



## WORK SHIFT, BURNOUT AND PERCEIVED VULNERABILITY AS PREDICTORS OF PSYCHOLOGICAL HEALTH AMONG NURSES IN A TEACHING HOSPITAL IN OYO STATE, NIGERIA

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### ABSTRACT

The study investigated the predictive role of work shift, burnout and perceived vulnerability on psychological health among nurses. Globally, the nursing profession is one occupation laden with high demands, physically and even emotionally. Part of the stress is driven by the need for time to time shift work schedules, burnout and perception of vulnerability to work which have roles to play in the psychological health nurses. The research design adopted was the cross-sectional method where 247 nurses in a renowned teaching hospital were conveniently sampled. Results revealed that work shift, burnout and perceived vulnerability jointly accounted for 10.3% variation in psychological health. Independently, perceived vulnerability ( $\beta = -.264$ ;  $t = -3.620$ ;  $P < .05$ ) was the major predictor of psychological health. However, burnout ( $\beta = -.031$ ;  $t = -.323$ ;  $P > .05$ ) and shift work ( $\beta = .115$ ;  $t = -1.948$ ;  $P > 0.5$ ) did not independently predict psychological health. Further analysis revealed that when combined together gender, age and educational qualification accounted for 11.2% variation in psychological health. Albeit, result revealed that only educational qualification ( $\beta = .170$ ;  $t = -2.420$ ;  $P < .05$ ) independently predicted psychological health among nurses. It was concluded that psychological and demographic factors were significant predictors of psychological health and recommended that hospital management should take cognisance of this factors for policy formulations.

**Keywords:** Work shift, burnout, perceived vulnerability, psychological health and nurses.

### BACKGROUND

According to the World health Organisation (source), health is defined as “a state of complete physical, mental and social wellbeing and not just the mere absence of disease or infirmities”. This conceptualization of health is relatively complex and robust accommodating the notion that there are various aspects that make up an individuals’ health. Of relevance in recent times is the mental or psychological aspect of an individuals’ health. This component of health considers the role of emotions, thoughts and actions and how it affects or interferes with a person’s ability to function in his or her daily life. In essence, psychological health was conceived as an individual’s self-assessment in relation to life events occurring to him or her which emerges as a result of the persons feelings of mastery, experiences of pleasurable activities and positive relations (Diener, Sapyta, & Suh, 2008). Psychological health comprise of positive emotions and cognitions that allows for adaptation and survival in an individual (Huppert, 2011). The experience of painful emotions such as disappointment, failure or grief is part of human existence. Being able to manage these negative or painful emotions is essential for normal functioning (Huppert, 2009). Psychological health is the subjective feelings of contentment, happiness satisfaction with life’s experiences and one’s role in life.

According to Shek (2002) psychological health is that ‘state where an individual possesses a number of positive mental health qualities that helps in evaluating one’s life’. Diener (2007) asserts that these evaluations may be in the form of cognitions or affect. The affective part is what he regarded as the hedonic evaluation which is guided by emotions and feelings. For instance, the frequency with which people experience pleasant/unpleasant moods in reaction to their lives typifies the hedonic evaluation. The assumption behind this is that most people evaluate their life as either good or bad. The hedonic view equates psychological health with happiness and is often regarded as the balance between positive and negative affect (Ryan and Deci, 2001). Whereas the eudaimonic evaluates psychological health by focusing on meaning in life, level of functioning of an individual and human potential. Waterman and Conti (2008) discovered that as individuals experience eudaimonia while developing their potentials they also experience hedonic happiness. Ryff (2009) expressed that psychological health comprise of components such as

autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance which are relevant factors for daily functioning and productivity of any individual especially for workers in the nursing profession. Many studies also have reported negative attitudes as well as diminished psychological and physical well-being among the nursing profession (Aiken, Clarke, Sloane & Sochalski, 2011; Sabbah, Akoum, & Droubi, 2012).

Globally, increase in demand for healthcare workers combined with shortages in health workforce makes it imperative to consider the physical and psychological health of health workers. In the health workforce, nurses comprise one of the largest professional group rendering services to save mankind (International Council of Nurses 2008). Similarly, nursing is a profession that is emotionally, psychologically and physically demanding. Therefore, several studies have reported that nursing work entails very high levels of risks, stress, anxiety and even depression (Perry et.al., 2015; Knauth, 2007; Samaha, 2008). In a situation where people experience negative feelings frequently and positive feelings rarely and are highly dissatisfied with their lives this may interfere on psychological health. Poor psychological health among nurses may account for less productivity, poor work performance, workplace errors, decreased quality of patient care and adverse work experiences (Perry et. al., 2015; Warren et. al., 2011). It is therefore imperative to consider the psychological health of nurses to avert its consequences and impact not only for the nurses but the patient the organization and the society by and large. Plausible variables that may account for poor psychological health from the literature are stress and organizational climate, however, more pertinent factors to the individual considered in this study are shift work, burnout and perceived vulnerability among nurses.

The concept shift work is defined as scheduled work that is completed outside the parameters of the traditional day shift (Costa, 2013). This is the way to ensure that nurses are accessible to patients on a twenty-four hour basis (International Council of Nurses, 2011). Shift work is known to confer adverse effects affecting the physical and mental health particularly of healthcare workers (Boviano et. al., 2010). Shift work involves the alternation of teams of workers each working a certain shift and who usually perform the same work duties so that operations can be continued for longer than allowed by a single worker (Tierry & Meijman, 2014). The impact of shift work can manifest as sleep deprivation, decline in mental function and physical ability, including emotional fatigue and a decline in the function of the body's immune system (Boivin, 2007; Sarah, 2005). In the nursing profession, shift work has been attributed to health problems such as sleep disorders, somatic disturbances, fatigue, distress, gastrointestinal issues (Akerstedt, 2011; Bünning, 2017; Samaha, et. al., 2017). Also, as reported by Moore-Ede (2009) the irregular work schedule of nurses threatens their psychological health and quality of life.

Burnout as a concept was introduced around the early 1970s, the terminology was aimed at explaining the process of physical and mental exhaustions in professionals working in settings such as hospitals. Burnout has been said to result from inability of an individual to effectively manage chronic stressors and is further explained in line with its multiple dimensions such as emotional exhaustion, depersonalization, and reduction in personal and professional achievement (Maslach & Leiter, 2010). In healthcare provision, nursing staffs face high demands in terms of rendering of quality services and are subjected to numerous stressful situations. Among nurses, the incidence of occupational stress-related burnout is high and severe which may be due to nursing staff shortage and a corresponding increase in workload that invariably increases physical, emotional and occupational stress. Therefore, burnout among nurses may result in mental fatigue, anxiety, lack of motivation, and absenteeism which undoubtedly threatens their psychological health (Maslach, 2013; Wang, 2013).

Perception of vulnerability among nurses is exacerbated by the demand of the job in terms of care given to sick and dying patients (Maslach, 2013). Nurses in particular, are expected to experience higher levels of vulnerability compared to other health care professionals (Chopra, 2014; Rada 2014). The concept of vulnerability has been continuously widened and broadened towards a more comprehensive approach encompassing susceptibility, exposure, coping

capacity and adaptive capacity. It is against this backdrop that this study attempts to examine the predictive role of work shift, burnout and perceived vulnerability on psychological health of nurses.

## **LITERATURE REVIEW**

### **Work shift on Psychological Health**

Work shift has been associated with physical health of workers understanding the underlying mechanisms in relation to psychological health of nurses remain profound (Magir, 2010). The duration of the shift, the number of consecutive shifts and the number of shift teams may affect the welfare of the shift worker, the work performance and the organisational scheduling (Kogi, 2015). Previous studies have also found that working shifts that are in excess of twelve hours are likely to affect sleep pattern, cause chronic fatigue, reduce cognitive abilities and decrease psychological wellbeing (Jamal, 2014; Portela et. al., 2015; Wedderburn, 2007). Specifically, Bakker and Euwema (2004) conducted a study to examine the impact of shift work characteristics on psychological wellbeing. Findings demonstrated that respondents working non-day or weekend shifts reported significantly greater psychological health compared to respondent's working day shifts. In addition, Grosswald (2003) investigated the relationship between shift work and psychological health among nurses in United Kingdom and found that shift work had detrimental effect on psychological health.

Takahashi et al. (2005) carried out a study to examine the differences in outcomes based on respondents' self-report on shift work and found that shift work distorts sleeping hours, causes fatigue and results in poorer health outcome. Similarly, Scott (2007) found night work to be a risk factor for major depressive disorder, especially for women. In that study, employees with more than five years of night work experience had more than a 6-fold increased risk of having a depressive disorder, compared with employees with 5 years or less of night work experience. A large prospective study from the UK found shift work to be associated with subsequent depression in both men and women (Bara & Arber, 2009). The relationship between shift work and psychological health problems in the Nigerian context of health service providers is poorly investigated.

### **Burnout and Psychological Health**

Burnout is a psychological syndrome that emerges as a prolonged response to chronic interpersonal stressors on the job (Kristensen, Borritz & Villadsen 2015). According to Leiter and Maslach (2013) burnout is a cumulative negative reaction to constant occupational stressors resulting from the misfit between workers and their designated jobs. Health care professionals are thought to have a high vulnerability to burnout, nurses in particular have been found to experience higher levels of burnout compared to other health care professionals (Rada, Johnson-Leong, 2004). High levels of burnout among health care workers have been attributed to prolong emotional problems especially those met out to patients (Jennings, 2008). Such experiences can have significant implications for the health and wellbeing of nurses (Nolan. & Smojkis, 2013).

In a study empirically linking burnout to service satisfaction, Garman et al (2002) surveyed 333 mental health staff in 31 different teams and found that burnout was significantly related to average satisfaction with services rendered. Maslach (2016) identified burnout as a syndrome with three dimensions: emotional exhaustion, depersonalization, and a lack of personal accomplishment. Maslach and Leiter (2007) identified emotional exhaustion when an individual feel overextended both physically and emotionally. A person who is emotionally exhausted will feel drained, lack energy, and not feel rested upon arising after a night of sleep. The second dimension of burnout (depersonalization) was described as the development of a cynical attitude. The third dimension is reduced personal accomplishment is related to one's dissatisfaction with his/her achievements (Byrne, 2011).

In a cross-sectional study conducted by Bradley, Wipf and Back (2012) which compared burnout rates among physicians and general population found significantly higher burnout rates among

medical professionals, with one in two American physicians having burnout symptoms. In a sample of nurses and patients it was found that for each additional patient per nurse levels, the patient mortality and levels of nurse burnout as well as job dissatisfaction increased (Aiken, Clarke, Sloane, Sochalski & Silber, 2012). Greenglass, Burke and Fiksenbaum (2011) reported that workload was associated with higher levels of burnout which in turn increased psychological symptoms in a nursing sample.

### **Perception Vulnerability and Psychological Health**

Perception of vulnerability among nurses is a phenomenon that is central to the nursing profession (De Chesnay, 2015). There have been countless studies that have identified the concept of vulnerability as a key factor in determining health status of individuals, groups and communities (Copp, 2016). It has been established in the existing literature that factors such as toxic agents, microbes, viruses or other potential health hazards are considered as acting on the individual and threatening an individual's health and well-being (Chopoorian, 2014). Nursing practice is concentrated on responding to situations and problems that need to be ameliorated at the individual level and the larger society.

### **Hypotheses**

1. There will be joint and independent prediction of burnout, perception of vulnerability and shift work on psychological health among nurses in a renowned Teaching Hospital
2. There will be joint and independent prediction of gender, age and educational qualification on psychological health among nurses in a renowned Teaching Hospital

## **METHODS**

### **Research design**

The cross-sectional survey research design was adopted for the study. The research design helps to gather data from different categories of respondent and with a fair size of sample reach.

### **Research Setting**

The study was conducted within a popular and renowned teaching hospital in Nigeria. This teaching hospital enjoys patronage from diverse ethnic population within the nation.

### **Sample**

Nurses were the participants in this study and it was observed that 112 (45.2%) of the participants were male while 135 (54.4%) were female. Result indicated that 64 (25.8%) of the participants were Christians, 137 (55.2%) were Muslims while 46 (18.5%) were traditionalists. Result demonstrated that 92 (37%) of the participants were married, 111 (44.8%) were single, 24(9.7%) were widow while 20 (8.1%) were separated. Result revealed that 113 (45.6%) of the participants were Yoruba, 88 (35.5%) were Hausa, while 30 (12.1%) were Igbo while 16 (6.5%) belonged to other ethnic group.

### **Sampling Technique**

Sampling involves the selection process embarked upon from which a subset of the population was drawn. Participants were sampled across different ages, gender, educational qualification, religion and ethnic group, years of work experience using accidental sampling technique.

### **Instruments**

A questionnaire consisting of four sections, Section A, B, C, D and E, was designed to gather study data. Section A measures the socio-demographic variables of the participants, Section B measures burnout, Section C measures shift work, section D measured perceived vulnerability while section E measured psychological health.

Section A: Age, sex, religion, educational background, ethnic group and work experience, among other demographic variables were obtained. Age was measured in continuous form as reported and provided by the respondents. Sex was grouped into two and dichotomized as: (1) male (2) female. Educational qualification was dichotomized as well educated (1) and less educated (2).

### **Section B: Maslach Burnout Inventory**

Maslach Burnout Inventory (MBI) was developed by Maslach et al., (1996). Burnout syndrome consists of three dimensions: emotional exhaustion, depersonalization, and lack of personal accomplishment. The MBI-HSS is scored on a 7-point, Likert-type frequency scale: 0 = never; 1 = a few times a year or less; 2 = once a month or less; 3 = a few times a month; 4 = once a week; 5 = a few times a week; 6 = every day. Individuals considered to be experiencing low levels of burnout would score 0-16 on the EE subscale, 0-6 on the DP subscale, and 39 or higher on the PA subscale. Individuals experiencing moderate levels of burnout would score 17-26 on the EE subscale, 7-12 on the DP subscale, and 32-38 on the PA subscale. According to the authors, scores higher than the mean signifies high levels of burnout. Regarding reliability of the MBI-HSS, one published study ( $N = 1,316$ ) documented by Maslach and associates (1996) demonstrated good internal consistency reliability.

### **Section C: Shift Work Scale**

This was measured using Bergen Shift Work Sleep Questionnaire (BSWSQ). The scale is based on the clinical symptoms of insomnia and tiredness/sleepiness. The symptoms are described in the DSM-IV-TR (APA, 2000), ICSD-2 (AASM, 2005) and ICS-10 (WHO, 1992). The scale is measured using 5-Point scale ranging from 0 to 4 (never, rarely, sometimes, often and always). The frequency indicates the persistence of each symptoms. If symptoms are rated to occur often or always, this indicates more severe problems. The scale had reliability coefficient for day shifts as .72 for evening shift as .73 and for night shifts as .75.

### **Section D: Perceived vulnerability scale**

This scale consists of 15 items measuring perceived vulnerability developed by Duncan, Schaller and Park (2009). Response format is 7 Likert score ranging from "strongly disagree"-1 to "strongly agree"-7, with items 3, 5, 11, 12, 13 and 14 reverse scored. Authors reported psychometric properties for both the overall scale as well as the subscales as good. Cronbach's alpha for the total scale, subscale of germ aversion, and perceived infectability subscale were in desirable level of 0.82, 0.74 and 0.87, respectively. To determine the validity of the scale, four methods were employed; content validity, item correlation with the total score, analysis of the correlation between subtests, and the total score were used.

### **Section E: Psychological Health measure**

The Oxford Happiness Questionnaire was developed by Argyle, Martin and Crossland (1989). It is a compact scale for psychological wellbeing which comprises 29 items, each involving the selection of one of four options that are different for each item. The scale is scored on five-point Likert Format ranges from strongly agree, agree, undecided, strongly disagree and disagree. Oxford Happiness Questionnaire (OHQ) demonstrated high reliability of .092. The inter-item correlations for the OHQ were -0.04 to 0.65, mean=28.

### **Procedure**

Questionnaire was used to collect data from respondents in the study. The respondents are asked to complete the questionnaires haven been informed of the purposes and/or objectives of the study. They were assured of the confidentiality of the data supplied and were in no way coerced to participate in the study. The research assistants gave directions on how to complete the

questionnaires were given and participants were encouraged to be as truthful and sincere about their responses as possible.

**RESULTS**

Hypothesis one stated that there will be joint and independent prediction of burnout, perception of vulnerability and work shift on psychological health among nurses. The hypothesis was analysed using multiple regression analysis and is presented in Table 1.

**Table 1: Summary of multiple regression analysis showing the independent and joint influence of Burnout, perception of vulnerability and work shift on psychological health**

<i>Variables</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Burnout	-.031	-.323	>.05	.320	.103	7.655	<.01
Perception of vulnerability	.264	3.620	<.001				
Work shift	.124	1.237	>.05				

Table 1 reveals that there was relative joint contribution of independent variables (Burnout, perceived vulnerability and work shift) on psychological health [ $R^2 = .103$  ( $F = .7.655$ ;  $P < .01$ )]. Result revealed that when combined together burnout, perception of vulnerability and work shift accounted for 10.3% changes in psychological health. Perception of vulnerability ( $\beta = -.264$ ;  $t = 3.620$ ;  $p < .001$ ) independently predicted psychological health. Further, result revealed that burnout ( $\beta = -.031$   $t = -.323$ ;  $p > .05$ ) and work shift ( $\beta = .115$ ;  $t = -1.948$ ;  $p > .05$ ) did not independently predict psychological health. This hypothesis was thus accepted partly in this study.

Hypothesis two states that there will be joint and independent prediction of gender, age and educational qualification on psychological health among nurses.

**Table 2: Summary of Multiple Regression Analysis showing the independent and joint influence of Socio-demographic variables on Psychological Health**

<i>Variables</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Gender	.106	1.539	>.05	.334	.085	4.143	<.05
Age	.007	.089	>.05				
Education	-.17	-2.420	<.05				

Table 2 shows that there was joint influence of independent variables on psychological health [ $R^2 = .085$  ( $F = 4.143$ ;  $p < .05$ )]. Result revealed that when combined together gender, age and educational qualification accounted for 8.5% changes in psychological health. Further, result revealed that age ( $\beta = .007$ ;  $t = .089$ ;  $p > .05$ ) and gender ( $\beta = -.106$ ;  $t = 1.539$ ;  $P > .05$ ) independently did not predict psychological health among nurses. However, the finding indicated that educational qualification ( $\beta = -.170$ ;  $t = -2.420$ ;  $p < .05$ ) did influence psychological health among nurses. This hypothesis was thus accepted in this study.

## DISCUSSION

The purpose of the study was to examine work shift, burnout and perceived vulnerability as predictors of psychological health among nurses. Result from the first hypothesis tested revealed that shift work, burnout and perceived vulnerability predicted psychological health among nurses. Independently, shift work and burnout did not predict psychological health. A notable finding from previous study reported in line with this study finding that workers with rotating shift schedules did not have a diminished subjective general health compared to fixed shift workers, as is often reported in the literature (Nachreiner et al. 2015) but only unfavourable attitudes towards their jobs. This finding is inconsistent with previous report by scholars such as Magir (2010) who reported that shift work affects workers' welfare and that workers who do nightshifts are more likely to score high in fatigue and sleep deficiencies. Folkard (2008) also found that workers involved in rotating shift work are subjected to continuous stress to adjust as quickly as possible to the variable duty periods. Furthermore, the above findings is in line with Costa (2013) who found that shift work provide evidence that working at night can be associated with negative outcomes for workers. Gold and colleagues (2012) reported that shift work was associated with medical errors rather than psychological health. As opposed to the study finding that burnout did not predict psychological health among nurses. Previous studies do not corroborate this assertion (Cronin-Stubbs, 2010; Lewinson, Conley, Blessing-Moore, 2008).

The hypothesis that states that demographic factors would predict psychological health among nurses revealed that gender and age did not account for variation in psychological health. This finding is inconsistent with Kalimo et al (2015) who reported that both sexes differ significantly in the ways they cope with stress and with health outcome. Similarly, the above finding is in disagreement with Jenkins and Elliot (2014) who found that age, years of work and the rank of the nurse in the organization are associated with psychological distress experienced by nurses (Vimantaite & Seskevicius, 2016; Storder, Dhoore & Vandenberg, 2011)

## Conclusion

The study therefore concluded that shift work, burnout and perceived vulnerability were good predictors of psychological health among nurses. Findings demonstrated that nurses who perceived that there were vulnerable reported significantly higher psychological health compare to nurses who reported lesser vulnerability. Shift work and burnout did not predict psychological health among nurses as evident from the study findings and also it was discovered that demographic factors such as education predicted psychological health.

## Limitations of the Study

One limitation of the study was the use of a non-probabilistic sampling technique to gather study participants. This affected the representativeness of the sample from the population therefore caution should be taken in generalizing findings. Second, all data analysed are nurses self-report that are subjective and can be influenced by perceptual bias and social desirability.

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