



## Impacts of Personality Traits and Work Shift Patterns on Psychological Distress among Nurses in Federal Medical Centre, Owerri, Imo State, Nigeria.

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### *Abstract*

*The study investigated the impacts of personality traits and work shift patterns on psychological distress among Nurses in Federal Medical Centre, Owerri, Imo State, Nigeria. Three alternate hypotheses were postulated and tested at a 0.05 level of significance. Three hundred and sixty participants were selected through purposive random sampling technique from Nurses in Federal Medical Centre Owerri, Imo State, Nigeria. The participants' ages ranged from 24 to 45 years with a mean age of 33.87 and standard deviation age of 5.56. The participants were administered with Eysenck Personality Questionnaire (EPQ-Adult) and Symptom Distress Checklist (SCL -90). Nurses were categorized based on their primary work shift: morning, afternoon, or night shifts. Cross Sectional Survey Design was employed and 2-Way Analysis of Variance was used to analyze the data collected. Results revealed that there was no significant impact of personality traits on psychological distress. There was a significant impact of work shift pattern on psychological distress. Finally, no interaction impact of personality traits and work shift patterns on psychological distress was identified. The study recommends among others, that Health care institutions should offer training and education programs to raise awareness about impact of work shift on psychological distress and provide nurses with coping strategies for managing stress in demanding work environments.*

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## Introduction

The healthcare sector is widely recognized as one of the most demanding and high-pressure environments in which professionals operate. Within this sector, nurses play a vital role in delivering quality patient care, often working long hours under challenging conditions. Such challenging conditions may include: loss of vital energy, interest and motivation, restlessness, nervousness, and tension. The challenging conditions are simply range of emotional and psychological symptoms depicting psychological distress. According to Lee, Wilson, Bernstein, Naicker, Yassi, and Spiegel (2022), psychological distress encompasses feelings of anxiety, depression, irritability, and general emotional discomfort that may impact one's overall well-being and quality of life.

In the context of Federal Medical Centre (FMC) Owerri, Imo State, Nigeria, nurses confront a multitude of factors that can significantly influence their psychological distress levels and well-being. One such factor is the inherent diversity of personality traits among nurses. Personality traits, such as introversion and extraversion, can influence how individuals perceive and cope with stressors in their environment. Introverted individuals may be more sensitive to external stimuli and may experience heightened levels of distress in demanding or overstimulating work environments (Adegoke, Akintoye & Oyetunde, 2021). On the other hand, extraverted individuals may be more resilient to stress and may seek out social support and engagement as coping mechanisms (Joshnanloo, 2023; Uzochukwu, Egbule, & Onyejiaka, 2023).

Moreover, the nature of nursing necessitates round-the-clock coverage, leading to the implementation of work shifts including morning, afternoon, and night shifts. While these scheduling arrangements are essential for maintaining continuous patient care, they can also impact the psychological distress level of the nurses. Night shift work, in particular, has been associated with increased levels of psychological distress due to disruptions in circadian rhythms and sleep patterns (Alonzo, 2021; Okafor & Smith, 2024; Okoro, Ezeudu & Nwosu, 2022). The combination of personality traits and work shift patterns may interact to influence nurses' vulnerability to psychological distress (Okafor & Smith, 2024). This however, highlights the importance of considering both factors in occupational health and Psychological researches and interventions.

Against this backdrop, this research endeavours to explore the intricate interplay between personality traits, work shift patterns, and psychological distress among nurses in Federal Medical Centre Owerri, Imo State, Nigeria. By investigating these relationships, this study aims to provide insights into the factors influencing nurses' psychological distress level in the workplace.

## Statement of the Problem

The psychological well-being of nurses is a critical determinant of their ability to deliver quality patient care and maintain professional satisfaction within the healthcare environment. However, within the context of Federal Medical Centre Owerri, Imo State, Nigeria, nurses face a myriad of challenges that may impact their psychological health, particularly regarding the interaction between personality traits and work shift patterns. While studies have examined the individual effects of personality traits and work shifts on psychological distress among nurses (Adegoke, Akintoye & Oyetunde, 2021; Dall'Ora, Ball, Recio-Saucedo & Griffiths, 2020; Okoro, Ezeudu & Nwosu, 2022 and Zhu, Wang & Xie, 2016), limited research has explored their combined impact in the Nigerian healthcare context, particularly in Federal Medical Centre Owerri, Imo State, Nigeria. Understanding how personality traits interact with work shift patterns to influence nurses' psychological distress experience is essential for developing targeted interventions to support their mental health.

## Purpose of the Study

The general purpose of the present study is to examine the impacts of personality traits and work shift patterns on Psychological distress among nurses in Federal Medical Centre Owerri, Imo state. Specifically, the study aims at:

1. investigating if personality traits will impact on psychological distress among nurses in FMC Owerri, Imo State

2. determining if work shift patterns will impact on Psychological distress among nurses in FMC Owerri, Imo State, and
3. ascertaining the joint impacts of personality traits and work shift patterns on psychological distress among nurses in FMC, Owerri, Imo State.

### **Theoretical Framework**

The Job Demand-Control-Support (JDCS) model by Karasek and Theorell (1990) suggests that job characteristics such as demands and control, along with social support, influence workers' well-being. Job demand refers to the workload and psychological requirements of a job. Job Control relates to the level of autonomy and decision-making authority an individual has over their work. Social Support involves the availability of assistance and encouragement from colleagues and supervisors.

In the context of nurses in FMC Owerri, the JDCS model can be applied as follows: Nurses often face high job demands due to the nature of their work, including patient care, administrative tasks, and shift rotations. Nurses may also have varying levels of control over their work, depending on factors such as their role, experience, and organizational policies. The availability of support from colleagues, supervisors, and the organization can buffer the impact of job demands and enhance nurses' coping abilities.

Applying the JDCS model to the study of personality traits and work shift patterns on psychological distress among nurses in FMC Owerri allows for the examination of how these factors interact. For example, nurses with high levels of job control may experience lower psychological distress, particularly if they also receive adequate social support. Similarly, certain personality traits, such as extroversion, resilience or neuroticism, may moderate the relationship between job demands, control, and psychological distress. Overall, the JDCS model provides a framework for understanding how various job-related factors contribute to nurses' psychological distress level in a specific organizational context.

### **Related Empirical Reviews of Personality Traits, Work Shift Patterns and Psychological Distress**

Joshanloo (2023) investigated on the longitudinal relationship between psychological distress and personality traits. The study aimed to examine the mutual associations between psychological distress and the Big Five personality traits. The primary research question was whether a change in psychological distress is associated with a change in personality traits (and vice versa) after approximately 4 years. A nationally representative sample of 22,837 was collected from Australia at four time points over 13 years. Results showed that there was no association between openness and distress. Extraversion and conscientiousness were found to have bidirectional relationships with distress, suggesting that increases in extraversion and conscientiousness are associated with decreases in distress over time and vice versa. Emotional stability and agreeableness showed unidirectional relationships with distress, with increased distress predicting decreased emotional stability and increased agreeableness predicting decreased distress. Therefore, except for openness, the other traits had at least one significant within-person link to psychological distress.

Parent-LamarcheI, Marchand and Saade (2021) carried out a study on a multilevel analysis of the role personality play between work organization conditions (including shift works) and psychological distress among workers. The study aimed to evaluate the moderating role personality plays between work organizations conditions and psychological distress in a large sample (1,958) of Canadian participants working in various occupations and workplaces. A Multilevel regression analyses were conducted and results showed that psychological demands, number of hours worked (work shift); job insecurity, neuroticism, and agreeableness were associated with higher levels of psychological distress. Inversely, decision authorities, job recognition, self-esteem and locus of control were associated with lower levels of psychological distress.

In a study on Personality Profiles and Personal Factors Associated with Psychological Distress among Chinese nurses, Huang et al. (2021), observed that personality profile was a direct predictor of psychological distress. It was a cross-sectional study which employed convenience and snowball sampling techniques. Latent profile analysis was used to identify personality profiles of nurses based on the big-five personality traits. Single-factor analysis and multivariate logistic regression were used to determine the factors affecting

psychological distress. The structural equation model was used to verify the hypothetical model linking personality profiles, self-efficacy, psychological resilience, and coping style with psychological distress. A total of 953 Chinese nurses (934 female and 19 males) with a mean age of 32.8 and standard deviation of 8.6 years were recruited. Personality profiles identified were negative, normative, and positive. Results revealed that personality profile predicted psychological distress directly and indirectly through self-efficacy, psychological resilience, and coping style. Nurses with a negative personality profile had a higher prevalence of psychological distress. The study established the importance of personality profile assessment to identify nurses at higher risk of psychological distress.

In summary while the three related reviews above looked at multiple variables to observe their associations and relationships with psychological distress, the present study focuses on just two factors – personality trait and work shift patterns and their impacts on psychological distress. The previous studies showed wider sample sizes and population from different workers, organizations and nurses in foreign nations namely; Australia, Canada and China as reviewed respectively. However, the sample size of the present study is relatively small with specific objectives on the impacts of personality traits (extroversion-introversion) and work shift patterns (morning, afternoon and night shifts) on psychological distress among purposive sample of nurses in FMC, Owerri, Imo State, Nigeria.

### Hypotheses

1. Personality will significantly impact on Psychological Distress level of Nurses in FMC, Owerri, Imo State.
2. Work shift will significantly impact on Psychological Distress experience of Nurses in FMC, Owerri, Imo State.
3. Personality and Work shift will have a significant interaction impact on Psychological Distress among Nurses in FMC, Owerri, Imo State.

### Participants

The researchers involved a total number of three hundred and sixty registered nurses with at least 2 years working experience in the present study. They were drawn from the FMC, Owerri, Imo State, Nigeria. The participants were selected using purposive random sampling technique; 45 nurses selected from the accident and emergency unit, 38 nurses from the dialysis unit, 41 nurses from the prenatal ward, 27 nurses from the male surgical ward, 30 nurses from the female surgical ward, 43 nurses from the pediatric ward, 57 nurses from the emergency pediatric unit (EPU), 24 nurses from the post-natal ward, 20 nurses from the orthopedic ward and 35 nurses from the obstetrics unit. The participants comprised of 338 females and 22 males whose ages ranged from 24 to 45 years, with the mean age of 33.87 and standard deviation age of 5.56.

### Instruments

Two instruments were adopted for the present study. First is a 21 item questionnaire which is the extroversion- introversion dimension of Eysenck Personality Questionnaire (EPQ) Adult version, developed by Hans Eysenck and Sybil Eysenck in 1975. The entire scale focuses on three primary dimensions of personality traits namely; extroversion-introversion, neuroticism and psychoticism. The extroversion-introversion subscale as used in the present study assesses the extent of an individual's social interaction with other people. Samples of the items include: Are you a talkative? Do you enjoy meeting new people? Do you usually take the initiative in making new friends? Responses are on a nominal format of YES or NO. Eysenck, Adelaja, and Eysenck (1978) provided psychometric properties for Nigerian samples and alpha coefficient reliability with males .69 and females .69. A pilot study to re-ascertain the reliability and then adopt the instrument to suit the current samples was conducted by the present researchers using 50 samples both males and females (20 to 45 years of age) among nurses in Owerri. The samples were selected from two hospitals: 30 from Umezuruike hospital and 20 from police medical services both in Owerri, Imo State.

Written Permission was obtained from the hospital authorities to allow their staffs get involved in the pilot study. Informed consents were also obtained from the nurses before they were involved in the pilot study. Only the nurses who were willing to participate and purposely selected were involved in the pilot study. A Cronbach's Alpha Coefficient of .76 was obtained by the present researchers. The general mean score for both males and females is

15.54. Scores higher than the mean indicate extraversion personality while scores lower than the mean indicate introversion personality.

The second instrument is a 23 item questionnaire derived from the Symptom Distress Checklist (SCL-90) developed by Derogatis, Lipman and Covi (1977). The SCL-90 is designed to assess a range of psychological symptoms and distress experiences of individuals over a specified time frame typically the past week. The scale covers nine primary symptom dimensions namely; somatization (SOM), obsessive-compulsive (O-C), interpersonal sensitivity (I-S), depression (DEP), anxiety (ANX), hostility (HOS), phobic anxiety (PHOB), paranoid ideation (PAR) and psychoticism (PSY). For the purpose of this current study, only two dimensions (depression and anxiety) were adopted. Depression dimension comprises of 13 questions that evaluate the severity of both emotional and physical depressive symptoms while Anxiety dimension contains 10 questions which measure the intensity of generalized feelings of nervousness, tension and apprehension. Sample item of the dimensions include: feeling low in energy or slow down, feeling hopeless about the future, suddenly scared for no reason, and feeling that familiar things are strange and unreal. Respondents rate each item on likert score ranging from 0 (Not at all), 1 (A little bit), 2 (Moderately), 3 (Quite a bit) to 4 (Extremely), indicating the degree to which they have experienced each symptom in the specified time frame.

Derogatis et al. (1977) reported the psychometric properties thus; alpha coefficient of .90 for depression and .76 for anxiety, one week interval test-retest reliability coefficient ranged from .78 for depression and .90 for anxiety. The Nigerian norm for depression is 11.85 for males and 10.15 for females, while the anxiety is 9.40 for males and 8.35 for females. The present researchers through the same pilot study as mentioned above obtained a reliability coefficient of .83, and a general mean score for both dimensions and gender as 9.65. Scores higher than the mean indicate the presence of psychological distress while scores lower than the mean indicate the absence of psychological distress.

It is important to note that SCL-23 contains a bio-social data which measured the participants' age, time of shift: morning, afternoon or night and years of experience which were indicated by the participants.

## **Procedure**

The researchers obtained ethical approval from the hospital's ethics committee to ensure that the study complies with ethical standards for research involving human participants. In addition, Permissions as well as informed consents were obtained from the concerned hospital's head of units. With the head of units' permission, oral and written consents were sought from the nurses to participate in the study. With the help of research assistances (Unit heads) the copies of questionnaire were distributed to the participants. All Nurses who volunteered to participate in the study received the questionnaire from their heads of unit at will. The participants were duly informed about the nature of the study. They were assured that the study is purely for academic purpose and would have no harm or negative consequence on anyone. Participants completed self-report questionnaires assessing personality traits, work shift patterns, and psychological distress experience. It took about 15 minutes for each questionnaire to be completed by the participants. The researchers distributed 380 copies of the questionnaire in ten different wards in FMC, Owerri and 376 were returned. Out of the returned ones, 7 had missing and inconsistent responses and 9 had indication below two years of working experience as an inclusive criterion for the study. The 16 unsatisfactory responses were discarded while the remaining 360 satisfactory responses were used for data analysis. The data collection process was done within one week of distribution of questionnaire. Each completed hard copy questionnaire was returned to the unit head who later handed all over to the researchers as agreed upon. The researchers ensured that all ethical principles were upheld throughout the data collection process.

## **Design and Statistics**

The design used for this study is Cross Sectional Survey Design. This helped for easy collection of data from Nurses in diverse units of the hospital. The statistical method employed is 2-way ANOVA, which helped for easy testing of interaction effect of two independent variables on the dependent variable.

## Results

**Table 1: Descriptive Statistic showing Mean and Standard Deviation Differences in Psychological Distress among Nurses in FMC Owerri, Imo State.**

Variables	Mean	Standard Deviation	Number
<b>Personality</b>			
Extrovert	22.18	5.00	111
Introvert	21.93	5.93	249
<b>Work Shift</b>			
Morning	23.15	5.96	196
Afternoon	21.12	5.61	95
Night	19.97	3.81	69

Table 1 above reveals the differences in mean and standard deviation scores on Psychological distress among nurses across variables. From the first variable personality scores, extroverts (M = 22.18) did not significantly differ from introverts (M=21.93). However, there was a significant difference in the psychological distress of workers on morning shift (M=23.15), afternoon shift (M=21.12) and night shift (M=19.97). Workers on morning shift had higher psychological distress than their counterparts in afternoon and night shifts.

**Table 2: Results of 2-Way ANOVA Revealing the Impacts of Personality traits and Work shift pattern on Psychological Distress among Nurses in FMC Owerri, Imo State.**

Source	Type III Sum of Squares	Df	Mean square	F.	Sig.
Personality (A)	10.475	1	10.475	.342	.559
Work Shift (B)	624.494	2	312.247	10.201	.000
A*B	16.953	2	8.477	.277	.758
Error	10835.648	354	30.609		
Total	185810.000	360			

The result presented in table 2 tested hypotheses 1, 2 and 3. The first hypothesis which assumed that personality trait will significantly impact on Psychological Distress among Nurses in FMC, Owerri, Imo State is rejected [ $f(1,354) = .342, p = .559$ ].

On the other hand, the second hypothesis which stated that work shift will significantly impact on Psychological Distress among Nurses in FMC Owerri is accepted [ $f(1,354) = 10.201, p < .001$ ].

Finally, the third hypothesis for the study which stated that the interaction of personality and Work Shift will significantly impact on Psychological Distress among Nurses in FMC Owerri, Imo State is rejected [ $f(1,354) = .277, p = .758$ ].

## Discussion of findings

The results of the study indicate that personality traits did not have a significant impact on the psychological distress experience of nurses at the FMC Owerri, Imo State, Nigeria. However, work shift patterns significantly impacted nurses' psychological distress levels, while the interaction between personality traits and work shift patterns did not significantly impact psychological distress among nurses in FMC, Owerri, Imo State.

The finding that personality traits, particularly extroversion-introversion, did not have a significant impact on psychological distress among nurses at FMC Owerri, Imo State contradicts the works of Joshanloo, (2023) and Huang et al (2021) who observed in their studies that personality predicts psychological distress. The finding is intriguing, given the commonly held belief that personality traits can influence an individual's experience of stress and their coping mechanisms. Several factors may explain why personality traits did not play a significant role in this context. It could be that the hospital environment at FMC Owerri, Imo State, Nigeria is inherently high-stressed due to factors such as high patient loads, long working hours, and the critical nature of medical decision-making. These stressors can be so pervasive that they overwhelm the moderating effects of individual personality traits. As noted by Admi et al. (2008), the demanding nature of healthcare work can lead to uniform levels of stress across different personality types. In addition, nursing tasks are standardized to ensure consistency in patient care. Regardless of personality traits, nurses are required to adhere to strict protocols and manage similar challenges, which may increase their stress experiences.

The researchers are of the opinion that the nursing profession is one occupation that operates with high demands, both emotionally and physically, part of the stress is driven by the need for time to time shift work schedules which have roles to play in the psychological health of the nurses. The finding that work shift pattern has significant impact on Nurses in FMC Owerri, is in line with observations made by Dall'Ora et al. (2020); Huang et al. (2018) and Zhu et al. (2016). In their studies, it was found that those working morning shifts had higher levels of psychological distress compared to their colleagues on other shifts, attributing this to increased interactions with patients' families during the day, administrative tasks and higher workloads. Nurses in FMC Owerri, Imo State, Nigeria like those elsewhere, are likely to experience varying levels of psychological distress based on their work shifts. Addressing these issues requires organizational changes, such as ensuring adequate staffing, providing mental health support, and promoting work-life balance to mitigate the psychological distress experienced by nurses in FMC, Owerri, Imo State, Nigeria.

In addition, the significant impact of work shift patterns on nurses' psychological distress levels is consistent with the Job Demand-Control-Support (JDCS) model proposed by Karasek and Theorell (1990). According to this model, work-related stress arises from a combination of job demands, control, and support. Morning shifts, characterized by higher workload with increased working hour, administrative duties, and greater interaction with patients and their families, tend to be more stressful. The lack of control over work schedules and limited social support during shift hours may further exacerbate stress levels, contributing to elevated psychological distress.

Finally, the finding that the interaction between personality and work shift did not significantly impact nurses' psychological distress suggests that personality traits may not moderate the relationship between work shift patterns and psychological distress outcomes in this context. While previous research (Parent-Lamarche, Marchand and Saade, 2021) has suggested that personality traits may interact with work-related factors to influence psychological well-being, such interactions may be less pronounced or non-existent among nurses at the FMC Owerri, Imo State, Nigeria. Other individual and contextual factors, such as coping strategies, organizational culture, and job resources, may play a more significant role in shaping nurses' psychological distress levels in FMC Owerri, Imo State, Nigeria specifically and other nurses elsewhere in general.

## Implications of the Study

The results of the study have several theoretical and practical implications for researchers, healthcare institutions, policymakers, psychologists, and other stakeholders involved in the provision of healthcare services. Theoretically, the study has proven that personality as a single factor has no influence on nurses'

psychological distress experience as well as its interaction with work shift. Rather work shift as a single factor impacts on psychological distress among nurses. Practically, researchers are to investigate more into the causes of psychological distress with other factors. Healthcare institutions and policymakers may focus less on personality traits, such as extraversion- introversion, when addressing psychological distress among nurses. Instead, resources and interventions can be directed towards work shift patterns and other factors that have a more significant impact on nurses' well-being. Psychologists and mental health professionals should consider a holistic approach to addressing psychological distress among nurses, incorporating multiple factors beyond personality traits into assessment and treatment plans. Finally psychologists and healthcare institutions can continue to provide support and resources tailored to individual nurses' needs, recognizing that factors beyond personality traits may contribute to psychological distress in the context of work shifts.

### Limitations of the Study

- The study may have a limited sample size, which could affect the generalizability of the findings to the broader population of nurses. A larger and more diverse sample would provide greater confidence in the results' applicability to other healthcare settings.
- The study may not account for other contextual factors that could influence nurses' psychological distress, such as workload, organizational culture, social support, and access to resources. Future research could explore these additional variables to provide a more comprehensive understanding of the determinants of psychological distress among nurses.
- There may be inherent biases in the selection of participants, such as volunteers or those who are available during data collection, which could affect the representativeness of the sample. Efforts to minimize selection bias, such as random sampling techniques, should be considered in future studies.

### Recommendations

Following the outcome of the study, the researchers make the following recommendations:

- **Training and Education:** Healthcare institutions should offer training and education programs to raise awareness about the impact of work shift patterns on psychological distress and provide nurses with coping strategies for managing stress in demanding work environments.
- **Focus on Work Shift Patterns:** Given that work shift patterns had a significant impact on nurses' psychological distress, healthcare institutions should prioritize strategies to mitigate the negative effects of non-standard work schedules. This may include providing adequate rest breaks, promoting healthy sleep hygiene, and offering support services for nurses working morning shifts especially.
- **Provide Support Services:** Healthcare institutions should invest in support services for nurses experiencing psychological distress, regardless of their personality traits. This may include access to counselling or psychotherapy, stress management programs, peer support groups, and resources for coping with work-related stressors.
- **Promote Flexible Scheduling:** Policymakers should consider implementing policies that promote more flexible scheduling options for nurses, allowing them to better balance work and personal life responsibilities. This could involve limiting the number of consecutive morning shifts, providing opportunities for self-scheduling, or offering incentives for nurses to work preferred shifts.
- **Continued Monitoring and Research:** While the interaction of personality and work shift did not significantly impact nurses' psychological distress in this present study, researchers should continue to monitor this relationship and explore other potential moderators or mediators. Longitudinal studies could provide insights into how these factors may change over time and inform targeted interventions.

### Conclusion

The present study investigated the impacts of personality traits and work shift patterns on Psychological distress among nurses in Federal Medical Central Owerri, Imo State, Nigeria. The findings highlighted the significant impact of work shift patterns in predicting psychological distress among nurses at the Federal Medical Centre Owerri, Imo State, Nigeria while stating that personality as a single factor and the

interaction of personality and work shift did not have any significant impact on Psychological distress of nurses in FMC, Owerri, Imo State, Nigeria.

Following the outcome of the current study, interventions targeting work shift patterns and support for nurses working morning shifts may help alleviate psychological distress and improve overall well-being in this population. Additionally, efforts to enhance nurses' resilience, regardless of their personality traits, may help mitigate the impact of work-related stressors on psychological distress. Collaboration between healthcare institutions, policymakers, psychologists, and other stakeholders is essential to address the diverse needs of nurses and optimize patient care outcomes. Finally, future research could explore additional factors that may contribute to psychological distress among nurses and further examine the mechanisms underlying the relationship between work shift patterns and psychological distress outcomes within the framework of the JDCS model.

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