

# Work-related stress, burnout, and related sociodemographic factors among nurses

## Implications for administrators, research, and policy

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### Abstract

This study examined work-related stress and burnout symptoms with respect to related sociodemographic factors among nurses in Nigeria.

A representative sample of nurses (N=393) was randomly selected from hospitals in Southeast Nigeria to take part in this cross-sectional, correlational study from June to December 2017. Participants received questionnaires by mail, which measured work stress and burnout symptoms, respectively. Data collected were analyzed using bivariate correlations and multiple regression analyses.

Among the sociodemographic factors investigated, sex was significantly correlated with work-related stress. The sociodemographic factors were not significantly associated with burnout symptoms. Stepwise multiple regression procedure produced a model that contained four sociodemographic factors and explained 4.5% of the variance in nurses' work stress scores and 0.8% of the variance in nurses' burnout scores. Age, work environment, and work experience did not make significant contributions to the prediction of work-related stress among the nurses. Finally, sex, age, work environment, and work experience did not make significant contributions to the prediction of burnout among the nurses.

Nurses' sociodemographic factors, which included sex, age, work environment and work experience accounted for only a small proportion of variance in nurses' work stress and burnout in Southeast Nigeria. The study also furthers our awareness that sex is significantly linked to work-related stress among the nurses in Southeast Nigeria. Thus, the implications of the study for administrators, research, and policy were discussed.

**Abbreviations:** % = percentage,  $\beta$  = standardized beta coefficients, B = unstandardized beta coefficients, Env. = environment, Exp. = experience, multiple R = multiple regression, NSS = Nursing Stress Scale, OLBI = Oldenburg Burnout Inventory,  $r$  = correlation coefficient,  $R^2$  = R-squared,  $R^2$  change = R-squared change, SE = standard error,  $t = t$  test statistic.

**Keywords:** administrators, burnout, Nigeria, nurses, policy, research, work-related stress

## 1. Introduction

Nursing professionals are charged with the responsibilities of rendering patient care and services for patients and their families, which are humane, responsive, empathetic, collaborative, and culturally informed. The expectation to provide quality patient care with limited resources can result in severe work-related stress for nurses.<sup>[1]</sup> Stress is the body's reaction in order to attempt to

sustain equilibrium and deal with life's demands. Several authors have described stress as psychological and physiological responses, which emanate from the interaction of the person with the environment.<sup>[1-4]</sup>

Work stress is comprised of the mental and physical conditions, which hurt the productivity, effectiveness, psycho-physical health, work ability, satisfaction, and quality of work of individual workers in the workplace.<sup>[1,2,5-7]</sup> Thus, work stress is an interactional construct encompassing a misfit between environmental demands and personal abilities.<sup>[8,9]</sup> Nursing professionals who are severely stressed could render poor quality of service, which can result in low patient satisfaction and low turnover.<sup>[10]</sup> The choice of nurses as study population of interest was further influenced by the fact that severe stress may increase nurses' risk for adverse health conditions such as anxiety,<sup>[11,12]</sup> depression,<sup>[11,12]</sup> weight gain and obesity,<sup>[13]</sup> cardiovascular disease,<sup>[14]</sup> sexual dysfunction,<sup>[15]</sup> gastrointestinal symptoms,<sup>[14]</sup> sleep problems<sup>[16]</sup> among others.

Burnout is a long-term stress reaction marked by emotional exhaustion, depersonalization, and a lack of sense of personal accomplishment suffered by workers in different occupational settings.<sup>[17-22]</sup> Research suggests that individuals who often experience stress will exhibit greater extent of burnout syndrome than those who do not.<sup>[17]</sup> Burnout may occur following the application of ineffective coping mechanisms in warding off stress.<sup>[4,17]</sup> According to some burnout researchers, burnout

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refers to a syndrome of work-related experiences encompassing 2 dimensions: feelings of exhaustion; and disengagement from work.<sup>[23–26]</sup> Burnout results in many negative consequences for nursing professionals.<sup>[27–31]</sup>

Burnout prevalence data on nurses worldwide is growing. A 2017 meta-analytic study which evaluated 13 studies on nurses' burnout found that burnout prevalence in nursing professionals (total sample of nurses,  $n=1566$ ) was 31% for emotional exhaustion, 36% for depersonalization, and 29% for low personal accomplishment.<sup>[32]</sup> A recent systematic review and meta-analysis of studies (total number of studies included,  $n=8$  studies) on burnout among nurses showed that the prevalence of burnout was 28% for high emotional exhaustion, 15% for high depersonalization, while 31% for low personal accomplishment among the nurses ( $n=1110$  nurses).<sup>[33]</sup> Another recent meta-analytic study which included 17 studies reported burnout prevalence among nurses ( $n=9959$ ) as follows: emotional exhaustion (30%), depersonalization (15%), and low personal accomplishment (35%).<sup>[34]</sup> Also, another 2018 meta-analytic study of burnout issues in nurses which included 34 articles without restrictions on publication date showed that nurses ( $n=1600$ ) had the following burnout prevalence rates: 31% for emotional exhaustion, 21% depersonalization, and 39% for low personal accomplishment.<sup>[35]</sup>

Nursing professionals in Nigerian healthcare settings experience workplace stress and burnout.<sup>[36,37]</sup> A 2012 study by Lasebikan and Oyetunde<sup>[38]</sup> which evaluated burnout symptoms among a representative sample of nurses in Nigeria revealed that 39.1%, 29.2%, and 40.0% of the respondents had a high level of emotional exhaustion, depersonalization, and low personal accomplishment respectively. Sociodemographic factors such as sex, age, work environment, and work experience could be correlated to work-related stress and burnout among professionals in medical settings.<sup>[30,31,39–47]</sup> Research further indicates that nursing professionals operate in complex workplaces wherein they encounter life-threatening diseases, intricate patient and family circumstances, and individuals in high distress.<sup>[48,49]</sup> Many nurses are also overworked, under-resourced, under-trained, inadequately supervised, and undervalued.<sup>[50]</sup> These issues, as indicated by some researchers, often result in work-related stress and burnout among nursing professionals.<sup>[51–54]</sup> In the present study, we sought to ascertain if sociodemographic factors like sex, age, work environment, and work experience are correlated to work-related stress and burnout among nurses in Southeast Nigeria.

## 2. Methods

The researchers received approval to conduct this study from the Research Ethics Committee of the Department of Educational Foundations, University of Nigeria, Nsukka. The researchers also conducted the study in compliance with the Declaration of Helsinki. A representative sample of randomly selected nurses ( $N=393$ ) were chosen to participate in this cross-sectional, correlational study, which ran from June to December 2017 in Southeast Nigeria. We conducted a power analysis to determine adequate sample size using G\*Power.<sup>[55,56]</sup> All participants completed an informed consent form. A sociodemographic information sheet was used to obtain data regarding respondents' characteristics. Participants received questionnaires by mail.

Work-related stress was evaluated using the Nursing Stress Scale (NSS).<sup>[8]</sup> The Nursing Stress Scale is a 34-item self-report questionnaire measuring nurses' perception of stress. Using the

present study sample, the Nursing Stress Scale was validated and its internal consistency reliability (Cronbach's alpha) was 0.87. Burnout symptoms were assessed using the Oldenburg Burnout Inventory (OLBI).<sup>[24,25]</sup> The Oldenburg Burnout Inventory is a 16-item instrument, which assesses burnout among workers based on exhaustion and disengagement dimensions. Using the present study sample, the Oldenburg Burnout Inventory was validated and its internal consistency reliability (Cronbach's alpha) was 0.90. To analyze the data collected, bivariate correlations and multiple regression analyses were conducted. A step-wise multiple linear regression analysis of participants' sociodemographic factors was conducted against each measure. The tests for assumptions—linearity, homoscedasticity, and multicollinearity—were carried out by the authors (assumptions were met). All statistical analyses were completed with IBM SPSS, version 22 (IBM Corp., Armonk, NY, United States).

## 3. Results

Of all the 393 respondents, 125 (31.8%) were males, while 268 (68.2%) were females. Also, 22.1% of the respondents were within 21 to 35 years of age, 50.4% were within 36 to 45 years, whereas, 27.5% were of the age of 46 years and above. Respondents working in publicly owned medical establishments were 181 (46.1%) while those in privately managed medical establishments were 212 (53.9%). Of the total respondents, 79 (20.1%) had work experience between 0 and 5 years, 184 (46.8%) had between 6 and 15 years experience while 130 (33.1%) had experience of 16 years or more. By sex, mean work-related stress score of male nurses was  $2.47 \pm 0.11$  while that of the female nurses was  $2.49 \pm 0.08$ ,  $t(391) = -2.051$ ,  $P = .041$ , 95% CI:  $-0.03905$ ,  $-0.00083$ . Mean burnout score of male nurses was  $3.20 \pm 0.11$  while that of the female nurses was  $3.19 \pm 0.11$ ,  $t(391) = 0.506$ ,  $P = .613$ , 95% CI:  $-0.01706$ ,  $0.02887$ .

Table 1 shows that sex significantly correlated with work-related stress ( $r = 0.103$ ,  $P < .001$ ). On the other hand, no significant association was found between sex and exhaustion ( $r = 0.006$ ,  $P = .904$ ), disengagement ( $r = -0.036$ ,  $P = .471$ ), or overall burnout scores ( $r = -0.026$ ,  $P = .613$ ) among the nurses. Age was not significantly associated with work-related stress ( $r = 0.011$ ,  $P = .825$ ). Age was not significantly associated with exhaustion ( $r = -0.076$ ,  $P = .133$ ), disengagement ( $r = 0.013$ ,  $P = .797$ ), or total burnout scores ( $r = -0.035$ ,  $P = .488$ ). There was no significant association between work environment (public or private) and work-related stress ( $r = -0.012$ ,  $P = .816$ ). Work environment (public or private) had no significant association with nurses' exhaustion ( $r = 0.031$ ,  $P = .545$ ), disengagement ( $r = 0.054$ ,  $P = .285$ ), or overall burnout scores ( $r = 0.062$ ,  $P = .223$ ). Work experience was not significantly associated with work-related stress of the nurses ( $r = 0.093$ ,  $P = .065$ ). Finally, work experience was not significantly associated with exhaustion ( $r = 0.008$ ,  $P = .868$ ), disengagement ( $r = 0.056$ ,  $P = .272$ ), or overall burnout scores ( $r = 0.050$ ,  $P = .327$ ) among the nurses.

Table 2 shows the stepwise multiple regression procedure which produced a model that contained four sociodemographic factors and explained 4.5% of the variance in nurses' work stress scores. Most of the variance (4.4%), however, was accounted for by the first 3 steps. As shown, most of the stress symptoms reported might be explained by a combination of sex, age, and work environment. Table 2 also shows the stepwise multiple regression procedure which produced a model that contained four sociodemographic factors and explained 0.8% of the variance in nurses' burnout scores. Most of the variance (0.7%)

**Table 1**  
Correlations of work-related stress and burnout with participants' sociodemographic factors.

Sociodemographic factors	Nursing Stress Scale		Oldenburg Burnout Inventory					
	r	P	Exhaustion		Disengagement		Total Burnout score	
			r	P	r	P	r	P
Sex	0.103*	.041	0.006	.904	-0.036	.471	-0.026	.613
Age	0.011	.825	-0.076	.133	0.013	.797	-0.035	.488
Work Environment	-0.012	.816	0.031	.545	0.054	.285	0.062	.223
Work Experience	0.093	.065	0.008	.868	0.056	.272	0.050	.327

P=significance, r=correlation coefficient.  
\* P < .05.

was accounted for by the first 3 steps. As can be seen, most of the burnout symptoms reported might be explained by a combination of sex, age, and work environment.

Table 3 shows the contributions of the sociodemographic factors to the prediction of work-related stress among the nurses. The effect of sex on the nurses' work-related stress was significant (B=2.057, P=.000; 95% CI: 1.084, 3.029). The effects of age (B=0.078, P=.807, 95% CI: -0.552, 0.709), work environment (B=0.184, P=.690, 95% CI: -0.723, 1.091), and work experience (B=-0.138, P=.660, 95% CI: -0.756, 0.480) on the nurses' work-related stress were not significant. In other words, age, work environment, and work experience did not make significant contributions to the prediction of work-related stress among the nurses.

Table 3 further shows the contributions of the sociodemographic factors to the prediction of burnout among the nurses. The effects of sex (B=-0.032, P=.866, 95% CI: -0.410, 0.345), age (B=-0.092, P=.447, 95% CI: -0.339, 0.150), work environment (B=0.200, P=.264, 95% CI: -0.152, 0.552), and work experience (B=0.119, P=.330, 95% CI: -0.121, 0.359) on the nurses' burnout were not significant. Therefore, sex, age, work environment, and work experience did not make significant contributions to the prediction of burnout among the nurses.

**4. Discussion**

The study examined work-related stress and burnout in nurses and related sociodemographic factors. Among the sociodemographic factors examined, only sex was found to be significantly associated with work-related stress. The sociodemographic factors were not significantly associated with burnout among the nurses. This implies that with the exception of the significant correlation between sex and work-related stress, none of the factors evaluated exhibit a significant relationship with work-related stress and burnout among the nurses. Our findings did not support previous studies which indicated that factors such as age, work environment, and work experience significantly correlated with stress and burnout among nursing professionals.<sup>[30,31,39-47,57-69]</sup> However, the finding that sex significantly correlated with work-related stress is in line with results of previous studies.<sup>[64,66]</sup> This particular finding implies that stress-burnout management interventions for nursing professionals in Southeast Nigeria need to be gender-transformative. Given that these studies were conducted in different countries at different times and with different designs, and measures, it is possible that methodological imperfection, time, and settings accounted for the observed disparities in the outcomes. Above all, differences in statistical approaches, sample sizes, and cultures of interest may

**Table 2**  
Multiple linear regression analysis of participants' sociodemographic factors against the nurses stress scale and the Oldenburg Burnout Inventory.

Step	Nurses stress scale			Oldenburg Burnout Inventory		
	Multiple R	R <sup>2</sup>	R <sup>2</sup> change	Multiple R	R <sup>2</sup>	R <sup>2</sup> change
Sex	0.209	0.044	0.044	0.026	0.001	0.001
Age	0.209	0.044	0.000	0.043	0.002	0.001
Work Environment	0.210	0.044	0.000	0.072	0.005	0.003
Work Experience	0.211	0.045	0.000	0.087	0.008	0.002

Multiple R = multiple regression, R<sup>2</sup> change = R-squared change, R<sup>2</sup> = R-squared.

**Table 3**  
Sociodemographic factors predicting nurses' stress and burnout.

Model		Nurses' stress					Nurses' burnout						
		B	SE(B)	β	t	P	95% CI for B	B	SE(B)	β	t	P	95% CI for B
1	(Constant)	80.585	1.515		53.196	.000	77.606, 83.563	50.863	0.588		86.563	.000	49.708, 52.019
	Sex	2.057	0.495	0.212	4.159	.000	1.084, 3.029	-0.032	0.192	-0.009	-0.169	.866	-0.410, 0.345
	Age	0.078	0.321	0.012	0.244	.807	-0.552, 0.709	-0.095	0.124	-0.039	-0.761	.447	-0.339, 0.150
	Work Env.	0.184	0.461	0.020	0.399	.690	-0.723, 1.091	0.200	0.179	0.058	1.119	.264	-0.152, 0.552
	Work Exp.	-0.138	0.314	-0.022	-0.440	.660	-0.756, 0.480	0.119	0.122	0.050	0.974	.330	-0.121, 0.359

β = standardized beta coefficients, B = unstandardized beta coefficients, CI = confidence interval, Env. = environment, Exp. = experience, SE = standard error, t = t test statistic.

account for these apparently divergent results. Further research is needed to clarify how these factors affect study outcomes.

There are other contributing factors to nurses' work-related stress and burnout which have been examined in other studies. With respect to previous findings, one study showed that psychological factors can explain 29% of burnout syndrome in nurses.<sup>[35]</sup> In future studies, the independent contributions of symptoms of psychological ill-health in prediction of work-related stress and burnout in nurses need to be considered. In order to understand why, with the exception of the significant correlation between sex and work-related stress, none of the factors evaluated exhibit a significant relationship with work-related stress and burnout in our study, we would like to argue from the organizational healthiness perspective. Thus, a possible explanation for the absence of significant association of socio-demographic factors with work-related stress and burnout could be explained from an organizational healthiness perspective which argues that organizational healthiness influences the experience of work-related stress and burnout.<sup>[70]</sup> The lack of inclusion of organizational healthiness as a moderator variable in stress-burnout research might result in disparities in research findings, according to this perspective. Thus, it may be important for future researchers to include this variable as a moderator while investigating work-related stress and burnout symptoms in nurses. Also, other factors which have been found by previous studies to be significantly related to burnout in nurses include frequency of exposure to work-related violence, work burden, years of experience, supervision and work activities.<sup>[71]</sup>

To this end, implications of this study for administrators, research, and policy issues cannot be overemphasized. Because of the negative effects of work-related stress and burnout symptoms, it is imperative for the nurses, healthcare institutions, administrators, managers and supervisors to get involved in stress and burnout management program's initiation and implementation to help avert and decrease burnout symptoms among the nurses. Research is required to evaluate the burden of work-related stress and burnout among Nigerian nurses in different healthcare settings in comparison to other healthcare professionals in those settings. This might help healthcare administrators, managers and nurse supervisors to gain an increased awareness of the work-related stress and burnout problems among the nurses. Furthermore, research is also required to advance our understanding of the negative consequences of work-related stress and burnout among the Nigerian nurses in comparison to other healthcare professionals. This can influence the type of interventions that would be initiated to assist those nurses with burnout symptoms such as mindfulness<sup>[72,73]</sup> and problem-focused coping programs.<sup>[31]</sup> In addition, studies that would aim at developing psychological interventions for work-related stress and burnout management among the nurses might be relevant at this time. Workplace policy should be tailored towards creating as well as supporting evidence-based interventions to enable nurses to avert and decrease burnout problems. It is important for nurse administrators and managers to involve the nurses in policy decision-making related to the execution of burnout prevention programs and interventions designed to help them to manage work-related stress and burnout symptoms. Finally, there should be educational counseling programs for nurses during the academic training years which will in part focus on burnout prevention and intermittent screening for prompt recognition of stress and burnout symptoms as well as early attention to its management. Exposing nurses to evidence-based intervention strategies for prevention and management of work stress and

burnout are vital in regard to their psychophysical health and well-being. This exposure to feasible interventions should be considered an important priority in any policy focusing on quality improvement in healthcare services delivery, as have been indicated by a previous study.<sup>[31]</sup>

While we have demonstrated that nurses' sociodemographic factors like sex, age, work environment, and experience explained only a small portion of variability in nurses' work stress and burnout in Southeast Nigeria, the findings of this study need to be evaluated with respect to certain limitations. As a cross-sectional study, it did not allow researchers to make a conclusion about cause-effect phenomenon. Also, despite the number of nurses that participated in this survey, it is possible that it may have been completed by those primarily fascinated by the issues investigated. In addition, the study did not encompass all nursing professionals who are vulnerable to high work-related stress and burnout. Therefore, our findings may have underestimated the issues investigated in the studied population. It could also be that nurses suffering from work-related stress and burnout syndrome were more interested in completing the survey; thus, our findings could be skewed. The limited number of nurses' sociodemographic factors considered in this study means that caution has to be taken when applying the study outcomes in other occupational contexts. An important factor that could have been considered is the length of time spent at work. The absence of data regarding the nurses' length of time spent at work which might correlate with work-related stress and burnout is therefore another limitation of this study. Future studies could evaluate the length of time spent at work to see if it is related to stress and burnout in nurses.

## 5. Conclusion

Nurses' sociodemographic factors like sex, age, work environment, and experience accounted for only a small proportion of variance in nurses' work stress and burnout in Southeast Nigeria. Sex was shown to be significantly correlated with work-related stress among nurses in Southeast Nigeria. Age, work environment, and work experience did not make significant contributions to the prediction of work-related stress among the nurses. Finally, sex, age, work environment, and work experience did not make significant contributions to the prediction of burnout among the nurses. In Nigeria, the importance of stress and burnout among nurses should be considered a high priority in any policy focusing on quality improvement in healthcare services delivery. Thus, it is essential that stress and burnout management programs are initiated for nursing professionals experiencing stress and burnout in the Nigerian occupational healthcare settings. Future studies should aim at exposing the nursing professionals in the study area to evidence-based intervention strategies for prevention and management of work stress and burnout.

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