SLEEP QUALITY OF MUNICIPAL HEALTH WORKERS OF LYING-IN CLINICS IN NUEVA VIZCAYA

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ABSTRACT

Sleep problems affect 45% of the global population, posing risks to health, relationships, and workplace performance. In the Philippines, over half of respondents face sleep issues, with healthcare workers particularly impacted due to stressors and demanding schedules. Using a quantitative descriptive-comparative design, this study aimed to understand sleep quality factors and their effects, focusing on municipal health workers in some municipalities in Nueva Vizcaya. The study profiled purposively selected health workers in MHOs' lying-in clinics in Nueva Vizcaya across various demographics and analyzed their sleep quality (efficacy, latency, duration, disturbance, medication, subjective quality, daytime dysfunction). It also compared sleep quality across profiles and produced IEC material on sleep quality as an outcome. Researchers conducted one-on-one interviews, ensured confidentiality and informed consent, and administered a survey questionnaire to gather data. Results show that most respondents are middle-aged, female, college graduates, and nurses. Over half have mid-career service, and nearly half can save sufficiently. In terms of sleep quality, 60.4% experience poor sleep, including delayed sleep onset, short duration, and disturbances. Age and socioeconomic status affect sleep quality, while sex, job position, and service length do not. Strategies such as health assessments, sleep initiatives (e.g., consistent routines), stress management, community support, and further research are recommended to explore contributing factors and develop interventions.

Keywords: Healthcare workers, occupational health, sleep interventions, sleep problems, sleep quality

INTRODUCTION

According to Buysse (2014), sleep quality plays a crucial role in physical and mental well-being, with poor sleep often leading to cognitive impairments, mood disorders, and decreased performance. Worldwide, sleep problems constitute a global epidemic that threatens health and quality of life for up to 45% of the world's population (World Sleep Society, 2023). According to Nelson et al. (2021), sleep loss and sleep quality are global health concerns, with poor sleep quality associated with significant adverse health outcomes. This is concerning because sleep quality is vital to one's health and well-being. In fact, Itani et al. (2017) found in a meta-analysis that poor sleep quality was significantly associated with increased risk of all-cause mortality, cardiovascular diseases, and depression.

Abadilla (2023) stated that the Philippines has the highest prevalence of sleep problems in Southeast Asia, with 56% of respondents reporting them. Among the population, sleep problems are common in health workers who face many stressors, and many studies have shown that sleep plays a major role. Consequently, health workers had poorer sleep characteristics across multiple sleep dimensions, which significantly affected their relationships with family, clients, co-workers, and superiors. Anwar (2018) concurs, stating that viral loneliness and social rejection are triggered by poor sleep, in which sleep-deprived people feel lonelier and less inclined to engage with others. Furthermore, a report by the Philippine Society of Sleep Medicine (2022) emphasized that sleep disorders are underdiagnosed in the country, especially among Filipino workers who often normalize poor sleep due to long working hours and night shifts.

Additionally, insufficient sleep among healthcare workers poses safety risks. According to a study by Shaik et al. (2022) in the United States of America, exceeding scheduled work hours was associated with 36% of physicians committing serious medical errors and a fivefold increase in diagnostic errors. There was also a 61% rise in needle-sick injuries and a doubled risk of driving accidents after long shifts, highlighting the significant risks associated with extended work hours. Evidently, the relationship between shift work, poor sleep quality, and the risk of medication errors is a crucial issue for all health professionals' communities. Medication errors and sleep deprivation of health workers had a great effect on the patient, and it is indeed a big problem if these things were to happen (Di Simone et al., 2020).

According to Pitchler and Morris (2020), sleep deprivation, resulting either from poor sleep habits or from occupational requirements such as shift work, is a common cause of sleep- and sleepiness-related determinants in the workplace. Sleep deprivation negatively impacts a wide range of employee performance, health, and well-being issues, including immune defense reactions, cardiovascular functioning, metabolic disorders, mood disorders, affective reactivity, motivation, subjective effort, workplace accidents, and performance on many types of vigilance and more complex cognitive tasks. In addition, daytime sleepiness is related to higher mortality rates, cardiovascular disease, diabetes, and fatigue-related accidents. This wide range of effects related to poor and inadequate sleep has led some to declare a sleep crisis as a public health issue.

Therefore, the researchers conducted this study to identify factors contributing to sleep quality and examine its effects on the respondents. The Province of Nueva Vizcaya was selected as the study site, with municipal health care workers as the target population, given the limited number of studies on this group in the province. Although global and national awareness of sleep-related concerns has grown, there remains a significant research gap concerning the sleep quality of specific healthcare groups, particularly municipal health workers and staff in lying-in clinics. These professionals frequently work in resource-limited settings, manage irregular schedules, and face heavy workloads—factors that can negatively impact their sleep health. While existing research has focused primarily on the general health workforce or hospital-based personnel, little is known about the unique sleep challenges experienced by those serving in community-based primary care facilities. Addressing this gap is crucial to developing targeted interventions that support the well-being of health workers and enhance the quality of patient care in primary healthcare settings.

Statement of the Problem

This research aimed to determine the sleep quality of Municipal Health Workers of lying-in clinics in Nueva Vizcaya during the 2nd semester of the academic year 2024 – 2025. Specifically, it sought to answer the following problems:

1. What is the demographic profile of the health workers in MHOs with lying-in clinics in terms of:
    a. Age;
    b. Sex;
    c. Educational attainment;
    d. Position;
    e. Length of service; and
    f. Socioeconomic status?
2. What is the sleep quality of the MHO workers in terms of:
    a. Efficacy;
    b. Latency;

c. Duration;
d. Disturbance;
e. Sleep medication;
f. Subjective sleep quality; and
g. Daytime dysfunction?

3. Is there a significant difference in the sleep quality of MHO workers in lying-in clinics when grouped by demographic variables?
4. What Information, Education, and Communication (IEC) Material on sleep quality can be produced based on the findings of this study?

METHODOLOGY

The design employed in this study is a quantitative, descriptive-comparative design. The research locale of this study covers Aritao, Quezon, Santa Fe, Solano, and Villaverde. These municipalities were chosen because their Municipal Health Offices (MHOs) offer day and night services. Moreover, these towns are characterized as "active" as they accommodate check-ups, vaccination administration, laboratory tests, especially normal spontaneous delivery (NSD), and other emergency cases. According to Brinkhoff (2023), the total population of Nueva Vizcaya in 2020 was 497,432. The respondents of this research study are municipal health workers, such as dentists, medical technologists, midwives, nurses, nursing aides, nutritionists, pharmacists, and physicians, who are working in municipalities with lying-in clinics and who are directly providing care or are in contact with their clients. Respondents rotate their duties every two weeks, consistently covering both morning and night shifts- 12 hours, before exchanging schedules to accommodate clients in the evening. Purposive sampling was used to select these participants.

Table 1
Population of Research Respondents of Every Municipality

Municipalities	Population of MHWs	Percent of Total MHWs
Aritao	18	17.82
Quezon	15	14.85
Santa Fe	23	22.78
Solano	29	28.71
Villaverde	16	15.84
TOTAL	**101**	**100**

The research instrument employed in this study was a survey questionnaire. Part I asked about the respondents' demographic profile. This specifically would determine the respondents' age, sex, educational attainment, position, length of service, and socioeconomic status.
Part II was an adopted questionnaire. Following a thorough search and screening of questionnaires related to sleep quality, the Pittsburgh Sleep Quality Index (PSQI) developed by Buysse et al. (1989) was selected for adoption in this research. Notably, the PSQI has also been utilized in studies involving health workers. The scale comprises 10 questions organized into domains, including sleep efficacy, sleep latency, sleep duration, sleep disturbance, utilization of sleep medicine, subjective sleep quality, and daytime dysfunction.

Upon the approval of the municipal mayors, chosen health worker respondents were each given a copy of the informed consent form (ICF) inviting them to participate in the study. The researchers explained the study's purpose to each respondent. They assured them of the privacy and confidentiality of the gathered information. The data on profile variables were analyzed using frequency and percent. The mean and standard deviation were used to describe the respondents' sleep quality index. The Pittsburgh Sleep Quality Index (PSQI) was scored on

seven components, each ranging from 0 (no difficulty) to 3 (severe difficulty). The component scores were added to produce a global score (range 0 to 21). Higher scores indicate worse sleep quality. The sleep quality of the respondents, when grouped according to the profile variables, was compared using independent-samples t-tests for sex and one-way analyses of variance for age, educational attainment, position, length of service, and socioeconomic status.

RESULTS AND DISCUSSION

Section 1. Respondents' Demographic Profile

Among the 101 respondents, the majority of MHO workers are middle-aged adults, with 58.42% (59) being middle-aged. In terms of sex, about three-fourths of the respondents are female (77.2%; 78), with male respondents comprising 18.8% (19). Almost all the respondents are college graduates, 97.03% (98). Nurses had the highest population in terms of position with 48.51% (49), followed by midwives with 24.75% (25). Nutrition officers, midwife-nurses, pharmacy assistants, and radtechs had the lowest representation among positions, with 0.99% (1). In terms of length of service, almost half of the health workers are in their mid-career (5-15 years), 47.52 % (48). It is also shown that 44.55% (45) of the respondents have sufficient income and can invest and save. However, it is also evident that 12.88% (13) of respondents reported that their income is just enough for family needs and that they can hardly save.

Section 2. Sleep Quality Index of MHO Health Workers in Lying-In Clinics

Table 2
Sleep Quality Among the MHO Health Workers in Lying-In Clinics and Its Sleep Categories

PSQI Component Scores	Mean Score	Description
Habitual Sleep Efficiency	0.81	No Difficulty
Sleep Latency	1.40	Mild Difficulty
Sleep Duration	1.40	Mild Difficulty
Sleep Disturbances	1.10	Mild Difficulty
Use of Sleep Medication	0.26	No Difficulty
Subjective Sleep Quality	0.79	No Difficulty
Daytime Dysfunction	0.54	No Difficulty

Legend: 0 - 0.9: No difficulty, 1 - 1.9: Mild Difficulty, 2 - 2.9: Moderate Difficulty, and 3: Severe Difficulty

The table shows that the respondents had no difficulty in maintaining good sleep, with a value score of 0.81. These results contrast with those of Cheng and Cheng (2016), who found that night-shift workers had the shortest sleep duration and a greater risk of sleep problems, such as insomnia. It is also worth noting that lifestyle habits, such as smartphone use and water intake at bedtime, and occupational stress were associated with sleep efficiency among workers (Ikeda et al., 2022). This finding suggests a potentially positive sleep environment or individual factors contributing to healthy sleep patterns within this group.

The respondents had a mild difficulty in the component of sleep latency, with a value score of 1.40. This means that the Municipal Health Office (MHO) health workers had difficulty initiating sleep, or they took longer to reach their desired sleep. This contributing factor supports the study of Suni and Rehman (2023), which stated that the sleep quality of an individual is considered to be poor if it takes a person longer than 30 minutes to fall asleep, if the individual wakes up multiple times throughout the night, or if it takes longer than 20 minutes to fall back asleep after waking up. Even if a person gets the recommended number of hours of sleep, they would probably feel tired the next day. These findings are also in line with a

study by Niu et al. (2017) that found that in the rotating shift group, staff members working the night shift had a shorter sleep onset latency (SOL) on Day 2 than those working the day or evening shift. Another study by Ruggiero et al. (2012) found that health workers working the night shift were drowsier after work for the first two days. These nurses switched from sleeping at night and waking during the day to the reverse sleep/wake cycle on the first day of their night shift (Kudielka et al., 2007). Chronic weariness and a rise in the amount of sleep needed for recuperation were also said to be caused by the accumulation of sleep deficits and deprivation (Lamond et al., 2003; Muecke, 2005; Rotenberg et al., 1998, cited in Kudielka et al., 2007). Therefore, it is probable that the nurses in the rotating shift group who worked the night shift experienced weariness due to their accumulated sleep debt, which shortened the time between bedtime and the start of sleep on the second night of the shift.

This implies that understanding the interactions between these occupational stressors and individual lifestyle factors and pre-existing illnesses is crucial. Gaining deeper insight into these contributing factors will empower one to advocate for and implement evidence-based interventions to improve the sleep quality and overall health of these MHO health workers. To better understand this, future research might include detailed sleep diaries, actigraphy, and qualitative interviews.

Regarding the sleep duration of MHO workers, most workers had mild difficulty, with a 1.40 value score, which means some MHO workers experience insufficient sleep. These points indicate that they are not getting enough sleep overall. This is similar to the study by Stimpfel et al. (2020), which describes sleep duration among nurses across health care and community settings and concludes that, on average, nurses sleep less than recommended before work.

It can be seen that respondents also exhibit mild sleep disturbance, with a value of 1.10. According to Habiburrahman et al. (2021), both sleep quality and sleep disturbances exhibit significant correlations with depression, fatigue, and general stress. Furthermore, the study reported that the association was stronger for sleep quality than for quantity. Additionally, Al-Hrinat et al. (2024) found that sleep disturbances play a crucial role in mediating the relationship between night shift stress and quality of life. Increased night-shift stress was linked to greater sleep disturbances, which, in turn, led to lower quality of life. The findings emphasized the need to acknowledge and address the distinct challenges experienced by nurses working night shifts.

Thus, evaluating both environmental factors within their workplace and individual factors, such as stress or underlying health conditions, that might be contributing to these sleep disruptions, could be involved. Highlighting the vulnerability of night shift workers to even seemingly minor disruptions in their sleep patterns can serve as a crucial link between occupational stress and diminished well-being. Recognizing the distinct challenges faced by night-shift health workers, this emphasizes the importance of acknowledging and proactively addressing even mild sleep disturbances to safeguard their overall health and quality of life, and of modifying these disturbances to improve the sleep quality of MHO health workers.

The MHO health workers' value score on the use of sleep medication is 0.26, which falls under the category of "no difficulty." Despite this categorization, it is still alarming that some respondents rely on pharmacological management. This suggests a preference for medication over non-pharmacological approaches, which is ironic given their medical training typically emphasizes non-pharmacological interventions as the first line of treatment.

According to the study by Alghamdi et al. (2024), there is a self-reported rate of sleep medication use; however, it was also lower than the other sleep parameters. The reported level was nevertheless significant, with 8.6% reporting use at least once a week and 3.5% reporting

use three or more times a week. In a related study, Dorrian et al. (2011) found that stress and workdays were significant predictors of sedative use. Nurses and midwives may use caffeine to compensate for reduced sleep, especially on workdays, and sleeping pills to cope with their daily work-related stress. Sleep medication can improve an individual's mental quality of life. Still, it may degrade the individual's physical quality of life due to its adverse effects (Sasai et al., 2010).

Despite sleep problems, health workers demonstrated a tendency to avoid frequent reliance on sleep medications, likely prioritizing non-pharmacological approaches, as evidenced by the low number of individuals who used pharmacological management. However, this finding remains significant, as the resort to medication by some individuals may indicate more severe underlying issues, such as the influence of demanding work schedules and occupational stress. While sleep medication can offer perceived short-term mental health benefits, potential physical side effects necessitate careful consideration.

The respondents reported a sleep quality value of 0.79, which falls in the no difficulty category, despite objective measures indicating poor sleep quality. This indicates a discrepancy between subjective and objective sleep quality. In contrast, the study by Deng et al. (2020) showed that the higher the job stress, the poorer the sleep quality. This discrepancy between subjective and objective data could be attributed to several factors, such as MHO workers might have adapted to chronic sleep deprivation, leading to a normalization of poor sleep. In addition, they might be underreporting their sleep issues due to a belief that sleep problems are a normal part of their demanding jobs, or because of a perceived stigma, whether internalized, perceived, or anticipated, which is associated with self-reported sleep deficiency (Nwanaji-Enwerem, 2022).

The respondent value score of 0.54 showed no difficulty. This indicates that, even though there are some sleep issues, they do not significantly impact the daily activities of MHO workers. This contrasts with the findings of Harlynadia and Basrowi (2023), which indicated that poor sleep quality due to excessive daytime sleepiness was significantly more common among healthcare shift workers than non-shift workers.

The analysis of the Pittsburgh Sleep Quality Index (PSQI) data reveals that the average global PSQI score is 6.30 (SD = 2.85), indicating that most respondents experience poor sleep quality. In fact, 60.4% are classified as poor sleepers (PSQI >5), while only 39.6% have good sleep quality (PSQI $\leq$5). Among the PSQI components, the most common sleep issues include sleep latency (1.40 - Mild difficulty), sleep duration (1.40 - Mild Difficulty), and sleep disturbances (1.10 - Mild Difficulty), suggesting that many respondents take longer to fall asleep, do not get enough sleep, and experience interruptions during the night compared to the other components.

According to Ghalichi et al. (2013), a person's occupation is believed to affect the prevalence of sleep disorders. The Pittsburgh Sleep Quality Index (PSQI), a reliable measure of sleep quality, classifies scores above 5 as indicative of poor sleep (Buysse et al., 1989). Studies on healthcare workers have shown varying prevalence of poor sleep quality. Ghalichi et al. (2013) found that healthcare workers (43%) had poor sleep quality, while Soliman et al. (2024) reported a higher prevalence (73.5%) with an average PSQI score of 6.33 (SD = 2.07). Additionally, a recent study by Soliman et al. (2024) has shown that sleep problems are common among healthcare workers. It also correlates with burnout, leading to poor performance. Moreover, the prevalence of sleep disorders among shift workers was significantly higher than that of day workers. Therefore, addressing the underlying health conditions and determinants of poor sleep quality can enhance sleep quality among healthcare workers.

Section 3. Significant Difference in the Sleep Quality of the MHO Workers in Terms of Demographic Profile Variables

Table 3
Sleep Quality of the MHO Workers When Grouped According to Their Demographic Profile Variables

Profile Category	Groups	Mean	SD	F-value / t-value	p-value
Age	Young Adults (≤30)	6.32[A]	2.75		
	Middle-Aged Adults (31-45)	6.81[A]	2.67		
	Older Adults (>45)	4.36[B]	3.25	4.433*	0.014
Sex	Female	6.50	2.83	1.869[ns]	0.423
	Male	5.63	3.09		
Position	Nurse	6.11	1.97	1.458[ns]	0.129
	Midwife	5.93	3.25		
	Medical Technologist	5.95	2.64		
Length of Service	Early Career (≤5 years)	6.31	2.96	0.199[ns]	0.820
	Mid-Career (6-15 years)	6.46	2.81		
	Late Career (>15 years)	5.80	3.85		
Socioeconomic Status	Have sufficient income, can invest & save	5.41[C]	3.15	4.169*	0.019
	Have income but no investment, can save a little	6.90[B]	2.81		
	Income is just enough for family needs, and can hardly save	7.73[A]	1.56		

In terms of age, the table shows that the highest mean in sleep quality was for middle-aged adults (M = 6.81, SD = 2.67), followed by young adults (M = 6.32, SD = 2.75), and the lowest mean is for older adults (>45 years) (M = 4.36, SD = 3.25). The ANOVA result revealed a significant difference in sleep quality, F = 4.433, p = 0.014; Scheffe post hoc comparisons indicated that older adults had a significantly lower mean global PSQI score than middle-aged or young adults. This indicates that older adults had better sleep quality than middle-aged adults or young adults. Regarding sex, the higher mean score was for females (M = 6.50, SD = 2.83). However, the t-test result (t = 1.869, p = .423) failed to confirm a significant difference in sleep quality between male and female respondents. In terms of position, the highest mean was nurse (M= 6.11, SD= 1.97), followed by the medical technologist (M= 5.95, SD= 2.64) or Midwife (M= 5.93, SD= 3.250); nevertheless, the ANOVA (F= 1.458, p= 0.129) did not demonstrate a significant difference in sleep quality across these job positions of MHO Health workers. Likewise, in terms of the length of service of the MHO workers, the highest mean was mid-career (6-15 years) with (M= 6.46, SD= 2.81). Still, there is no significant difference in sleep quality. In terms of socioeconomic status, the highest mean is for workers whose income was just enough for family needs and could hardly save (M = 7.73, SD = 1.56), while those with sufficient income to invest and save had the lowest mean (M = 5.41, SD = 3.15). Scheffe post-hoc tests indicated that the health worker with sufficient income to invest and save was having the best sleep quality, followed by the workers that have income but no investment, can save a little (M= 6.90, SD = 2.81) had a good sleep quality, on the other hand, the workers whose income was just enough for family needs and could hardly save has a bad sleep quality compared to the two.

The observed poor sleep quality among older MHO workers contradicts the findings of Zhou et al. (2020), which demonstrated that older age is associated with poorer sleep quality among frontline health professionals. Sleep quality generally decreases with age, and older adults score higher on most components of the Pittsburgh Sleep Quality Index (PSQI) than younger adults (Kim et al., 2021). Given the poorer sleep quality observed among older MHO workers, targeted interventions such as sleep hygiene education, stress management programs, and ergonomic workplace adjustments may be beneficial. The significant difference in socioeconomic status is also confirmed by the study by Sosso et al. (2021), which indicates that lower socioeconomic status is typically associated with poorer sleep quality. This also pointed out that individuals with lower income may experience physical fatigue, leading to improved sleep onset, whereas those with higher income may experience increased stress related to financial management. However, they also highlighted that a further investigation is needed to understand the underlying factors contributing to this unexpected result.

Section 4. Information, Education, and Communication (IEC) Material on Sleep Quality

The Information, Education, and Communication (IEC) Material, in the form of a poster, highlights the importance of sleep for Municipal Health Office (MHO) health workers and provides practical tips for improving sleep quality. It emphasizes that good sleep is crucial for cognitive function, mental and physical health, and overall well-being. It also reveals that many MHOs experience sleep challenges, including difficulty falling asleep, insufficient sleep duration, and frequent nighttime disturbances, as well as the other components of sleep quality that are not affected and need to be maintained. It also illustrated, through a pie graph, the prevalence of poor sleep quality among Municipal Health Office (MHO) health workers, with 60.6% reporting poor sleep quality according to the global PSQI scores. The poster encourages MHOs to prioritize self-care through establishing consistent sleep schedules, creating relaxing bedtime routines, optimizing sleep environments, limiting screen time before bed, and practicing relaxation techniques, and prioritizing sleep as a fundamental aspect of self-care, advocating for 6 to 8 hours of sleep for good health. Contact information for the SMU Guidance Office is also provided to further support MHO workers in addressing sleep latency, sleep disturbance, and sleep duration, as these components indicate significant sleep problems.

CONCLUSION AND RECOMMENDATIONS

Conclusion

1. The Municipal Health Office healthcare workers consisted mainly of female workers, middle-aged adults (31-45 years old), predominantly nurses, in their mid-career, working in MHO for 6-15 years, and with sufficient income, able to invest and save.

2. Overall, the average global PSQI score indicates that most respondents experience poor sleep quality. The most common sleep issues include sleep latency, sleep duration, and sleep disturbance, suggesting that many respondents take longer to fall asleep, do not get enough sleep, and experience nighttime interruptions. However, the use of sleep medication and daytime dysfunction did not present significant difficulties, indicating that sleep issues have a limited impact on daily activities for most respondents.

3. Age had a significant effect on sleep quality, with older adults (>45 years) reporting better sleep quality than young and middle-aged adults. Additionally, socioeconomic status was a significant factor: workers whose income was just enough for family needs and could hardly save reported worse sleep quality, while those with sufficient income to invest and save reported better sleep quality. However, sex, job position, and length of service did not

show a significant impact. Additionally, educational attainment could not be used due to the distribution of responses.

4. An IEC material in the form of a poster was developed. It emphasizes the critical importance of sleep for cognitive function, physical and mental health, and overall well-being. It provides practical recommendations for improving sleep habits, aiming to enhance the health and service quality of municipal health workers.

Recommendations

1. **Comprehensive Health Assessment:** While age and socioeconomic status play a crucial role in influencing sleep quality among MHO workers, neither alone significantly predicts poor sleep quality. Hence, it is also important to consider other contributing factors to poor sleep quality. Future researchers can develop a comprehensive health assessment that includes sleep history, physical and mental health screenings, stress levels, occupational health, and lifestyle factors to better understand the factors affecting sleep quality among MHO health workers.

2. **Health Worker Sleep Initiatives:** Collaborating with MHO workers can help them understand discrepancies in their sleep quality. Even with the high demands of their work, facilitating all individuals in their community, Municipal Health Office (MHO) workers can prioritize sleep by establishing consistent sleep routines and creating a relaxing bedtime environment. These initiatives can include awareness campaigns and identifying factors that contribute to poor sleep quality, such as time management, stress management, and technology use.

3. **Environmental Awareness:** By collaborating with the higher organization, the community can show its support by understanding the demanding nature of MHO workers' jobs and the potential impact on their sleep. Providing educational materials on the significant others can also promote community-wide initiatives that encourage healthy sleep habits for everyone by creating a conducive sleep environment for the MHO workers.

4. **Future Research:** Future researchers can build upon this study by expanding and delving deeper into the specific factors that contribute to sleep problems among MHO workers, such as work-related stress or individual health conditions. They can also delve deeper into the discrepancies between the data and other studies and how they affect the sleep quality of individuals. They can also conduct long-term studies to assess the impact of interventions and develop new strategies to improve sleep quality.

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