. By applying DSS Theory, organizations can enhance the quality and efficiency of their decision-making processes, leading to improved outcomes and better overall performance (Chong, 2016).

DSS Theory typically assumes a rational decision-making process, where decision-makers strive to maximize utility or achieve predefined objectives. Rational decision-making involves identifying alternatives, evaluating their consequences, and selecting the best course of action. The theory emphasizes the critical role of data and information in this process. DSS leverages data from various sources, processes it into meaningful information, and presents it to decision-makers to support their choices (Curtis, 2020).

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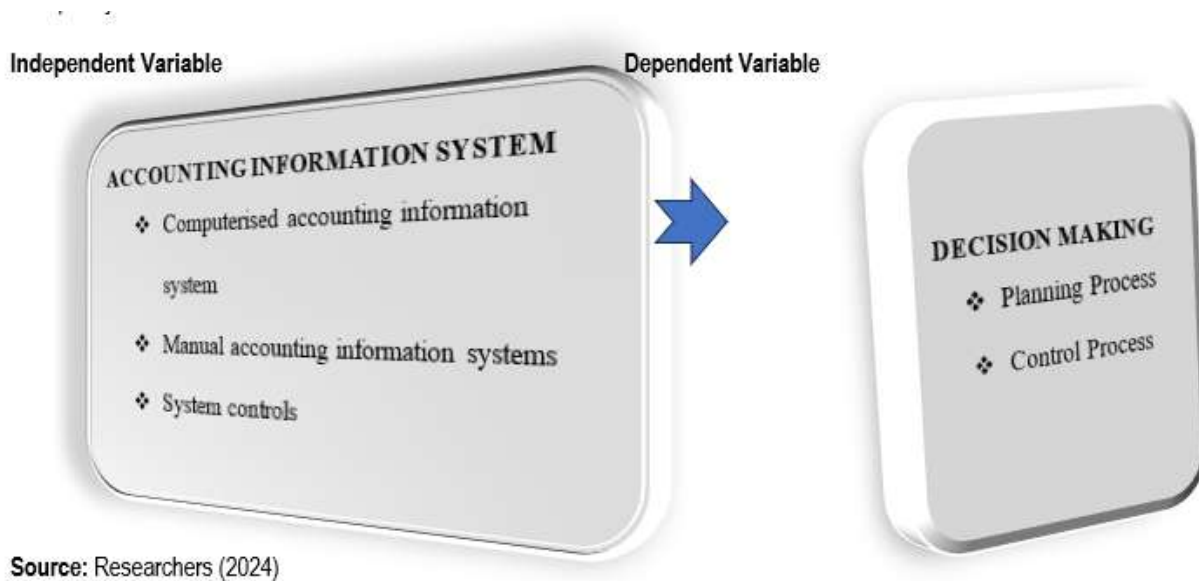
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3. Conceptual Framework

Mugenda and Mugenda (2016) say a conceptual framework is a graphical or diagrammatic representation of the relationship between independent and dependent variables in a study. It helps the researcher see the proposed relationship between the variables easily and quickly.



Source: Researchers (2024)

Figure 1: Conceptual framework

The conceptual framework illustrates the relationship between the independent variable, which is the accounting information system, and the dependent variable, which is decision-making. The accounting information system is evaluated based on three components: computerized accounting information systems, manual accounting information systems, and system control. In contrast, decision-making is assessed in terms of the planning process and the control process.

4. Research Methodology

Research in the social and health sciences can be complex and multifaceted, necessitating a holistic approach that incorporates diverse perspectives. Relying solely on either qualitative or quantitative methods may not fully capture the intricacies of research problems (Kamara, 2024). This is where mixed methods research proves valuable, as it combines the unique strengths of both qualitative and quantitative approaches. Its popularity has grown due to its effectiveness in harmonizing these two methodologies. In this study, data were collected using structured questionnaires and follow-up interviews. The follow-up interviews provided qualitative insights through in-depth conversations with selected participants. Additionally, data were gathered from various online resources, articles, the SLCB website, online newspapers, and audited financial statements. Mixed methods research employs quantitative and qualitative data collection techniques, offering a more nuanced and comprehensive understanding of research inquiries. Teddlie and Yu's typology (2007) identifies five sampling strategies: Basic, Sequential, Concurrent, Multilevel, and Combined, which researchers can adapt to meet their specific objectives and data requirements. In this study, purposive sampling and a concurrent strategy were employed (Kamara, 2024).

The concurrent triangulation approach was used to analyze data and guide discussions and interpretations. This method collects both quantitative and qualitative data simultaneously, allowing for a comparison of the two datasets to identify similarities, differences, or both. Data integration occurs during the interpretation or discussion phase (Creswell, 2009; Greene, Caracelli, Graham, 1989; Steckler et al., 1992).

Purposive sampling was employed to select participants based on their experience with the central phenomenon. The study included 30 participants, all of whom completed questionnaires. Descriptive statistics, such as mean, median, and mode, were used to determine the average or typical responses to the variables. Inferential statistics were employed to draw conclusions from the data. The quantitative findings were presented in tables and graphs, which helped the researcher summarize, describe, and explain the data related to the research questions (Kamara, 2024).

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The researchers acknowledge that the sample size in this study may be relatively small due to the use of purposive sampling. Purposive sampling, also known as judgmental or selective sampling, is a non-probability sampling method where participants are intentionally chosen based on their knowledge, relevance, or expertise related to the research topic. The researchers believe that this approach can lead to solid conclusions despite the smaller sample size.

The mixed methods research approach has become increasingly popular due to its flexibility, ability to address complexity, and holistic perspective. By integrating qualitative and quantitative methodologies, researchers can gain deeper insights and reach more robust conclusions in the social and human sciences. Therefore, a mixed-methods research approach was selected for this study.

Questionnaires developed by the researcher were used to assess the level of accounting information systems and their impact on management decision-making. A 4-point Likert scale was employed, ranging from "Strongly Disagree" (1) to "Strongly Agree" (4), as it effectively measures perceptions, attitudes, values, and behaviors related to accounting information systems and management decisions. The researcher chose to use a questionnaire because it is a quick, cost-effective method that can reach a large number of respondents in a short period. The gathered data was collected, coded into a computer, and statistically analyzed using the Statistical Package for Social Sciences (SPSS).

Sample Size

The sample size of this study was 103 respondents from the selected bank (SLCB). Slovene's formula was used to compute the sample size.

Slovene's formula states that, for any given population (N), the sample size (n) is given by; The researcher got the sample size of the total population by the use of the Slovene formula.

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$$n = \frac{N}{1 + N(e)^2}$$

Where N = Population

n = Sample size

e = Level of significance, which is 0.05. Therefore

$$n = \frac{140}{1+150(0.05)^2}$$

$$n = \frac{140}{1+140(0.0025)}$$

n = 103 respondents

The population and sample distributions of this research are presented in **Table 1** below.

Table 1: Population and Sample size of the respondents

Bank	Category of Respondents	Population	Sample
	Financial advisors	20	18
Sierra Leone Commercial Bank (SLCB)	Branch managers	25	20
	Sales managers	55	25
	Credit managers	50	40

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5. Data Presentation, Analysis, and Interpretation

This section presents the findings of the study, which aimed to investigate the effectiveness of accounting information systems in decision-making within banking institutions, specifically focusing on the Sierra Leone Commercial Bank. Data was collected through questionnaires administered to relevant stakeholders, including management personnel, accounting professionals, and decision-makers within the bank. The section is organized to ensure a systematic and logical flow. It begins with the presentation of the data obtained from the questionnaire responses. This is followed by a comprehensive analysis of the data, where patterns, trends, and relationships are identified and examined. Finally, an interpretation of the findings is provided, offering insightful conclusions and implications based on the analyzed data.

5.1. Function of Accounting Information System

The results presented in **Table 2** detail the perceived functions of the accounting information system at the Sierra Leone Commercial Bank in Freetown. Analysis of the data shows that a significant majority of respondents (80%) agreed that the accounting information system aids management in allocating scarce resources effectively. Additionally, a substantial proportion of respondents (81.43%) believe that financial statements help management comprehend the performance and position of the enterprise. Furthermore, the majority (77.34%) agreed that management can use the accounting information system for forecasting purposes. A considerable percentage of respondents (71.43%) acknowledged that management's decisions largely rely on the accounting information system. These findings underscore the importance of the system in supporting managerial decision-making processes. Overall, the results indicate a strong recognition of the various functions of the accounting information system, particularly in resource allocation, understanding financial performance, forecasting, and facilitating management decision-making.

Table 2: The Function of Accounting Information Systems

Variable	Disagree	Neutral	Agree	Total
	%	%	%	%
Accounting information system helps management to allocate scarce resources to an effective enterprise.	8.6	11.4	80	100
Financial Statement helps management to understand the performance and position of the enterprise.	7.14	11.43	81.43	100
Management can make forecasting via Accounting Information System.	7.14	15.72	77.34	100
The decision of the management largely depends on Accounting Information System.	12.86	15.71	71.43	100

Source: Researchers (2024).

5.2. Importance of Accounting Information System

The table presents data on the perceived importance of accounting information systems (AIS) in various aspects of decision-making processes and overall performance at the Sierra Leone Commercial Bank. The analysis shows that a majority of respondents (64.29%) believe that informed financial decisions enhance the overall performance of the enterprise. Furthermore, a

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significant 70.0% of respondents agree that accounting information systems are essential for management's systematic and rational decision-making processes. A considerable 67.14% of respondents also indicate that strategic decisions are made by the board of directors using the accounting information system.

Table 3: Showing the Importance of Accounting Information Systems

Variables	Disagreed	Neutral	Agreed	TOTAL
	%	%	%	%
Informed Financial decision enhance overall performance of the enterprise.	7.14	28.57	64.29	100
Accounting Information System is relevant to management systematic and rational decision-making.	4.29	25.71	70	100
Strategic decisions are made by the board of directors through an accounting information system.	12.71	20	67.14	100
Decisions about the perceptions of employees are made through an accounting information system.	25.71	22.86	51.43	100
The decision as to whether the enterprise is making profit or not is made through an accounting information system.	7.14	11.43	81.43	100
Decision about the overall performance of the Organization via the growth, effectiveness, and efficiency of information systems.	2.86	21.43	75.71	100

Source: Fieldwork 2024

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Regarding employee-related decisions, the results reveal that 51.43% of respondents believe these decisions are made through the accounting information system; however, a notable 25.71% disagreed, suggesting variations in perceptions about the system's relevance for such decisions. Additionally, a substantial majority of respondents (81.43%) agree that decisions regarding the enterprise's profitability are derived from the accounting information system, emphasizing the system's critical role in assessing and monitoring financial performance. Moreover, a large percentage (75.71%) supports the assertion that the overall performance of the organization, including growth, effectiveness, and efficiency, is evaluated through the accounting information system. In summary, the analysis indicates a strong recognition of the importance of accounting information systems across various decision-making processes and overall organizational performance, with the highest level of agreement observed in relation to profitability decisions and the lowest concerning employee-related decisions.

5.3. Opinions of Respondents on Accounting Information System in Sierra Leone Commercial Bank, Freetown

The data presented in Table 4.3 offers a comprehensive overview of the Accounting Information System (AIS) at Sierra Leone Commercial Bank, which includes both computerized and manual systems, as well as system controls. With an overall mean score of 2.58, interpreted as "Satisfactory," the findings indicate that respondents generally have a positive perception of the AIS at the bank, although there are identifiable areas that require improvement.

Table 4: Opinions of Respondents on Accounting Information System in Sierra Leone Commercial Bank, Freetown

Items on the accounting information system	Mean	Std.	Interpretation
Computerized accounting information system			
I use the computers for the storage of accounting information for my business	2.88	.995	Satisfactory
I use employee accounting software for preparing the accounting statements of my business	2.55	1.017	Satisfactory

I employ different computerized software in accounting and reporting	2.51	1.081	Satisfactory
I use the computers to collect the accounting data for my business	2.47	1.069	Unsatisfactory
I use the computer to conduct a financial analysis of the business	2.30	1.093	Unsatisfactory
Average mean	2.56	.78129	Satisfactory
Manual accounting information system			
I have a store where I keep my records on accounting records of the business	2.60	.993	Satisfactory
I store my accounting information in manual forms for the case of safety	2.59	.974	Satisfactory
I use manual records to prepare and analyze the financial statements	2.55	.994	Satisfactory
I use the manual accounting records to store my accounting information	2.52	1.137	Satisfactory
Most of the decisions are made based on the manual accounting system	2.48	1.087	Unsatisfactory
The manual accounting systems provide timely and error-free accounting information	2.43	1.059	Unsatisfactory
Average mean	2.52	.57756	Satisfactory
System control			
I find it easy to use the system control	3.00	.973	Satisfactory
The system control is sufficient and can't be easily hacked	2.82	1.012	Satisfactory
The response time for the system control is fast and flexible	2.73	.964	Satisfactory
There are effective controls that prohibit illegitimate access to the system	2.62	1.119	Satisfactory
There is difficulty in manipulating the system control	2.33	.962	Unsatisfactory
The system control functionality is good and secure for usage	2.41	1.014	Unsatisfactory
Average mean	2.67	.65097	Satisfactory
Overall mean	2.58	.54744	Satisfactory

Sources: Primary Data 2024

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The computerized components of the AIS received a mean score of 2.56, suggesting satisfactory performance. Employees particularly value the use of computers for storing accounting information, which garnered a mean score of 2.88. This indicates an acknowledgment of the efficiency and reliability of digital storage in the bank's operations. The use of accounting software and various computerized tools for reporting received mean scores of 2.55 and 2.51, respectively, showcasing an appreciation for the versatility of digital tools in financial reporting. However, lower ratings for using computers for collecting accounting data (2.47) and conducting financial analysis (2.30) reveal potential shortcomings in the implementation or utilization of these technologies within the bank. Such discrepancies could be attributed to inadequate training, software limitations, or resistance to fully adopting digital processes for these tasks in daily operations.

The manual components of the AIS received a mean score of 2.52, also viewed satisfactorily, demonstrating the ongoing relevance of traditional accounting methods. The highest-rated aspects include maintaining physical record stores (mean = 2.60) and manually storing information for safety (mean = 2.59). This indicates that despite technological advancements, there remains a perceived value in tangible record-keeping at Sierra Leone Commercial Bank, likely due to backup needs or regulatory requirements specific to the Sierra Leonean banking sector. However, the lower ratings for decision-making based on manual systems (2.48) and the timeliness and accuracy of manual information (2.43) suggest limitations in the practical application of manual systems for real-time business needs. System controls at Sierra Leone Commercial Bank received the highest overall rating, with a mean of 2.67, reflecting general confidence in the security and usability of the bank's AIS. Noteworthy are the ease of use of system controls (mean = 3.00) and the perception of sufficient security against hacking (mean = 2.82). These high scores suggest that employees find the systems accessible and feel protected against external threats. However, lower ratings for the difficulty in manipulating system controls (2.33) and overall functionality and security (2.41) reveal potential vulnerabilities and user concerns regarding internal misuse and the robustness of the systems. The standard deviations, which are mostly around 1, indicate a moderate level of agreement among respondents at Sierra Leone Commercial Bank. This consistency adds

credibility to the findings but also implies that experiences with the bank's AIS may differ significantly among various departments or employee levels.

In conclusion, while the Accounting Information System (AIS) at Sierra Leone Commercial Bank is generally satisfactory, there is a complex relationship between computerized and manual systems. The data indicates that the bank is undergoing a transition phase, where digital systems are increasingly being adopted but are not yet fully optimized, particularly for advanced functions such as data collection and analysis. Meanwhile, manual systems still hold value, especially for record-keeping, but they have limitations in meeting modern banking demands in Sierra Leone. The positive feedback regarding system controls is encouraging; however, the identified weaknesses in resistance to manipulation and overall security functionality highlight critical areas that need improvement. Addressing these vulnerabilities is essential, as they could undermine the integrity of the entire AIS, especially for a commercial bank operating in Sierra Leone's financial sector

5.4. Decision-making in Sierra Leone Commercial Bank, Freetown

Decision-making was the dependent variable in this study, which was divided into two constructs: the planning process and the control process. Each construct consisted of three questions based on a four-point Likert scale, where respondents rated their level of agreement with each statement. The responses were analyzed using SPSS and summarized through means and standard deviations, as shown in the tables.

Table 5 presents data on the decision-making processes at Sierra Leone Commercial Bank (SLCB), focusing on two main components: the planning and control processes. The overall mean for decision-making is 2.65, which is interpreted as "satisfactory." This indicates that, on average, respondents view SLCB's decision-making processes positively.

The planning process component received the highest average mean of 2.71, reflecting a satisfactory level of performance. The highest-rated item in this category was "Management makes

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decisions as quickly as possible," with a mean of 2.87. This suggests that SLCB is perceived to have a relatively quick decision-making process, which is crucial in dynamic business environments. The second-highest-rated item was "Top management considers suggestions or opinions from lower management when making decisions," with a mean of 2.69. This indicates a degree of inclusivity in the decision-making process, which can lead to more informed decisions and better employee engagement. The lowest-rated item in this category was "The type of decision-making followed by your organization is centralized," which had a mean of 2.57. While still considered satisfactory, this suggests that the organization tends to adopt a centralized decision-making structure, potentially limiting the speed and flexibility of decision-making at lower levels.

Table 5. Decision making

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Items	Mean	Std.	Interpretation
Planning Process			
Management makes decisions as quickly as possible.	2.87	.959	Satisfactory
The top management considers any suggestions or opinions from the lower management to making decisions.	2.69	.968	Satisfactory
The type of decision-making followed by your organization is centralized decision making	2.57	1.089	Satisfactory
Average mean	2.71	.59201	Satisfactory
Control process			
Managers have ability to understand the firm's business processes and the underlying infrastructure of the organization	2.70	1.054	Satisfactory
Management has the power to prepare, analyze and interpret financial reports and statements.	2.56	1.111	Satisfactory
The steps the organization takes to enhance decision making skills in the employees are counseling, workshops and training programs	2.48	1.055	Satisfactory
Average mean	2.58	.59410	
overall mean	2.65	.49201	

Sources: Primary Data 2024

The control process component had a slightly lower average mean of 2.58, but it was still within the satisfactory range. The highest-rated item was "Managers have the ability to understand the firm's business processes and the underlying infrastructure of the organization," with a mean of 2.70. This indicates confidence in managerial competence to grasp complex organizational structures and processes, which is essential for effective decision-making. The second item, "Management has the power to prepare, analyze, and interpret financial reports and statements,"

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had a mean of 2.56, suggesting that there is a satisfactory level of financial literacy among management, enabling data-driven decision-making. The lowest-rated item in this component was "The steps SLCB takes to enhance decision-making skills among employees include counseling, workshops, and training programs," which had a mean of 2.48. Although still satisfactory, this implies that there may be room for improvement in the organization's efforts to develop decision-making skills among its employees.

6. Summary, Conclusion, and Recommendations

This section summarizes the key findings from the study on the effectiveness of accounting information systems (AIS) in decision-making at Sierra Leone Commercial Bank (SLCB). It draws conclusions based on the analysis of the data presented in Section Four and compares these findings with recent research in the field. Finally, it offers recommendations for enhancing the use of AIS in decision-making at SLCB and similar banking institutions.

a) Summary of Findings

The research on the effectiveness of Accounting Information Systems (AIS) in decision-making at the Sierra Leone Commercial Bank (SLCB) revealed several key findings. A significant majority of respondents (80%) agreed that AIS plays a crucial role in helping management allocate scarce resources effectively, which aligns with the findings of Alamin et al. (2020) regarding the importance of AIS in resource allocation within financial institutions. Moreover, 81.43% of respondents acknowledged that AIS, particularly through financial statements, assists management in understanding the bank's performance and position. This supports Trabulsi's (2018) emphasis on AIS's role in providing a clear picture of an organization's financial health.

The study also found that 71.43% of respondents expressed a strong reliance on AIS for management decisions. This correlates with Al-Dmour et al.'s (2020) research, which shows a strong link between AIS usage and decision-making quality in Jordanian banks. Both computerized (mean = 2.56) and manual (mean = 2.52) AIS components were implemented at satisfactory levels, although gaps were noted in the use of computerized systems for data collection

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and financial analysis. This mixed approach reflects findings by Oladipupo and Ajabe (2019) in Nigerian banks, where a transition from manual to fully computerized systems is still ongoing.

System controls received the highest overall rating (mean = 2.67), indicating general confidence in the security and usability of SLCB's AIS. However, potential vulnerabilities were identified regarding manipulation resistance and overall security functionality, echoing concerns raised by Alhassan et al. (2021) about cybersecurity in West African banking systems. Finally, the overall decision-making process at SLCB was rated as satisfactory (mean = 2.65), with the planning process (mean = 2.71) slightly outperforming the control process (mean = 2.58). This indicates a relatively effective decision-making environment, though there is room for improvement, particularly in employee skill development. These findings collectively provide a comprehensive overview of AIS effectiveness in decision-making at SLCB, highlighting both strengths and areas for potential enhancement.

b) Conclusions

The study on the effectiveness of Accounting Information Systems (AIS) in decision-making at Sierra Leone Commercial Bank (SLCB) yields several important conclusions.

Firstly, the Accounting Information System (AIS) plays a crucial role in supporting management decisions, particularly in resource allocation and performance evaluation. This finding emphasizes the importance of not only maintaining but also continuously enhancing AIS capabilities within the bank to ensure effective decision-making processes. The relevance of AIS in these areas is supported by recent research from Muhindo et al. (2021), which found that the quality of AIS directly influences the financial performance of banks in developing economies.

Secondly, while SLCB employs both computerized and manual AIS components, there is a clear need for further optimization of the computerized systems, particularly in data collection and financial analysis. This indicates that SLCB is currently in a transition phase toward fully digitizing its accounting processes. This observation aligns with findings from Oladipupo and

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Ajabe (2019), who noted similar transitional stages in Nigerian banks, highlighting the ongoing shift toward digital transformation in the African banking sector.

Thirdly, the strong emphasis on system controls within SLCB demonstrates a solid foundation for AIS security. However, the identified vulnerabilities point to the necessity for continuous improvement in this area. This conclusion resonates with the work of Alhassan et al. (2021), who underscored the importance of ongoing cybersecurity enhancements in West African banking systems to address evolving threats and maintain the integrity of financial data.

Lastly, while the decision-making process at SLCB is generally effective with a slight emphasis on centralized decision-making, there is significant potential to enhance employee involvement and skill development within these processes. This aligns with research by Al-Dmour et al. (2020), which found that employee competence and involvement significantly influence the effectiveness of AIS in decision-making within banking institutions. Striking a balance between centralized control and decentralized decision-making processes presents an opportunity for SLCB to improve its overall organizational agility and responsiveness.

Together, these conclusions illustrate that SLCB has established a solid foundation of AIS for decision-making. However, they also highlight specific areas where targeted improvements could significantly enhance the bank's operational efficiency and competitive position within the Sierra Leone banking sector.

c) Recommendations

Based on the conclusions, the following recommendations are proposed for the implementation of SLCB

i. Enhance Computerized AIS Utilization: SLCB should invest in training programs to improve staff proficiency in using computerized AIS for data collection and financial analysis. This aligns with recommendations by Oladipupo and Ajabe (2019) for banks transitioning to fully digital systems.

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ii. **Strengthen System Controls:** While system controls are perceived positively, SLCB should address identified vulnerabilities, particularly in manipulation resistance. Regular security audits and updates should be implemented, as suggested by Alhassan et al. (2021) to improve cybersecurity in West African banks.

iii. **Develop Employee Decision-making Skills:** SLCB should enhance its programs for developing decision-making skills among employees, potentially through more comprehensive training and mentoring programs. This recommendation is supported by research from Al-Dmour et al. (2020), who found that employee competence significantly impacts the effectiveness of AIS in decision-making.

iv. **Balance Centralized and Decentralized Decision-making** while maintaining centralized control, SLCB should consider incorporating more decentralized decision-making processes to improve flexibility and responsiveness. This approach was recommended by Trabulsi (2018) to improve overall organizational performance in banking institutions.

v. **Continuous AIS Evaluation and Improvement:** SLCB should establish a regular review process for its AIS to ensure it continues to meet the evolving needs of the bank and incorporates the latest technological advancements. This aligns with recommendations by Alamin et al. (2020) for maintaining effective AIS in dynamic financial environments.

By implementing these recommendations, SLCB can enhance the effectiveness of its AIS in supporting decision-making processes, ultimately leading to improved organizational performance and competitiveness in the Sierra Leone banking sector.

d) Recommendation to Future Researchers

This case study examines a specific instance, which means that its findings cannot be broadly generalized beyond that individual case. The ability to generalize is also limited in instrumental case studies, where a single case is analyzed to represent a larger category. As a result, the recommendations from this research are specific to the Sierra Leone Commercial Bank (SLCB), the organization being studied. Future research should include comparative studies involving at

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least four banks in the sub-region to ensure that the findings are generalizable and applicable to other developing economies.

Additionally, future research should focus on a comparative study of Accounting Information Systems and their impact on customer satisfaction in the banking sector in Sierra Leone. This research could help uncover the effects of accounting system downtime and its influence on customers.

Conflict of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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