

Relationship between supportive supervision and caring behavior among healthcare workers: The mediating role of job satisfaction

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ABSTRACT

Introduction: A significant way of ensuring treatment efficacy is through human interaction focusing on caring behavior. However, few studies exist examining factors within the healthcare sector and their impact on the caring behavior of healthcare workers. Accordingly, the mediating role of job satisfaction in the nexus between supportive supervision and the caring behavior of healthcare workers in the public sector was examined.

Methods: A quantitative method of collecting data via the cross-sectional design was adopted. Three standardized self-report measurement scales with acceptable psychometric properties were utilized for data collection. A regression-based analysis (complemented with PROCESS Macro v4.2) was adopted for hypotheses testing through the IBM SPSS v25.

Results: The participants were 204 public health workers from Delta State, Nigeria. More than half of the respondents were females 107 (52.5%) and the mean age was 40.74 years. The study's results provided support for the four tested hypotheses. Supportive supervision and job satisfaction were positive and significant predictors of caring behavior. Also, supportive supervision positively and significantly predicted job satisfaction while job satisfaction mediated the relationship between supportive supervision and caring behavior.

Conclusion: This study demonstrates the importance of supportive supervision and job satisfaction in predicting the caring behavior of healthcare workers. Consequently, it is recommended that policymakers, practitioners, and hospital administrators in the health sector put in place frameworks that will promote supportive supervision and job satisfaction.

Keywords: Caring behavior; healthcare workers, job satisfaction, supportive supervision

Introduction

Caring is crucial to healthcare delivery and it is the responsibility of healthcare workers (HCWs) to develop, improve and facilitate this delivery through caring behavior.¹ Caring behavior is focused on the HCW's concern for the well-being and safety of patients and offering the necessary attention to patients' needs as it relate to the treatment process.² There is compelling evidence in the literature suggesting that caring behavior promotes patient satisfaction, recovery and quality of care.^{3,4,5} This study aims to contribute to

understanding how HCWs in Nigeria can enhance patient care and therapeutic communication, aligning with existing research on factors influencing treatment outcomes.

In the Nigerian health sector, worker attitudes toward service and patient care contribute to existing challenges.⁶ Regarding the quality of care, while management highlights infrastructure and funding issues, patients often complain about

public HCWs' attitudes. Concerning the latter, job dissatisfaction has been identified as an antecedent to this worrisome trend.⁷ Calls for improving worker satisfaction usually revolve around better financial packages, working conditions, and increased staffing, often reliant on government funding. The Nigerian Medical Association (NMA) are at the forefront of these calls.⁸ However, economic challenges may hinder these recommendations' implementation. Hence, hospital management needs to explore non-monetary ways to enhance job satisfaction. Research suggests that positive work characteristics, not solely linked to financial incentives, can boost job satisfaction. This study investigates how supportive supervision impacts job satisfaction, which, in turn, influences caring behavior among HCWs, drawing from Herzberg's two-factor theory of motivation.

Reviewing existing literature on caring behavior reveals increasing recognition of its significance in providing effective, high-quality healthcare services. According to the literature, the antecedents of caring behavior include but are not limited to moral sensitivity, emotional intelligence, job satisfaction and engagement.^{3,9,10,11} However, there is a dearth of studies examining the antecedents of caring behavior in Nigeria where this study is centered.^{12,13} Examining the antecedents of caring behavior across diverse cultural and healthcare milieus is important due to the possible impact of resources availability and culture.¹⁴ This knowledge gap can hinder proactive and reactive efforts by Nigerian health and hospital administrators to promote caring behavior. Therefore, this study aims to address this issue.

Supportive supervision and job satisfaction represent positive workplace resources that are most likely to enhance other positive outcomes in the workplace. Hence, employees with higher job satisfaction and perceived supportive supervision are more likely to exhibit positive workplace behaviors.¹⁵ Supportive supervision is a vital workplace factor that is strongly related to desirable work outcomes among HCWs. Specific

to the healthcare sector, supportive supervision has been found to promote behaviors that enhance patient satisfaction and safety.¹⁶ The emphasis on supportive supervision is built on the ability of supervisors to assist in problem-solving, and skill development and provide adequate coaching and mentorship in the workplace. Supportive supervision has been shown to increase health workers' effectiveness and enhance quality service delivery.¹⁷ Studies establishing a link between supportive supervision and caring behavior are in dearth. Supportive supervision increases the quality of service delivery; caring behavior is significantly attributed to quality healthcare services.¹⁸

The proposed association is built on the notion that when health workers are given enough support (social, emotional, adequate coaching, and mentorship), they are more likely to carry out positive work behaviors.¹⁹ Also, the intrinsic gratification from positively affecting patients' health and well-being can be linked to caring behavior. That is, supportive supervision may improve HCWs' job satisfaction by addressing possible sources of dissatisfaction and enabling a positive work environment. Also, the coaching, mentoring, feedback, and recognition embedded in supportive supervision contribute to the learning and development of the worker and ultimately their work achievement and growth prospects. This may lead to satisfaction, which in turn, increases their motivation to engage in caring behaviors. Conclusively, HCWs who receive supportive supervision are more likely to feel appreciated and valued, which may translate into caring behavior when they engage with patients.

The aforementioned proposal is supported by Herzberg's two-factor theory of motivation.²⁰ Consequently, this study seeks to examine the direct effect of supportive supervision and job satisfaction on caring behavior. Specifically, this study intends to establish a link between the independent (supportive supervision) and the dependent (caring behavior) variables. The study goes further to examine job satisfaction as a

mediator in the proposed nexus between supportive supervision and caring behavior. Studies on the complex relationships among supportive supervision, job satisfaction, and caring behavior among HCWs are scarce in the literature, especially in Nigeria's healthcare where these factors have received little attention from researchers. Hence, it is pertinent to conduct an empirical study to understand these antecedents of caring behavior to help hospital administrators introduce policies that will help improve this behavior in the workplace. Based on the theoretical and empirical literature on the link between the variables under consideration, the following hypotheses have been developed to guide this study:

Hypothesis 1 (H₁): Supportive supervision will positively and significantly predict caring behavior among HCWs.

Hypothesis 2 (H₂): Supportive supervision will positively and significantly predict job satisfaction among HCWs.

Hypothesis 3 (H₃): Job satisfaction will positively and significantly predict caring behavior among HCWs.

Hypothesis 4 (H₄): Job satisfaction will mediate the relationship between supportive supervision and caring behavior. That is, HCWs with a higher level of supportive supervision, are likely to experience more job satisfaction which leads to caring behavior.

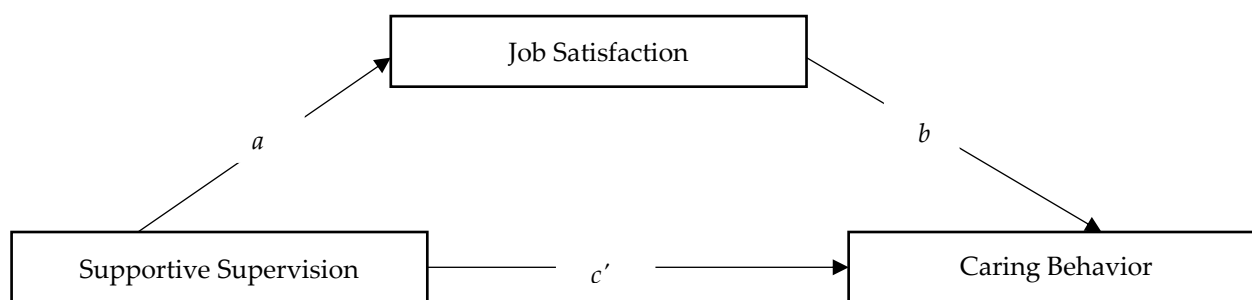


Fig. 1.1: The causal diagram depicting the relationship between supportive supervision, job satisfaction and caring behavior. It is a proposed causal model showing the paths leading to mediational analysis as depicted in paths a, b, and c.

Methods

The study's design was cross-sectional and correlational as it tries to understand the relationship that exists among the three variables under consideration. The sample comprises HCWs working in publicly owned healthcare organizations in Delta State, Nigeria. This selection (the use of public HCWs) is based on information on the diminishing levels of caring behavior among HCWs across publicly owned hospitals in Nigeria.²¹ The size of the study's sample was determined and estimated using the G*power software.²² The linear multiple regression fixed models and an R^2 deviation of zero fixed at A-priori were used to compute the required sample size. A 0.15 medium effect size, an alpha value of 0.05, and power fixed at 0.95; the G*power sample size determination analysis gave a minimum sample requirement of 107 participants for the mediation model. However, a larger sample size is often required to reduce the occurrences of non-response bias.²³ Consequently,

220 questionnaires were distributed among HCWs in Delta State, Nigeria.

Due to resource constraints, systematic sampling (nth case of 2) was employed to select public hospitals in the study area, introducing an element of randomness. Convenience sampling was then used to select HCWs from the sampled hospitals. This approach aligned with the study's objectives and the research problem under investigation. The ethical clearance (with approval number RECPSY 20230021) for the study was obtained from the Delta State University ethical committee through the Department of Psychology, ensuring participant anonymity and data confidentiality. Formal permission was secured from participating hospitals, explaining the study's purpose and encouraging healthcare worker participation. Participants verbally consented before questionnaire administration. Out of 220 distributed questionnaires, 211 were retrieved, resulting in a 95.90% return rate. Seven questionnaires were incomplete and unusable.

Therefore, 204 responses were analyzed to test hypotheses and fulfill research objectives.

A structured questionnaire was designed to measure caring behavior, supportive supervision, and job satisfaction among HCWs. These constructs were investigated using frequently adopted scales in healthcare literature. Caring behavior was assessed using Wu et al.'s²⁴ caring behavior scale. This inventory was adapted to suit all HCWs, including doctors, nurses, and others directly involved with patients. The inventory consists of 24 items categorized into four distinct and significant domains of caring behavior: assurance (eight items), knowledge and skill (five items), respectfulness (five items), and connectedness (five items). These domains collectively define the concept of caring behavior within the healthcare sector. Assurance pertains to attending to patients' needs and security, knowledge and skill involve possessing the necessary information and proficiency in patient care, respectfulness entails demonstrating polite regard for patients, and connectedness encompasses a positive and consistent readiness to assist patients.⁹ The sum of the dimensional scores represents the composite construct of caring behavior.

Supportive supervision was assessed by McGilton's Supportive Supervision scale.²⁵ It contains 15 items measuring the perceived support HCWs get from supervisors and hospital administrators. In the scale, higher scores indicate high supportive supervision and lower scores indicate low supportive supervision. Job satisfaction was measured using Judge et al.'s widely accepted 5-item self-report scale, which assesses job satisfaction levels among employees in various settings, including healthcare organizations.²⁶ The higher the scores the higher the job satisfaction and the lower the scores the lower the job satisfaction. A five-point Likert format, ranging from strongly disagree to strongly agree was used for all the scales.

Common method variance or response bias from the respondents is a significant challenge in a survey-based study. Therefore, when designing a study, it is essential to implement control measures. In the study's design, some procedures were utilized to control method bias. The study focal variables were presented to the participants on different papers. This ensures the physical gap that hinders the participant's flow of thought from one variable to the other. Anonymity and

confidentiality were assured to the participants through the cover letter. This aimed at encouraging participation and honesty in response. More to the procedural control measures, a common method variance diagnostic statistical procedure known as the correlation matrix techniques and the Hermann single-factor test were applied to the data set.^{27,28}

Regression-based analysis with the aid of IBM-SPSS v25 (complemented with PROCESS Macro v4.2) was used for testing the research hypotheses. This method was appropriate as the study examined the nexus between supportive supervision and caring behavior, and further explored the possible mediational paths (based on the hypothesis that supportive supervision will lead to job satisfaction and job satisfaction further promotes caring behavior) via job satisfaction. The PROCESS Macro tool for regression-based analysis has gained popularity and is frequently used for investigating the role of intervening or mediation variables.²⁹ There was strict adherence to the assumptions of the parametric test. These are shown in how the study was designed and the preliminary analysis results. Hence, data collection was independent of each other meeting the response requirement. The Likert scale response showed evidence of an interval of measurement and the linear relationship between the variables as shown in the scatter plot produced from the data.

Results

The sociodemographic characteristics of the research participants are presented in Table 1. Based on the descriptive statistics used, the participants had a mean age of 40.74 ±8.8, ranging from 24 to 68 years. The study consisted of 97 (47.5%) males and 107 (52.5%) females and the majority, 71 (36.0%) of the participants had between 6 to 10 years of experience in the medical profession. About half, 95 (46.6%) of the participants had spent between 1-8 years in their respective healthcare organizations with a mean of 11.29 for all the participants. All participants reported receiving formal education with qualifications ranging from diplomas to postgraduate degrees. More than half, 110 (54.2%) of the participants had Bachelor's degrees, 50 (24.6%) had diplomas or equivalent certificates, and 43 (21.3%) had postgraduate degrees.

Table 1.: Sociodemographic characteristics of participants

	Frequency (%)
Gender (n = 204)	
Male	97 (47.5)
Female	107 (52.5)
Age (in years; n = 204)	
Under 31	26 (12.7)
31-40	85 (41.7)
41-50	77 (37.7)
51-68	16 (7.8)
Marital Status (n = 204)	
Married	122 (59.8)
Single	67 (32.8)
Separated/Divorced	10 (4.9)
Widowed	5 (2.5)
Medical Experience (in years; n = 197)	
Less than 5	55 (27.9)
6-10	71 (36.0)
11-20	40 (20.3)
21-30	15 (7.6)
Above 31	16 (8.1)
Organizational Tenure (in years, n = 204)	
Under 8	95 (46.6)
8-14	57 (27.9)
15-21	24 (11.8)
22-28	11 (5.4)
Above 29	17 (8.3)
Educational Qualification (n = 203)	
Diploma/Equivalent certification	50 (24.6)
Bachelor's degree	110 (54.2)
Postgraduate	43 (21.2)

Correlational analysis was carried out to examine the impact of the sociodemographic characteristics on the three salient variables under investigation. In Table 2, the analysis indicates that age ($r = 0.255, p < .01$), medical experience ($r = 0.151, p < 0.05$), and organizational tenure ($r = 0.181, p < 0.01$) positively and significantly correlated with caring behavior. Also, the age of

participants, medical experience, marital status, qualification, and organizational tenure correlated positively and significantly with supportive supervision while age ($r = 0.161, p < 0.05$), medical experience ($r = 0.225, p < 0.05$), and organizational tenure ($r = 0.151, p < 0.05$) positively and significantly correlated with the job satisfaction of HCWs.

Table 2.: Association of the sociodemographic characteristics and the scores on healthcare workers' caring behavior, supportive supervision and job satisfaction

	Caring behavior		Supportive supervision		Job satisfaction	
	Correlation	p-value	Correlation	p-value	Correlation	p-value
Gender	0.054	0.441	-0.043	0.546	-0.099	0.159
Age	0.255**	0.001	0.222**	0.001	0.161*	0.021
Marital status	0.058	0.407	0.172*	0.014	0.078	0.268
Medical experience	0.151*	0.034	0.254**	0.001	0.225**	0.001
Organizational tenure	0.181**	0.010	0.365**	0.001	0.188**	0.007
Educational Qualification	0.295**	0.001	0.330**	0.001	0.096	0.172

Note: * 0.05 level (significant at 2-tailed); **0.01 level (significant at 2-tailed)

The correlation values obtained for caring behavior, supportive supervision and job satisfaction were < 0.90 indicating that method bias was not a problem in the study. Further statistical analysis via the Hermann single-factor test was also used. The test shows that factors with Eigenvalue equal to 1 and above accounted for 74% of the total variation with the first factor explaining 22%. As the first factor did not account for up to 50% of the total variation, the data sets are most likely not affected by common method bias. The correlation matrix table shows the key

research variables' mean, standard deviation and correlation coefficient. Specifically, supportive supervision ($r = 0.21, p < 0.01$), and job satisfaction ($r = 0.29, p < 0.01$) were significantly related to caring behavior. The relationship between supportive supervision and job satisfaction was significant ($r = 0.15, p < 0.05$). Job satisfaction and supportive supervision showed a relationship with some of the dimensions of caring behavior as displayed in Table 3. Furthermore, the observed values from the correlation analysis were less than 0.80 indicating multicollinearity was not an issue.

Table 3.: Mean, standard deviation, and correlation coefficient of key variables

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1 Supportive supervision	4.39	0.42	[0.89]						
2 Job satisfaction	4.03	0.94	0.15*	[0.78]					
3 Caring behavior	4.47	0.38	0.21**	0.29**	[0.91]				
4 Assurance	4.38	0.60	0.12	0.30**	0.74**	[0.88]			
5 knowledge and skill	4.50	0.48	0.11	0.08	0.73**	0.40**	[0.86]		
6 Respectfulness	4.50	0.59	0.10	0.17*	0.69**	0.17*	0.42**	[0.85]	
7 Connectedness	4.57	0.44	0.32**	0.18**	0.61**	0.19**	0.39**	0.44**	[0.73]

Note: *0.05 level (significant at 2-tailed); **0.01 level (significant at 2-tailed);

The Cronbach's alpha value for each variable is in parentheses.

Table 4 shows the independent effect of supportive supervision and job satisfaction on caring behavior. The statistics in the table supported hypotheses 1 and 3. For the first hypothesis, (as seen in the second, third, and fourth rows of Table 4) supportive supervision has a significant and positive effect on caring behavior ($b = 0.19, 95\% \text{ CI } [0.07, 0.31], t = 3.10, p < 0.01$). The b -statistics indicates that a one-unit increase in supportive supervision leads to a .19 unit increase in caring behavior. The R^2 statistics indicated that supportive supervision accounts for an 8.5% variance in caring behavior and that supportive supervision's effect on caring behavior is of a small but meaningful magnitude. The Analysis of variance (ANOVA) results show a statistically

significant regression, which means that caring behavior can be predicted from supportive supervision. For the third hypothesis, (as seen in rows five, sixth and seventh of Table 4) job satisfaction has a significant and positive effect on caring behavior ($b = .11, 95\% \text{ CI } [0.06, 0.17], t = 4.33, p < 0.001$). The b -statistics indicate that a one-unit increase in job satisfaction leads to a .11-unit increase in caring behavior. The R^2 statistics indicate that job satisfaction accounts for a 4.8% variance in caring behavior which also suggests that the effect of job satisfaction on caring behavior is small but significant. The analysis of variance (ANOVA) result indicates a statistically significant regression. Therefore, caring behavior can be predicted from job satisfaction.

Table 4.: Simple regression analysis

	<i>b (95% CI)</i>	<i>SE</i>	<i>B</i>	<i>t</i>	<i>P</i>
Constant	3.6{3.08, 4.17}	0.27		13.18	0.001
Supportive supervision	.19{0.07,0.31}	0.06	0.21	3.10	0.01
$F(1;202) = 9.63, p = 0.002, R^2 = 0.085, \text{ Adjusted } R^2 = 0.081, \text{ DW} = 1.76$					
Constant	3.99{3.77, 4.22}	0.11		35.18	0.001
Job satisfaction	.11{0.06, 0.17}	0.02	0.29	4.33	0.001
$F(1;202) = 18.79, p = 0.001, R^2 = 0.048, \text{ Adjusted } R^2 = 0.044, \text{ DW} = 2.21$					

Table 5.: Simple regression analysis showing job satisfaction predicted from supportive supervision

	<i>b</i> (95% CI)	SE	<i>B</i>	<i>t</i>	<i>P</i>
Constant	2.54{1.19, 3.88}	0.27		3.72	0.001
Supportive supervision	0.33{0.03,0.64}	0.15	0.15	2.19	0.05
<i>F</i> (1;202)=4.80, <i>p</i> = 0.030, <i>R</i> ² = 0.023, Adjusted <i>R</i> ² = 0.081, DW = 1.36					

The results of the second hypothesis are shown in Table 5. Supportive supervision has a significant and positive effect on job satisfaction ($b = 0.33$, 95% CI [0.03, 0.64], $t = 2.19$, $p < 0.05$). The *b*-statistics indicate that a one-unit increase in supportive supervision leads to a 0.33-unit increase in caring behavior. The *R*² statistics indicate that supportive supervision accounts for a 2.3% variance in job satisfaction and that supportive supervision's effect on job satisfaction is of a small but meaningful magnitude. The analysis of variance (ANOVA) result indicates a statistically significant regression. Therefore, caring behavior can be predicted from job satisfaction.

The mediational analysis showed that the paths leading to the mediation were all significant.

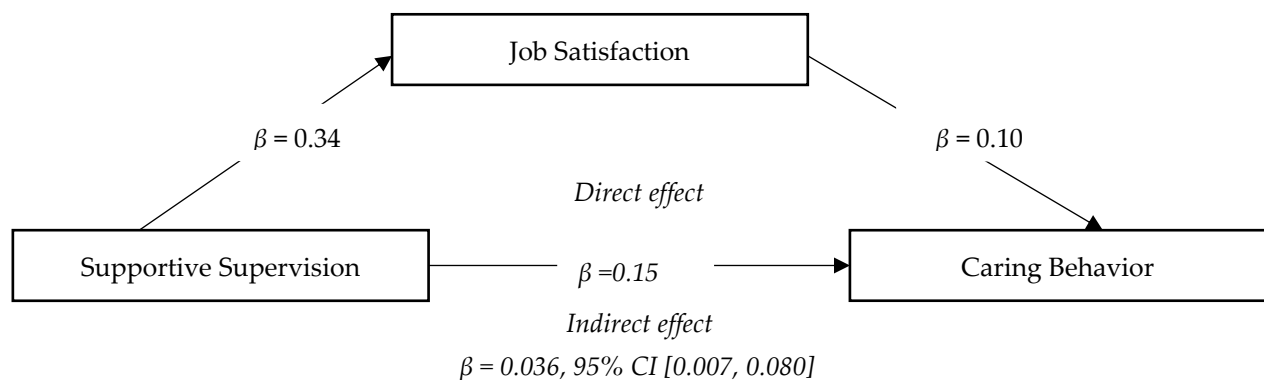
There was a significant total effect between supportive supervision and caring behavior ($\beta = 0.19$, $p < 0.01$), for path a, supportive supervision positively and significantly predicted job satisfaction ($\beta = 0.34$, $p < 0.05$), and for path b, job satisfaction positively and significantly predicted caring behavior ($\beta = 0.10$, $p < 0.001$).

Table 6 shows the results of the mediational analysis conducted to test the proposed framework. The results in Table 6 indicate that job satisfaction partially mediates the relationship between supportive supervision and caring behavior ($\beta = 0.036$, LLCI = 0.007, ULCI = 0.080) as the interval had no zero. The result supported the fourth hypothesis.

Table 6.: Simple mediational analysis

	Outcome variable = Caring behavior					
	<i>B</i>	SE	<i>t</i>	<i>P</i>	LLCI	ULCI
Supportive supervision	0.15	0.06	2.57	0.01	0.036	0.277
Job satisfaction	0.10	0.02	3.95	0.001	0.054	0.162
Indirect effect of supportive supervision on caring behavior						
	Effect	Boot standard error	LLCI	ULCI		
Job satisfaction	0.036	0.018	0.007	0.080		

Note: LLCI = Lower Limit Confidence Interval; ULCI = Upper Limit Confidence Interval

**Fig. 1.2:** The results of the research model

Discussion

Caring behavior is vital to the treatment of patients. This understanding has led to various empirical examination of the likely antecedents and factors that promotes this behavior among HCWs. Consequently, this study examined the nexus between supportive supervision and caring behavior and further examined the mediating role of job satisfaction in the proposed relationship while also testing the paths leading to the mediation. The study examined four hypotheses derived from both theoretical and empirical literature. These hypotheses were constructed to explore pathways leading to both direct and indirect effects. The first hypothesis, which proposed that supportive supervision positively and significantly predicts caring behavior, received support from the collected data. This finding aligns with previous studies that have established a connection between supportive supervision and various positive behaviors within healthcare organizations. For example, studies have shown that supportive supervision increases the delivery of quality health services, and job satisfaction among HCWs and increases the satisfaction they derive from their job.^{18,30} The result also aligns with the notion that giving employees adequate support, coaching, and mentorship increases the likelihood of positive behaviors towards their colleagues and patients.^{19,31} Hence, positive treatment at work is likely to evoke the performance of positive workplace behaviors among HCWs. In the presence of supportive supervision, caring behavior is likely going to thrive in the healthcare sector.

The second hypothesis, which posited that supportive supervision would positively and significantly predict job satisfaction, received support. This finding aligns with previous studies that have established a connection between the support employees receive and their job satisfaction levels. Specifically, Dousin et al. found that supportive supervision significantly and positively impacts employees' work satisfaction and performance.³¹ Other studies conducted within the Sub-Saharan African region have also

established that supportive supervision is vital in increasing HCWs' motivation, performance, and job satisfaction.^{32,33}

The third hypothesis which stated that job satisfaction would positively and significantly predict caring behavior was supported as the result confirmed the model. This is consistent with the empirical literature that showed the connection between how HCWs feel at work and their behavior toward colleagues and patients. For example, De Los Santos and Labrague and Putra et al. found a significant positive relationship between job satisfaction and caring behavior.^{3,13} This indicates that the likelihood of HCWs showing care to their patients increases in the presence of job satisfaction. Hence, justifying the notion that health workers who feel satisfied with their jobs are more likely to care for their patients than those who are not.

Finally, the fourth hypothesis that job satisfaction will mediate the relationship between supportive supervision and caring behavior was supported. This result supported the overall model developed for the study and is consistent with studies that have adopted job satisfaction as a mediator variable within the healthcare sector. For example, Ran et al. conducted a study and found that job satisfaction mediates the relationship between job burnout and nurses' turnover intention.³⁴ Also consistent with this finding is the work of Bakkal et al. where job satisfaction was also examined and found to be a mediator in the nexus between toxic leadership and turnover intention.³⁵ Similarly, the studies conducted by Hu et al and Yue et al supported the result of the mediational model.^{36,37} Hence, supportive supervision has an indirect effect on caring behavior among healthcare workers through job satisfaction.

This study has some limitations. Firstly, it relies on self-report measures for data collection, which can introduce social desirability bias, causing participants to rate themselves more favorably on caring behavior than may be accurate. Although efforts were made to mitigate this bias, it is important to acknowledge its potential impact on

the outcome of the study. Therefore, future research is encouraged to incorporate ratings from colleagues, patients, and supervisors in addition to self-reports, ensuring a more comprehensive assessment of respondents' behavior. Secondly, the study employs a cross-sectional design, suitable for its objectives, but it limits the ability to establish causality among the variables and understand their changes over time. Future studies may consider a longitudinal design to address these aspects.

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Conclusions

The study examined how job satisfaction mediates the link between supportive supervision and caring behavior. The study findings confirmed job satisfaction as a mediator in this relationship, emphasizing the significance of both job satisfaction and supportive supervision in fostering caring behavior among HCWs. Given these findings, policymakers and hospital administrators should establish frameworks promoting job satisfaction and supportive supervision because they have positive implications for caring behavior.

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