CHAPTER FOUR

RESULTS

4.1 Sociodemographic Characteristics of the Participants

Table 4.1 Sociodemographic Characteristics of the Participants

|  |  |  |
| --- | --- | --- |
| Sociodemographic factors | N = 210 | % |
| Age group |  |  |
| 18.25 years | 50 | 23.8 |
| 26-35 years | 70 | 33.3 |
| 36-45 years | 70 | 33.3 |
| 46-55 years | 17 | 8.1 |
| ≥56 years | 3 | 1.4 |
| Gender |  |  |
| Female | 119 | 56.7 |
| Male | 91 | 43.3 |
| Marital Status |  |  |
| Single | 79 | 37.6 |
| Married | 121 | 57.6 |
| Divorced | 4 | 1.9 |
| Widowed | 3 | 1.4 |
| Cohabiting | 3 | 1.4 |
| Highest Education level |  |  |
| Secondary School | 25 | 11.9 |
| Diploma | 77 | 36.7 |
| Bachelor's | 87 | 41.4 |
| Master's Degree | 15 | 7.1 |
| PhD | 5 | 2.4 |
| Years of experience in healthcare: mean ± S.D (range) | 4.43 ± 2.82 (1yr, 15yrs) |  |
| Type of shift |  |  |
| Day Shift | 32 | 15.2 |
| Evening shift | 22 | 10.5 |
| Night Shift | 18 | 8.6 |
| Rotating Shifts | 137 | 65.2 |
| Do you work night shift |  |  |
| Yes | 195 | 92.9 |
| No | 15 | 7.1 |
| How many nights do you work per week |  |  |
| 0 | 1 | .5 |
| 1-2 | 83 | 39.5 |
| 3-4 | 89 | 42.4 |
| 5-6 | 29 | 13.9 |
| 7 above | 2 | 1.0 |

4.2 Prevalence of Poor Sleep Quality

Descriptive Statistics of PSQI

|  |  |  |
| --- | --- | --- |
| Categories | M ± S.D | Min-Max |
| Total PSQI score | 13.39 ± 3.93 | 0 – 21 |
| Comp 1: subjective sleep quality | 1.60 ± 0.66 | 0 – 3 |
| Comp 2: sleep latency | 1.73 ± 0.69 | 0 – 3 |
| Comp 3: sleep duration | 2.32 ± 0.74 | 0 – 3 |
| Comp 4: habitual sleep efficiency | 2.33 ± 0.76 | 0 – 3 |
| Comp 5: sleep disturbances | 2.30 ± 0.78 | 0 – 3 |
| Comp 6: use of sleeping medications | 1.42 ± 0.79 | 0 – 3 |
| Comp 7: daytime dysfunction | 1.70 ± 1.23 | 0 – 3 |

4.3 IMPACT OF POOR SLEEP QUALITY ON HEALTH AND JOB PERFORMANCE

Table 4.3 The Impact of Poor Sleep Quality on Health and Job Performance

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Never (%) | Rarely (%) | Sometimes (%) | Often (%) | Always (%) |
| How often do you experience the following symptoms |  |  |  |  |  |
| Headache | 3 (1.4) | 5 (2.4) | 151 (71.9) | 39 (18.6) | 12 (5.7) |
| Fatigue | 7 (3.3) | 25 (11.9) | 90 (42.9) | 85 (40.5) | 3 (1.4) |
| Mood swings | 6 (2.9) | 43 (20.5) | 148 (70.5) | 13 (6.2) | 0 |
| Difficulty concentrating | 8 (3.8) | 8 (3.8) | 175 (83.3) | 18 (8.6) | 1 (0.5) |
| Anxiety and stress | 9 (4.3) | 16 (7.6) | 82 (39.0) | 98 (46.7) | 5 (2.4) |
| Depression | 153 (72.9) | 44 (21.0) | 13 (6.2) | 0 | 0 |
| How often do you feel that your job performance is affected by poor sleep quality | 7 (3.3) | 2 (1.0) | 126 (60.0) | 69 (32.9) | 6 (2.9) |
| Have you made any errors at work due to lack of sleep? | 11 (5.2) | 21 (10.0) | 167 (79.5) | 11 (5.2) | 0 |
| How often do you feel less productive at work because of poor sleep? | 7 (3.3) | 3 (1.4) | 100 (47.6) | 86 (41.0) | 14 (6.7) |
| How often do you experience conflicts with colleagues or supervisors due to irritability or moodiness from poor sleep? | 12 (5.7) | 63 (30.0) | 129 (61.4) | 6 (2.9) | 0 |

Fig 4.3 HAVE YOU BEEN DIAGNOSED WITH ANY CHRONIC HEALTH CONDITIONS

4.4 FACTORS CONTRIBUTING TO POOR SLEEP QUALITY

Bivariate Analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SDF |  |  |  |  |  |
|  | Good | Poor | Worse | X2 | P-value |
| Age group |  |  |  | 16.130 | 0.041\* |
| 18.25 years | 6 (12.0) | 24 (48.0) | 20 (40.0) |  |  |
| 26-35 years | 2 (2.9) | 25 (35.7) | 43 (61.4) |  |  |
| 36-45 years | 1 (1.4) | 37 (52.9) | 32 (45.7) |  |  |
| 46-55 years | 0 | 6 (35.3) | 11 (64.7) |  |  |
| ≥56 years | 0 | 1 (33.3) | 2 (66.7) |  |  |
| Gender |  |  |  | 0.623 | 0.732 |
| Female | 6 (5.0) | 54 (45.4) | 59 (49.6) |  |  |
| Male | 3 (3.3) | 39 (42.9) | 49 (53.8) |  |  |
| Marital Status |  |  |  | 2.797 | 0.946 |
| Single | 5 (6.3) | 35 (44.3) | 39 (49.4) |  |  |
| Married | 4 (3.3) | 52 (43.0) | 65 (53.7) |  |  |
| Divorced | 0 | 2 (50.0) | 2 (50.0) |  |  |
| Widowed | 0 | 2 (66.7) | 1 (33.3) |  |  |
| Cohabiting | 0 | 2 (66.7) | 1 (33.3) |  |  |
| Highest Education level |  |  |  | 10.925 | 0.206 |
| Secondary School | 1 (4.0) | 12 (48.0) | 12 (48.0) |  |  |
| Diploma | 6 (7.8) | 33 (42.9) | 38 (49.4) |  |  |
| Bachelor's | 2 (2.3) | 40 (46.0) | 45 (51.7) |  |  |
| Master's Degree | 0 | 3 (20) | 12 (80.0) |  |  |
| PhD | 0 | 4 (80.0) | 1 (20.0) |  |  |
| Type of Healthcare facility |  |  |  | 64.313 | 0.001\*\* |
| Primary Health care center | 0 | 5 (8.8) | 52 (91.2) |  |  |
| Private Hospital | 1 (1.7) | 43 (71.7) | 16 (26.7) |  |  |
| General Hospital | 8 (8.9) | 45 (50.0) | 37 (41.1) |  |  |
| Type of shift |  |  |  | 18.823 | 0.004\*\* |
| Day Shift | 4 (12.5) | 11 (34.4) | 17 (53.1) |  |  |
| Evening shift | 2 (9.1) | 13 (59.1) | 7 (31.8) |  |  |
| Night Shift | 0 | 3 (16.7) | 15 (83.3) |  |  |
| Rotating Shifts | 3 (2.2) | 65 (47.4) | 69 (50.4) |  |  |
| Do you work night shift |  |  |  | 10.357 | 0.006\*\* |
| Yes | 6 (3.1) | 86 (44.1) | 103 (52.8) |  |  |
| No | 3 (20.0) | 7 (46.7) | 5 (33.3) |  |  |
| How many nights do you work per week |  |  |  | 16.456 | 0.036\* |
| 0 | 0 | 0 | 1 (100) |  |  |
| 1-2 | 3 (3.6) | 36 (43.4) | 44 (53.0) |  |  |
| 3-4 | 3 (3.4) | 42 (47.2) | 44 (49.4) |  |  |
| 5-6 | 0 | 10 (37.0) | 17 (63.0) |  |  |
| 7 above | 1 (50.0) | 0 | 1 (50.0) |  |  |

Multivariate Analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | O.R | P-value | Adjusted O.R | P-value |
| Age group |  |  |  |  |
| 18.25 years | 0.417 | 0.488 | 0.367 | 0.663 |
| 26-35 years | 0.860 | 0.904 | 0.748 | 0.899 |
| 36-45 years | 0.432 | 0.502 | 0.342 | 0.642 |
| 46-55 years | 0.917 | 0.948 | 0.854 | 0.947 |
| ≥56 years | 1 (ref) |  | 1 (ref) |  |
| Type of Healthcare facility |  |  |  |  |
| Primary Health Care Center | 13.378 | 0.001\*\* | 24.389 | 0.001\*\* |
| Private Hospital | 0.453 | 0.031\* | 0.373 | 0.014\* |
| General Hospital | 1 (ref) |  | 1 (ref) |  |
| Type of shift |  |  |  |  |
| Day Shift | 1.456 | 0.375 | 0.325 | 0.196 |
| Evening shift | 0.507 | 0.174 | 0.134 | 0.009\*\* |
| Night Shift | 4.710 | 0.018 | 3.557 | 0.090 |
| Rotating Shifts | 1 (ref) |  | 1 (ref) |  |
| Do you work night shift |  |  |  |  |
| Yes | 1.677 | 0.392 | 0.645 | 0.751 |
| No | 1 (ref) |  | 1 |  |
| How many nights do you work per week |  |  |  |  |
| 0 | 1 (ref) |  | 1 (ref) |  |
| 1-2 | 3.056 | 0.197 | 7.907 | 0.205 |
| 3-4 | 2.619 | 0.285 | 8.079 | 0.215 |
| 5-6 | 4.500 | 0.104 | 9.827 | 0.183 |

5.1 Discussion

The study aimed to examine the prevalence and impact of poor sleep quality among shift workers in selected healthcare facilities in Karu LGA of Nassarawa State, Nigeria. The study, which involved 210 participants, revealed that the most common age groups among shift workers in Nasarawa State healthcare facilities were 26-35 years and 36-45 years, both accounting for 33.3% of the participants. This age distribution aligns with the findings of a study conducted by Eze et al. (2018) among nurses in Enugu State, Nigeria, where the majority of participants (38.1%) fell within the 25-34year age bracket. In both studies, the female gender was predominant, with 56.7% in the present study and 70.6% in Eze et al. (2018). The present study also found that most participants were married (57.6%) and held a bachelor's degree (36.7%). The mean years of experience was 4.43 ± 2.82 years, ranging from 1 to 15 years. The majority of the participants worked rotating shifts (65.2%) and night shifts (92.9%), with most working 3-4 night shifts per week (42.4%). The most common occupations among the participants were laboratory technicians (24.3%), nurses (17.6%), and doctors (13.3%). These sociodemographic findings provide valuable insights into the characteristics of the shift-working healthcare workforce in Nasarawa State. The predominance of females in both this study and Eze et al. (2018) is consistent with the broader trend of female dominance in the nursing profession. The high prevalence of rotating shifts and night shifts among the participants highlights the demanding nature of healthcare work, which often requires round-the-clock staffing. The finding that most participants hold a bachelor's degree reflects the increasing professionalization of the healthcare workforce. The mean years of experience of 4.43 years suggests a relatively young workforce, which may have implications for the long-term health and well-being of these workers, given the potential cumulative effects of shift work.

The results revealed a high prevalence of poor sleep quality among the participants of 44% and worse sleep quality of 52%, with a mean global PSQI score of 13.39 ± 3.93. The mean global PSQI score of 13.39 ± 3.93 is substantially higher than the 5.5 reported in a similar study among nurses in Enugu State, Nigeria (Eze et al., 2018), and the 7.86 found among nurses in Ibadan, Nigeria (Akinyemi et al., 2019). This discrepancy could be attributed to several factors, including a higher proportion of night shift workers and rotating shift workers in the present study's sample. Interestingly, the prevalence of poor sleep quality in this study is also higher than those reported in studies conducted beyond Africa. For instance, a study among rotating shift nurses in the United States found a prevalence of 39.9% for poor sleep quality (Edwards et al., 2014). Another study among healthcare workers in Sweden reported a mean PSQI score of 6.1, indicating a lower prevalence of poor sleep quality compared to the present study (Torquati et al., 2018). These differences could be attributed to variations in work culture, shift patterns, and access to resources and support systems for shift workers. The demanding work schedules, coupled with inadequate resources and staffing challenges common in healthcare settings in Nigeria, might further exacerbate sleep disturbances. The study also found that several factors were significantly associated with poor sleep quality, including age group, type of healthcare facility, type of shift, night shift work, and the number of night duties per week. These findings are consistent with previous research, which has shown that shift work, particularly night shift work, is associated with an increased risk of poor sleep quality (Caruso, 2014; Fischer, et al., 2017).

The impact of poor sleep quality on health and job performance was also assessed in the study. The results showed that poor sleep quality was associated with a range of negative health outcomes, including headache, fatigue, mood swings, difficulty concentrating, anxiety, and stress. These findings are in line with previous studies, which have linked poor sleep quality to a range of adverse health consequences (Garbarino, et al., 2016; Medic, et al., 2017). In terms of job performance, poor sleep quality was associated with reduced job performance, increased errors at work, reduced productivity, and increased conflicts with colleagues or supervisors. These findings highlight the potential negative impact of poor sleep quality on both individual workers and the healthcare system as a whole.

Bivariate analysis using the chi-square test of association revealed that several factors were significantly associated with poor sleep quality, including age group, type of healthcare facility, type of shift, night shift work, and the number of night duties per week. These findings were further supported by multivariate logistic regression analysis, which identified the type of healthcare facility and type of shift as significant predictors of poor sleep quality. Shift work, particularly night shifts and rotating shifts, disrupts the circadian rhythm, leading to sleep deprivation and reduced sleep quality (Caruso, 2014; Fischer et al., 2017). The finding that primary healthcare workers were more likely to experience poor sleep quality compared to general hospital workers could be due to differences in workload, staffing levels, and work environment between these facilities. Specifically, primary healthcare workers were 24.389 times more likely to experience poor sleep quality compared to general hospital workers. Night shift workers were 3.557 times more likely to experience poor sleep quality compared to rotating shift workers. These findings highlight the importance of considering the type of healthcare facility and shift patterns when developing interventions to improve sleep quality among healthcare workers.

In this study, several factors were identified as potential predictors of poor sleep quality among shift workers in healthcare facilities in Nasarawa State. One of such predictors is the **age group,**  younger age groups (18-25 years) were less likely to experience poor sleep quality compared to the oldest age group (≥56 years). This finding contrasts with some previous studies that have reported a higher prevalence of sleep disturbances among older individuals (e.g., Crowley, 2011; Gander et al., 2012). However, it is important to note that the present study had a small sample size for the oldest age group, which may have limited the statistical power to detect significant differences. Another predictor was the primary healthcare centres, where workers were found to be more likely to experience poor sleep quality compared to those working in general hospitals. This finding could be attributed to differences in workload, staffing levels, and work environment between these facilities. Further research is needed to explore these factors in more detail. Night shift work was identified as a significant predictor of poor sleep quality. This finding is consistent with numerous studies that have demonstrated the disruptive effects of night shift work on the circadian rhythm and sleep patterns (e.g., Caruso, 2014; Fischer et al., 2017). The study found that working 5-6 night duties per week was associated with a higher risk of poor sleep quality. This finding highlights the importance of limiting the number of consecutive night shifts to minimize the negative impact on sleep.

5.2 conclusion

The findings paint a concerning picture, with a majority of the participants experiencing poor sleep quality. This not only affects their individual health and well-being but also has potential implications for the quality and safety of healthcare services. The study's findings highlight the urgent need for a multi-faceted approach to address this issue. Healthcare facilities, policymakers, and individual workers must collaborate to implement strategies that promote better sleep health among shift workers. This includes prioritizing education and training on sleep hygiene, optimizing shift schedules to minimize circadian rhythm disruption, providing adequate resources and support systems, and fostering a work environment that values and prioritizes employee well-being.

The high prevalence of poor sleep quality observed in this study, even when compared to similar studies in Nigeria and beyond Africa, underscores the unique challenges faced by healthcare workers in Nasarawa State. These challenges may include limited resources, demanding work schedules, and inadequate staffing levels. Addressing these challenges is crucial not only for improving the sleep health of individual workers but also for ensuring the overall effectiveness and efficiency of the healthcare system. These findings contribute to the growing body of knowledge on the factors that influence sleep quality among shift workers. While some of the findings align with previous research, others highlight the need for further investigation to understand the complex interplay of factors that contribute to sleep disturbances in this population

In conclusion, this study serves as a wake-up call to the urgent need for action to address the issue of poor sleep quality among shift workers in healthcare. By prioritizing sleep health, we can safeguard the well-being of our healthcare workforce and ensure the delivery of high-quality, safe, and effective healthcare services to the population.

5.3 Recommendation

Based on the findings of this study, the following recommendations are proposed:

* Education and Training: Healthcare facilities should prioritize educating shift workers on sleep health and strategies to improve sleep quality. This could include workshops, seminars, and informational materials on topics such as creating a conducive sleep environment, establishing regular sleep schedules, and practicing relaxation techniques.
* Shift Schedule Optimization: Healthcare facilities should explore and implement shift schedules that are more conducive to sleep. This could involve considering forward-rotating shifts, shorter shift durations, and providing adequate breaks between shifts to allow for sufficient rest and recovery.
* Napping Facilities: Providing designated napping facilities within healthcare facilities could allow shift workers to take short naps during breaks, which can help improve alertness and reduce fatigue.
* Stress Management Programs: Implementing stress management programs and promoting a supportive work environment can help alleviate work-related stress, which is a significant contributor to poor sleep quality.
* Further Research: Further research is needed to evaluate the effectiveness of various interventions in improving sleep quality among shift workers in healthcare settings in Nigeria. Longitudinal studies could provide valuable insights into the long-term impact of poor sleep quality on health and job performance.

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