

Non-standard Working Practices and Nurses' Job Performance: Experience from Public Hospitals in Tanzania

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ABSTRACT

Non-standard working practices are common among nurses because they spend more time directly caring for patients than other healthcare professionals. Thus, nurses' performance is impacted by how work is organized, whereas various component of the working practice may lead to a decrease in performance. The purpose of this study was to examine the influence of non-standard working practices on performance of nurses in public hospitals in Tanzania. Specifically, the study focused on assessing the influence of schedule variation, schedule uncertainty, and schedule intensity on performance of nurses in Tanzanian public hospitals. The study adopted descriptive survey research design using qualitative and quantitative methods. Stratified random sampling technique was used, whereas a sample size of 381 nurses was randomly chosen from a target population of 404. Quantitative data were analyzed through thematic analysis technique whereas qualitative data were analyzed by the use of multiple linear regression, one-way Analysis of Variance, independent t-test, and Pearson correlation. Qualitative data were entered, coded and analyzed using summative content analysis and presented in percentages, in tables, figures and charts. Correlation analysis was used to test the direction of relationship between the independent variables and dependent variable. Multiple regressions were used to test whether schedule variation, schedule uncertainty, and schedule intensity had any influence on nurses' performance. The study established that schedule variation, schedule uncertainty, and schedule intensity contributed negatively to nurses' performance. Furthermore, the study approved all three study hypothesis as it was found that all schedule variation, schedule uncertainty and schedule intensity had significant statistical influence on job performance of nurses. The study concluded that exposure to non-standard working practices were common among nurses in public hospitals in Tanzania. Further, the study concluded that nurses in the study area were more affected by schedule variation and schedule uncertainty. The study recommended the adoption of strategies aimed at minimizing the effects non-standard schedules to promote nurses' performance.

Keywords: Healthcare, Job Performance, Non-Standard Working Practices, Schedule Intensity, Schedule Variation

I. INTRODUCTION

The current human resource practices have developed tremendously in last few decades due to the process of globalization, technological advancement and social improvements (Chari, et al. 2018). As a result of these changes, working conditions have also changed, with a marked increase in non-standard working schedules and contingent work (Omar, 2013). Worldwide, many health service sectors rely on just-in-time and on-call scheduling practices designed to minimize labor costs by closely aligning staffing with consumer demand (Costa, 2016). These practices, along with related economic insecurity, can lead to a serious instability into the lives of workers and their families. On this ground many reservations had been expressed, in particular because this organization of work affects employees' health; induce unhealthy coping behaviors ultimately resulting to decline job performance.

As Maqbal (2015) indicates, working practices within organizations can appear more simple or complex than others. As a result, redesigning working practices in the health care industry to increase productivity and effectiveness has been a common challenge. Therefore, frequent assessment, modifications and evaluation on the way work is done serve as the impetus for continued performance. As nursing staff are in the very center of the health care system, it is important to examine their views and experience regarding their working schedules. Earlier research pinpoints various problems regarding the Tanzanian healthcare, the serious one being lack of resources (Msuya, et al. 2017). For stance, report by International Labour Organization (ILO, 2009) indicates that in Tanzania there are around 47,000 nurses and midwives combined and there is approximately one nurse/midwife ratio per 1,400 populations. The World Health Organization (WHO) recommends one nurse/midwife per 500 population, implying that nurses in Tanzania are few than it is supposed to be and work ten times than their counterpart in developed countries (World Health Organization

[WHO], 2013). Thus, due to limited number of healthcare workers in public hospitals, nursing staff are exposed to non-standard working practices in which most of them are chronically unpredictable.

According to Sanders et al. (2017), Non-Standard Working Practices (NSWPs) refer to any form of working arrangement that differs from the standard 40-hour workweek or 8-hour weekday associated with disruptions from usual routine which is done under unplanned, usually forced manner. For the purpose of this study NSWPs in terms of schedule variation, schedule uncertainty and schedule intensity. The study by Hirschfield (2013) indicates that NSWPs have the potential to impair work output, alter nurses' perceptions of their roles, and potentially endanger patients. Similar to this, high schedule demands and quick turnaround times which are typical in the nursing field—have detrimental effects that include medical and mental health disorders, workplace mishaps, and professional blunders (Singh *et al.*, 2016). In fact, Costa (2015) claims that schedule uncertainty might cause discomfort and make it harder to stick to patterns, including set wake-and sleep times. For instance, a longitudinal research of Jordanian nurses conducted in 2015 by Sülz et al. (2017) revealed that 64% of nurses who had shifts cancelled felt psychological distress, compared to fewer than half of those who had not encountered the same circumstance

On the same way, Golden (2015); Lambert, et al. (2014) reported that work intensity which is characterized with high-speed work, tight deadlines and often insufficient time to complete tasks, can all depress work quality and productivity. Overall, the performance of nurses in public hospitals has drastically decreased as a result of unidentified factors influencing their non-standard work schedules (Tibandebage et al. 2016). According to the Working Families (2011) survey, patients who accessed private health facilities reported being 82% more satisfied than those who used Tanzanian government facilities. According to Hirschfield (2013), nurses working long shifts report high rates of medication errors, abuses, infections, falls, and injuries among their patients, as well as inadequate record keeping and a large volume of patient complaints. Kinyenje et al. (2022) state that patients receiving primary health care (PHC) facilities have been receiving subpar care, particularly when it comes to interpersonal quality and communication. Hospital users, for instance, were more likely to identify difficulties with the provider's explanations and their capacity to address concerns, according to an examination of data from demographic and health surveys as well as the service provision assessment. Also, more clients (81.3%) in health centers, reported being very satisfied with the services received, compared with 74.7% in hospitals

Despite the fact that previous research has indicated that the satisfaction of health workers in Tanzania is high, (Mbaruku, 2014), this study was interested to find out how the nursing staff experience their nonstandard working schedules situation in relation to their job performance. As indicated by Moreno et al. (2019), in nursing the traditional schedule (7 a.m. to 3 p.m., working only during the week) is an exception; as most nurses work in shifts (hours of work/day, with staff available to work morning, evening, or night). Therefore, NSWPs can disturb nurses' circadian rhythms and trigger a number of adverse psychological and physical changes, impacting job performance (Costa, 2016). Compared with other cadres in healthcare settings, several nonstandard work schedule components affects nurses' job productivity, efficiency and effectiveness as well as compromised creativity and innovativeness (Lu, et al., 2012).

Despite the critical role of nursing care in determining high-performing healthcare delivery, nurses are exposed to work schedules that are incongruous with the daily schedules of their household, that lead to time constraints, feelings of time scarcity, routine disruption, and/or social and psychological distress. Therefore, in contrast to the wealth of research on other professions, there are few studies on the connection between NSWPs and job performance among nursing profession (Bae & Fabry, 2014; Crawford, et al. 2019) and most of the studies originating from developed countries (Dorrian, et al. 2011, Moreno, 2023; Nicol & Botterill, 2014). Therefore, it was imperative to undertake this study in order to uncover the underlined gaps.

1.1 Research Objectives

The general objective of this study was to examine influence of Non-Standard Working Practices on Performance of nurses in public hospitals in Tanzania.

Specifically, the study intended to:

- i. To examine the influence of schedule variation on performance of nurses in public hospitals in Tanzania
- ii. To establish the influence of schedule uncertainty on performance of nurses in public hospitals in Tanzania
- iii. To determine the influence of schedule intensity on performance of nurses in regional hospitals in Tanzania

1.2 Research Hypothesis

H0₁: There is no significant relationship between schedule variation and performance of nurses in public hospitals in Tanzania

- H0₂: There is no significant relationship between schedule uncertainty and performance of nurses in public hospitals in Tanzania
- H0₃: There is no significant relationship between schedule intensity and performance of nurses in public hospitals in Tanzania

II. LITERATURE REVIEW

2.1 Theoretical Literature Review

Non-standard work practices (NSWPs) refers to the working arrangements that deviate from a standard work schedule in a uniform, consistent manner (Shifrin, & Michel, 2022). The term non-standard work are normally examined basing on working hours variation, schedule forecasting and intensity of work schedules (Sanders et al., 2017; Omar, 2012). As Peng et al, (2014) indicates, in most cases development on NSWPs is subject to agreement between the employee and management. Employee performance is defined as how well a person executes their job duties and responsibilities (Gilson, 2014). It has been discovered that job happiness, standard working arrangements, and holistic management all have a favourable impact on nurses' job performance (Bae & Fabry, 2014; Lambert & Fugiel, 2014).

In this paper, nurses' job performance was measured through sub variables namely; enhanced productivity, efficiency and effectiveness of work completed and whether nurses were able to demonstrate creativity and innovativeness in their duties. Dal Rosso and Cardoso (2015) indicate that, NSWPs is associated with decreased productivity, poor performance, health problems, and lower employee motivation. According to Nicol and Botterill (2014) work intensity is a common practice in healthcare settings, characterized by fast workflows, in which the chain of activities must be done quickly to not disrupt the continuous flow of collective work. In this way, intense work and fast workflows are increasingly common in hospitals and are related to compromised performance (Shifrin & Michael, 2021). As similar study indicates, the work organization model in nursing combines characteristics of toyotism and taylorism, which contributes to the intensification of work and subjects' workers to organizational constraints. Therefore, the overall, happy patients and better results for the organization are more likely to result from excellent nursing performance (Gangai, 2014). On the other hand, poor performance by the nurses would have unfavorable effects including poor patient care and an increase in patient complaints. In a nutshell, hospital with better nurses' performance has the competitive advantage over those that do not perceive job performance as an important factor for the patients to return to the same hospital (Mujinja, 2013).

In healthcare sector, the optimal performance of nurses plays a critical role in care quality and patient safety in the sense that nurses spend more time with patients than do any other health care providers and patient outcomes are affected by nursing care quality (Meyer, 2011). According to Nymar (2020), nursing care requires that nurses provide a holistic perspective of care that includes emotional, physical, and quantitative and work shift demands. Those demands have been clearly established in the literature as job stressors. However, emotional demands, dealing with suffering and interpersonal conflict may arouse and exacerbate job demands among nurses.

2.1.1 Job Demand Resource Theory

The study adopted Job Demand Resource Theory (JD-R Theory) as a study foundation. The theory assumes that every work situation can be characterized in terms of job demands and job resources, (Demerouti & Bakker, 2011; Maslach, & Jackson 2012). Furthermore, the idea contends that stress and burnout rise in situations with high job demands and minimal job resources or positives. On the other hand, the benefits of having a high number of job demands sometimes outweigh their negative effects. In order to attain optimal performance, workers must acquire job resources that enable them to accomplish objectives inside the workplace (Bakker et al., 2014).

According to Shifrin, and Michel (2022) NSWs refers to working practices that vary from a regular work schedule in a uniform, consistent manner which are subject to agreement between the employee and management. Studies (Maslach, 2012; Schneider, & Harknett, 2019. McClure, et al., 2022) have already demonstrated a strong correlation between NSWs with work attitudes and output. These studies further insist that, long-term exposure to irregular working schedules in the nursing profession can therefore result in psychological and physical impairments such burnout or depression (Hall et al., 2013), which can impede job performance. However, by mitigating the impact of job demands, job resources increase employees' motivation to work and lower their risk of burnout (Crawford, et al. 2004). The choice of the theory was based on the fact that nursing is among the first six most stressful professions due to the demands of patients and families, the interaction with colleagues, the availability of resources to perform the job, and the constantly changing work environment (Ishijima, 2016). In order to comprehend and explain how job

resources can mitigate the effect of job demands on nurses' job performance, the current study employed the JD-Resource hypothesis. Some restrictions have been brought up, nevertheless, such as the notion that managers have direct control over the resources and responsibilities of their jobs. Nonetheless, this theory guides the way in which leaders can be influential by moderating job demands and resources (Shifrin, & Michel, 2022).

2.2 Hypothesis Development

2.2.1 Schedule Variation and Nurses Performance

Empirical evidence indicates that in nursing profession, the working Schedules are constantly changing and very demanding. The common/traditional working practice was shifts (hours of work/day, with staff available to work morning, evening, or night) which commonly affects employees' health and implicate their performance through workplace fatigue. As Dorrian et al., (2011) indicates work schedules that include overtime, more workdays, and night shifts are said to be a significant predictor of chronic fatigue in nurses. Various studies have looked into several issues related to schedule variation on employees' job performance in healthcare settings. For example, Lombrou et al., (2014) conducted a study on nurses' intension to quit their current profession in a tertiary university hospital in Korea, including 746 staff nurses working on 36 general, oncology, or intensive care units. Using cross section research design, the findings indicated that excessive workloads and work demands were associated with negative consequences represented with high level of nurses' job dissatisfaction, intent to leave, declined productivity. On the same way, Kar and Suar (2014) studied 862 nurses working in 24 private and public hospitals across six cities in India. The study revealed that nursing specific job demands had impact on nurses' burnout, which affects nurses' job commitment and turnover intentions. The findings were consistent with results from two previous systematic reviews studies conducted in 2012, in which long hours working, especially when coupled with sleep disruption, caused deterioration of task performance, because it had detrimental effects on such things as rates of error, pace of work and social behaviour (Nicol & Botterill, 2014, Friezen et al. (2014).

H₀₁: There is no significant relationship between schedule variation and performance of nurses in public hospitals in Tanzania

2.2.2 Schedule uncertainty and Performance of Nurses

In nursing profession, schedule uncertainty is an inevitable part of their daily working practice which is even more challenging for and resulting into work-family conflict. Empirical evidence by Shifrin, and Michel, (2022) indicates that uncertainty in nursing practice has a direct influence on patient care, as well as personal well-being of the nurse, and his or her job performance. Additionally, a study was conducted by Dorrian et al. (2011) on a sample of Lebanese bedside nurses to investigate exhaustion, work schedules, and views of nursing performance. According to the study schedule uncertainty and higher temporal and task demands were the main causes of weariness in nurses. Nurses perceived that over the past several months, weariness connected to their work had a modest impact on their job performance ($M = 5.56$, $SD = 2.49$) and a bigger impact on their personal and social lives ($M = 7.30$, $SD = 2.45$). Furthermore, Akerstedt and Kecklund (2017) ; Stroup and Yoon, 2016; Dorrian et al. 2011), carried a qualitative study to establish the situation an ambulance nurse encounters as a result of schedule uncertainty. The results of the ten interviews indicated that the feeling of uncertainty was exacerbated by situations that demand rapid decisions or actions. Therefore the positive relationship was established between schedule uncertainty and employee performance in healthcare settings.

Similarly, Schneider, and Harknett (2019) undertook a survey on the consequences of routine work schedule instability for worker health and wellbeing in 7 service sectors n USA. The findings indicated that, eliminating on-call shifts would reduce affected workers' psychological distress by 15 percentage points on average, improve sleep quality by 8 percentage points, and raise self-reported levels of happiness by 9 percentage points. Eliminating clopening shifts would have similar effects, and implementing advance notice restrictions by requiring 72 hours of notice would reduce affected workers' psychological distress by nearly 5 percentage points.

H₀₂: There is no significant relationship between schedule uncertainty and performance of nurses in Public hospitals in Tanzania

2.2.3 Schedule Intensity and Performance of Nurses

Intense work and fast workflow are characteristics of nursing work. In Iran, the study undertaken by Allen (2016) indicated that schedule intensity was the main challenges experienced by Iranian nurses resulting into inability to secure child care and reliable transportation, working on employer-controlled schedules, and a lack of paid time off. Another study done by Tatiane et al. (2017) in Iranian public hospital found that, work intensity among nursing was



higher and was revealed by variables related to understaffing and versatility and flexibility in the execution of tasks and activities. The results of the factor loadings demonstrate that work intensity variables vary between the professional categories and are related to the work performed. The study by Ishijima (2016) on working practices among public hospital staff in Tanzania revealed that majority of nurses experienced work life conflict as a result of working patterns. For example, the study indicated that most of child care centers did not accommodate nonstandard work schedules as most closed by 6:00 p.m. and were not open on weekends. In the above analysis, it can be concluded that various from of NSWSs was associated with various negative effects, such as decreased productivity, poor performance, health problems, and lower employee motivation.

H0₃: There is no significant relationship between schedule intensity and performance of nurses in Public hospitals in Tanzania

III. METHODOLOGY

3.1. Research Design and Study Area

An explanatory research design was adopted to facilitate the analysis of data of variables collected at one given point in time across a sample population (Kothari, 2008). Research was conducted in HLIs in Tanzania in 28 Regional hospitals in Tanzania since these hospitals serves a geographic region larger area than a single local or rural area. These hospitals serve specific needs that cannot be adequately met by a local or hospital hence preferred by majority of patients. Further, a study indicates that the environment of private hospitals has more favorable characteristics to the professional practice of registered nurses than the public hospital environment.

3.2 Sample and Sampling

This study used the positivist paradigm, in which scientific procedures were used to postulate basic laws and then extrapolate observations to ascertain whether the hypothesis regarding the association between work scheduling and Tanzania's public hospitals' performance is true or false (Saunders et al. 2009). All 28 regional hospitals in Tanzania were included in the study's target population, of which 8 were carefully chosen. Registered nurses served as the analysis unit in this study. To address potential disparities in nurses' performance based on work cadres; stratified sampling was utilized to choose specific nurses within the chosen hospitals. The decision to focus on nurses is founded on the fact that, out of all healthcare professionals, nurses are the ones who operate under the most pressure, with their profession ranking 12th out of 20 in terms of stress (ILO, 2009). 95% of the care that patients receive when they are hospitalized in healthcare organizations is handled by the nursing staff (McClure, et al., 2012).

Table 1
Cadres of Nurses in 28 Regional Hospitals in Tanzania

| S/N | Occupation | Number |
|-----|-----------------------------|--------------|
| 1 | Registered Nurse Officers | 594 |
| 2 | Registered Nurse Assistants | 1,117 |
| 3 | Enrolled Nurses | 1,265 |
| | Total | 2,976 |

Each regional hospital in the sampling frame was given a unique number, and eight, or 30% of the total number of regional hospitals, were chosen using a table of random numbers. Gay (2005) recommended a minimum threshold sample size of 30% of the target population to be considered suitable for small populations (N<1000), and this sample size has been met. Thus, the unit of observation for this study was 1375 nurses spread among 8 regional hospitals.

Cochran (1963) provided the following formula, which was used to calculate the sample size:

$$n = \frac{Z^2pq}{\epsilon^2}$$

Equation 1: *Formula for Determining Sample Size*

Z² = Standard normal deviance required at confident level of 95%, which is 1.96;

p = Proportion of people influenced by performance management, which is set at 0.5 each; and

N₀ = Sample size when the population is greater than 10,000.

q = 1-p = 0.5, the allowable margin of error.

$$N_0 = \frac{(1.96)^2 \times 0.5(1 - 0.5)}{(0.05)^2} = 404$$



The 404 respondents were divided among the eight regional hospitals in the study using a ratio of proportional allocation.

3.3 Data Collection and Analysis

The questionnaire comprised open-ended and closed ended questions that were adapted from other studies. A 5-point Likert scale was used to make it simple for the respondents to distinguish the options (Peng et al., 2014). Face to face interview was undertaken with hospital to management in order to triangulate the data. The collected data were analyzed quantitatively and qualitatively using univariate analysis and descriptive statistics with the aid of Microsoft Excel program 2013 and Statistical Package for Social Sciences (SPSS) program version 20. Univariate analysis was used to portray the frequency of the distribution of the respondents ‘demographic information. Cronbach's alpha correlation, which has a range of 0 to 1 (Kothari, 2008) and an alpha of at least 0.70 or above (Hall, 2008), was used to quantify reliability. Regression analysis was done to ascertain the relevance of the association between NSWPs and nurses' job performance, while Pearson correlation was utilized to test the correlation between the independent and dependent variables. Based on the data, recommendations and conclusions were drawn

IV. FINDINGS & DISCUSSIONS

4.1 Demographic Information of Respondents

In this study demographic information was examined in order to gives data on research participants so as to determine whether the individuals in the study area are a representative sample of the target population for generalization purposes. Therefore, information regarding respondents’ age, marital status, job position and education qualifications were sought in this study.

Table 2

Demographic Information of Respondents

| Characteristics | Classification | Frequencies | Percentages |
|-----------------|----------------------------|-------------|-------------|
| Sex | Male | 248 | 62.0 |
| | Female | 132 | 48.0 |
| | Total | 380 | 100.0 |
| Marital status | Single | 113 | 43.5 |
| | Married | 268 | 56.5 |
| | Total | 381 | 100.0 |
| Job Category | Registered Nurse Officer | 157 | 39.7 |
| | Registered Nurse Assistant | 113 | 34.3 |
| | Enrolled Nurses | 111 | 26.0 |
| | Total | 181 | 100.0 |
| Education level | Bachelor Degree and above | 180 | 46.6 |
| | Certificate | 70 | 33.8 |
| | Primary Education | 21 | 19.6 |
| | Total | 381 | 100.0 |

4.2 Demographic Information

A total of 381 were included in the study. Table 2 indicates a wide distribution of sex among the study group where the majority of participants were female, (62. %), indicating the nature of nursing service being preferred by female population. Also, since the results in Table 3 indicate frequency of nurses working under uncertain and intense schedule, majority of women nurses are likely to experience work to family conflict as studies associate them with more household shores. Furthermore, Table 2 indicates a wide distribution among married respondents (56.6%) implying that majority of nurses has multiple roles to fulfill both as parents and employees. As results in Table 3 indicates, majority of respondents worked irregular or unsocial hours which could result into work life imbalance, ultimately affecting their family welfare and job performance. As Tatiane (2017) indicates, the pressure from the mainstream values of taking care of both family and work will make it difficult for women to cope with such a situation, which will lead to greater conflicts between work and family for women. Further, the results indicated a wide distribution of the respondents by education level whereas (47%) had degree and above, indicating possibility of required competence in provision of quality services in regional hospitals in Tanzania

Table 3*Likert Scale Results for Schedule Variation, Schedule Uncertainty and Schedule Intensity*

| Statement | SD | D | N | A | SA |
|---|----|-----|---|----|----|
| Schedule Variation | % | % | % | % | % |
| I am sometimes required to work more than 40 hours per week | 11 | 8 | 1 | 22 | 74 |
| I regularly work a rotation of different night shifts | 9 | 10. | 2 | 10 | 69 |
| I am sometimes called back to work during my days' off | 7 | 8 | 5 | 58 | 20 |
| I sometimes find it difficult to express the desire to change my shift patterns | 2 | 3 | 0 | 31 | 62 |
| Expressing the preferences around the length of my shifts is a problem for me | 21 | 62 | 3 | 11 | 5 |
| Schedule Uncertainty | | | | | |
| Cloping shift is a problem to me | 21 | 9 | 0 | 33 | 37 |
| I am sometimes required to work during on call shifts | 29 | 31 | 2 | 17 | 21 |
| I am sometimes not consulted to modify my shift pattern | 13 | 17 | 1 | 15 | 49 |
| Frequent varying of non-working days affects my performance | 23 | 27 | 0 | 14 | 36 |
| I always feel I have limited control over my working hours | 11 | 7 | 0 | 73 | 9 |
| Schedule Intensity | | | | | |
| There is high likelihood of frequent task interruption in my working pattern | 20 | 14 | 6 | 6 | 44 |
| I sometimes complete my assignments under tight deadlines | 12 | 18 | 3 | 15 | 51 |
| Fast work flow is a serious problem for me | 20 | 19 | 1 | 11 | 49 |
| Meeting tight deadlines is always a challenge to me. | 21 | 39 | 0 | 13 | 27 |
| Continuously being on-call is a problem for me | 29 | 26 | 2 | 26 | 17 |

4.3 Nurses Job Performance

The study was interested to find out the nurses opinion on their ability to carry out duties and responsibilities associated to providing direct patient care effectively. This dimension was measured based on nurses' perceived job productivity, job efficiency and innovativeness job behavior and the results were calculated based on means and standard deviation and conclusion was made based on calculated average mean of each dimension. As Table 4 indicates, the overall score on job productivity had an average mean of 3.02 which indicated moderate/ average effectiveness. Among the statements under this variable, majority of nurses (56%) strongly agreed with the statement that the quality of services rendered by nurses to customers has greatly improved over the last 5 years as whereas high percent of respondents (49%) disagreed with the statement that the overall nurses target achievements have improved over the last 5 years with a mean of 2.07. The overall results indicates that nurses were able to complete their tasks on time, focus more on offering patients excellent service to enhance their positive clinical experience. The results further indicates that respondents did not meet job targets on time as set by their hospitals, implying the possibility for heavy workload, limited skills, motivation or proper resources required to do their job. The results are supported by Schelleberg (2012) who asserts that job skills and resources are a critical component for the provision of quality services in the health sector. Since the delivery of health care services requires round-the clock responsiveness and high accountability heavy workload, limits the ability of nurses to detect adverse changes in patients in time to address them and prevent consequences.

Furthermore, job efficiency variable scored an average of mean of 2.64 indicating moderate job efficiency, whereby among other statements majority of respondents (61%) strongly disagreed with the statement that the efficiency and effectiveness of the work completed by nurses has improved in the last five years. At the same time, (54%) of respondents agreed with the statement that nurses were able to work independently and they give high performance. The results indicated that there the normal level of job efficiency among nurses in public hospitals. However the study further calls for the urgent need of creating the conducive working environment where the efficiency of nursing services can also be enhance. As Msuya, et al., (2017) indicates, nursing is a demanding and rewarding profession, but it also requires a high level of efficiency and teamwork to provide quality care to patients. Therefore enhanced nursing job efficiency enables provision of testing and treatment that is appropriate and necessary for high-quality care while avoiding any waste of resources.

Regarding job innovativeness dimension, the average mean score was 3.15 indicating high level of job innovation. In this variable, the majority of respondents (68%) agreed that they had a strong ability to generate new ideas; whereas majority (43%) of respondents disagreed with the statement that that they were able to anticipate problems and developing contingency plans. The overall results indicated that nurses had high ability to put new ideas into practice as well as incorporating existing ideas into practice in a new way. Concurring with results, the study by Jang, et al. (2016) indicated that majority of nurses in Taiwan had high level of innovation which led to increased

productivity, foster efficiencies in the day-to-day work of clinical nurses and promotion of effectiveness in meeting patient outcomes.

Table 4*Nurses' Job Performance Results*

| Statement | Mean | Std. Dev. |
|--|-------------|--------------|
| Enhanced Productivity | | |
| Overall nurses target achievements have improved over the last 5 years | 2.07 | 0.891 |
| Nurses have been able to achieve organization goals for the last 5 years | 3.37 | 1.093 |
| Quality of services rendered by nurses to customers has greatly improved over the last 5 years | 3.56 | 0.972 |
| Nurses have the ability to ensure timely service delivery to customers | 3.13 | 0.775 |
| Total Average Mean | 3.02 | 0.933 |
| Efficiency/Effectiveness | | |
| There is efficient use of resources in provision of health services in my unit | 3.03 | 0.98 |
| The efficiency and effectiveness of the work completed by nurses has improved in the last five years | 3.85 | 0.804 |
| Nurses are able to work independently and they give high performance | 3.64 | 0.903 |
| Target given to different nurses are often met on time | 3.04 | 0.937 |
| Total Average Means | 2.64 | 0.915 |
| Job Innovativeness | | |
| Nurses have the ability to generate new idea for overcoming challenges | 3.82 | 1.051 |
| Nurses are able to anticipate problems and developing contingency plans | 2.41 | 1.032 |
| Nurses are able to implement new ideas that changes services or processes in an institution | 3.42 | 1.222 |
| Nurses are able to come up with new innovations for their services | 2.95 | 0.99 |
| Total Average Mean | 3.15 | 1.074 |

4.4 Impact of Schedule Variation and Nurses Job Performance

In this case, schedule variance determined whether nurses had more extended workdays (more than eight hours), less days off in between shifts, more night shifts, more evening shifts, or more day shifts. The results showed that around 74% of nurses worked more hours, took fewer days off in between shifts, and worked more nights (65%). Likewise, (58%) of respondents were called back to work during their off duty days and 62% indicated that they were not able to express the desire to change their work shifts. As it empirical literature indicates, low staffing levels in healthcare has contributed to prevalence of extended unsocial hours among workers. Empirical research suggests that longer work hours contribute to work-family conflict by leaving insufficient time for family life (Lin et al. (2014). As Table 5 indicates, schedule variation and long work hours among nurses increase the risk for reduced performance on the job, obesity, injuries, and a wide range of chronic diseases. In addition, fatigue-related errors could harm patients. Fatigued nurses also endanger others during their commute to and from work. This supports the findings of De Menezes and Kelliher (2011), who discovered that lengthy and irregular shifts increase errors, burnout, patient discontent, and may even have an adverse effect on the well-being of hospital nurses.

Furthermore, the importance of the association between schedule variance and nurses' job performance was ascertained using the findings of an inferential study. An $X1+\epsilon+\beta0$ simple regression model was used to test the association. Here is how the hypothesis test went. The hypothesised association, H_{a1} : schedule fluctuation has a positive significant influence on nurses' job performance, was assessed at a significance level of $\alpha = 0.05$. A statistically significant model was discovered ($F(1, 375) = 91.428$, $p\text{-value} < 0.001$).

The alternative hypothesis was accepted at the $\alpha = 0.05$ level of significance, indicating that schedule change had a positive and significant impact on nurses' job performance, as the $p\text{-value}$ was less than 0.001. The regression model on schedule variation and nurses' job performance is shown in Table 5. The coefficient of determination R^2 is 0.196 and R is 0.194 at the 0.05 significance level, as shown in Table 6. According to the corrected R^2 value, schedule variation accounts for 19.4% of the overall variation in nurses' job performance. The modified R^2 value = 0.194 sits just below 0.2 and 0.4 and consequently considered moderate correlation. This could imply that, apart from schedule variation of nurses, there are other elements which could easily influence their performance. This concurs with the study by Mansoor (2017) who showed that 76% of nurses in study area were comfortable with irregular shifts. A nurse who is willing to work 12-hour shifts will reap many perks, including additional time off.



The results support the JD Resource theory in the sense that, when job demands are chronically high and not compensated by job resources, employees' energy is progressively drained, which can result in a state of declined performance.

Table 5
Model Summary for Schedule Variation and Nurses Job Performance

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .443 ^a | .196 | .194 | .51295 |

- a. Constant and Schedule Variation as Predictors
- b. Dependent Variable: Nurses Job Performance

The results of the analysis of variance (ANOVA), which are displayed in Table 6, further demonstrate that the model fit is suitable for the given data because the p-value is 0.000, which is less than 0.05. This suggests that schedule variation and nurses' work performance have a strong positive relationship.

Table 6
Analysis of Variance (ANOVA) for Schedule Variation

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 24.057 | 1 | 24.057 | 91.428 | .000 ^b |
| | Residual | 98.669 | 375 | .263 | | |
| | Total | 122.726 | 376 | | | |

- a. Dependent Variable: Nurses Job Performance
- b. Predictors: (Constant), Schedule variation

By applying the standardized coefficients, the resultant regression equation $Y = \beta_0 + \beta_1 X_1 + \varepsilon$ yields $Y = 0.443 X_1$, where Y is the nurses job performance and X_1 is schedule variation. With reference to Table 5 the variable is significant with $\beta_0 = 0.443$, $t = 9.562$, and $p\text{-value} < 0.001$, meaning that an improvement of one unit in schedule variance leads to a 0.443 improvement in nurses' work performance. This suggests that a well-planned schedule enables nurses to deliver prompt, high-quality care, and that these establishments guarantee specialists are constantly available to address problems promptly. This lessens nurse dissatisfaction and patient complaints.

4.5 Influence of Schedule Uncertainty and Nurses Job Performance

In this study schedule uncertainty was assessed by examining whether nurses had some control over their scheduled working hours, not changing work schedules without nurses' consent, and/or giving nurses' advanced warning about changes to their work schedules. The results indicated that, majority of nurses (73 %) had no control over their working hours, 49 percent of nurses 'consent was not sought on the change of work schedule and 43% of nurses did not receive any advance notice regarding the change of working schedule. Similarly, 55% experienced on-call shifts whereas 37% reported to be engaged on clopening shifts. The results indicate that, the majority of nurses in study area were not able to predict their next job schedule, and there was high possibility of forced and denied changes of working schedules in their units. As Green (2022) assets, nurses often have to deal with a heavy workload and they may be responsible for several patients at a time, each with their own unique needs, medications, and treatments. This can lead to a lot of schedule uncertainty, multitasking and prioritizing to ensure that each patient receives the care they need. Furthermore, forced and denied changes of working schedule may have adverse effects on both workers 'work ability and health. According to Hellregial (2014), considering nurses' schedule preferences and searching for appropriate solutions sustain their work ability and health, and prevents the nurse's turnover. In case this is not possible, the decision for a forced change should be presented with reasonable explanations and the new shift schedule should be as much in line with the expectations of nurses as possible

Furthermore, the study conducted the inferential using a simple regression model of the form $Y = \beta_0 + \beta_2 X_2 + \varepsilon$. Table 7 shows that at the 0.01 significance level, R is 0.557 and R^2 is 0.497. Thus, the model demonstrates that 56% of the variation in nurses' job performance may be explained by scheduling uncertainty. This suggested that schedule uncertainty and nurses' job performance have a favorable and significant link. This finding was corroborated by earlier research (Lin et al. 2014) who found that gains in nurses' job performance were connected with a certain scheduling procedure. Further, nurses were able to maintain a healthy balance between their personal and professional lives thanks to the predictable scheduling process (Beutell, 2010; Nelson & Tarpey, 2010). Furthermore, Rabhai (2018)



supports the findings from this study in the sense that employees with a relatively low level of work time control are more likely to get a feeling of fatigue, which needs time to accumulate and ultimately leads to job burnout.

Table 7

Model Summary for Schedule Uncertainty

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .497 ^a | .157 | .556 | .52513 |

a. Predictors: (Constant), Schedule Uncertainty
 b. Dependent Variable: Nurses Job Performance

The ANOVA test was used to illustrate the model significance. The significance of the F-value of 70.04, which is higher than the F crucial and significant at 0.000 < 0.05, is demonstrated by the results in Table 7. This suggested that the performance of nurses in Tanzania's regional hospitals and scheduling unpredictability have a favorable, statistically significant link.

Table 8

ANOVA Results for Schedule Uncertainty

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 19.315 | 1 | 19.315 | 70.043 | .000 ^b |
| | Residual | 103.411 | 375 | .276 | | |
| | Total | 122.726 | 376 | | | |

a. Dependent Variable: Nurses' Job Performance
 b. Predictors: (Constant), Schedule Uncertainty

The findings further imply that, fulfilling nurses' wishes with respect to their work pattern may improve their personal resources such as work ability; whereas disregarding nurses' preferences, however, bears the risk for further resource deterioration.

4.6 Effects of Schedule Intensity on Performance of Nurses

In this paper, schedule intensity was assessed basing on the effort made by nurses in meeting the constraints of nursing duties during a unit of time; whether nurses experienced fast workflows, working to tight deadlines and task interruptions (Dal Rosso & Cardoso, 2015). The results indicated that, (49 %) experienced fast work flows (51%) worked on very tight work schedule, whereas (44%) faced frequent task interruptions. The results indicate that, schedule intensity in terms of fast work flows, frequent interruptions in their duties as well as the need to compete tasks under the very tight schedule were found to be the barriers to nurses performance. The results imply that nursing practice in study area is often characterized by a hectic pace in the execution of tasks, high tendency of external behaviors that might distract nurses' attention from the initial task, as well as last-minute assignments with tight deadlines. This in turn create a high-pressure environment which can induce stress, leading to a range of potential issues like burnout, decreased morale, and diminished quality of work.

As studies indicates, nurses value tasks with secure, smooth and clear deadlines, challenging work, and quality patient relationships (Jang, et al., 2016). Similarly, other work with Swiss and Pakistani nurses found relationships with schedule intensity factors contributing to job performance among doctors and nurses in Italy Rabhai, (2018)

Inferential analysis was obtained through a simple regression model of the form:

$$Y = \beta_0 + \beta_3 X_3 + \epsilon$$

The R-value is 0.439, according to the model summary displayed in Table 9 below. Thus, the work intensity's R-value (.439) indicated that the independent variable had a significant impact on the job performance of nurses at Tanzania's regional hospitals. Additionally, it is evident that the change in the independent variable (work intensity) is responsible for the 19.1% variance in the dependent variable (nurses' performance), as indicated by the adjusted R square (R2) value of 0.191. Nonetheless, the modified R2 value shows that the schedule intensity accounts for 15.5% of the overall difference in the nurses' job performance. With an adjusted R2 value of 0.191, which is just below 0.2 and 0.4, the correlation is regarded as moderate.



Table 9

Model Summary for Schedule Intensity

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .439 ^a | .193 | .191 | .51400 |

- a. Predictors: (Constant), Schedule Intensity
- b. Dependent Variable: Nurses' Performance

Analysis of Variance (ANOVA) findings in Table 9 on labor intensity and nurses' job performance demonstrate that a significant model was found, as evidenced by an F statistic of 89.3, which is higher than the F-critical of 12.610. There was P-value support for this at (0.000). The observed P-value of (0.000) was lower than the standard P-value of (0.05), suggesting that the model can accurately forecast changes in the job performance of nurses in Tanzania's regional hospitals due to work intensity. The study, therefore, accepted the alternative hypothesis H_{A2} at 95% confidence interval, meaning there was a significant relationship between schedule intensity and nurses' job performance in regional hospitals in Tanzania.

Table 10

ANOVA Results for Schedule Intensity

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 23.522 | 1 | 23.522 | 89.031 | .000 ^b |
| | Residual | 98.281 | 372 | .264 | | |
| | Total | 121.802 | 373 | | | |

- a. Dependent Variable: Nurses; Job Performance
- b. Predictors: (Constant), Schedule Intensity

The regression equation $Y = \beta_0 + \beta_3 X_3 + \epsilon$ is obtained by applying the standardized coefficients, yielding $Y = 0.251 * X_3$, where X_3 represents schedule intensity and Y represents nurses' job performance. Based on the coefficients, $Y = 0.251 + 0.370 X_3 + \epsilon$ is the updated model. This suggests that a unit increase in schedule intensity causes a 37.0% rise in the work performance of nurses at Tanzania's regional hospitals with a p-value of 0.000.

The findings are consistent with the Job Demand Resource theory, which holds that high schedule intensity hinders nurses' ability to perform effectively. During a brief online cross-sectional survey on the intensity of nursing job in Brazilian public hospitals, Bae and Fabry (2014) reported the same results. According to the study, one element of labor insecurity that aimed to subjugate the worker through fear was job intensity. Thus, increased work intensity intensifies and maintains the labor insecurity by making workers more vulnerable to new hiring practices, unfavorable working conditions, and loss of labor rights (Moreno et al., 2019)

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The purpose of the study was to evaluate how Tanzanian public hospitals' non-standard work schedules affected the performance of their nurses. The results of this study demonstrate that nurses at public hospitals have a variety of non-standard work schedules. Additionally, factors pertaining to schedule intensity, schedule variance, and schedule uncertainty exposed non-standard work scheduling for nurses employed in Tanzanian public hospitals. Furthermore, the study approved all three study hypothesis as it was found that all schedule variation, schedule uncertainty and schedule intensity had significant statistical influence on job performance of nurses. Compared with other objectives, the results of regression analysis indicated high scores in schedule variation indicating that the most factors which intensify NSWSs are those related to nurses being able to control over their scheduled working hours, not changing work schedules without nurses' consent, and/or giving nurses' advanced warning about changes to their work schedules.

5.2 Recommendations

The study recommended that interventions that address both the individual nursing needs and the work setting seem essential and contribute to a variety of options for these hospitals and nurses. This suggested that managers in nursing environments face a significant difficulty in preserving and enhancing resources that lessen the impact of labor intensity and variety. Moreover, the study recommends future studies to consider wider coverage of respondents to include other medical staff to get more insights from diverse respondents. The study also recommends the

healthcare organizations to redesign its workflows to be more efficient and effective response to changes in how nursing activities are done. This could minimize the possibility for nurses' job stress and increase nurses job satisfaction and job performance.

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