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RESEARCH ARTICLE
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Sleep Quality Among Married and Single Working Women in Malaysia

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ABSTRACT

Sleep disturbance was reported to be greater among married working women than single working women. Psychological distress and lack of sleep hygiene knowledge were also shown to impact sleep quality. Due to limited evidence of Malaysia's population, this study investigated the level of sleep quality and its associations with psychological problems and sleep hygiene awareness among married and single women in Malaysia. A total of 233 working women (n=126 single women and n=107 married women) participated in this study. A questionnaire survey was carried out using Pittsburgh Sleep Quality Index (PSQI), Depression Anxiety Stress Scales-21 (DASS-21), and Sleep Beliefs Scale (SBS). Collected data was analysed using SPSS version 26.0 program. Descriptive analysis, Mann-Whitney U test and Spearman correlation were conducted. No significant difference was found between the two groups in sleep quality (p=.368). Sleep hygiene awareness among married working women was higher compared to single working women (p=.024). The results indicated positive correlations of sleep quality with psychological problems (p=.000) and general health conditions (p=.000). However, no correlation was found between sleep quality and sleep hygiene awareness

(p=.262). Sleep quality is associated with psychological and general health in working women. Married women have higher sleep hygiene awareness, however this was not related to sleep quality. Hence, early screening of mental and physical health with sleep-related disorders are recommended for a better well-being.

Keywords: *Sleep quality, married women, single women, sleep hygiene*

INTRODUCTION

Sleep is a biological function which is homeostatistically regulated, and generally experienced as a state of unawareness. Normal people spend approximately one-third of our lives sleeping. Sleep has crucial roles in recovering, conserving energy and survival. It is also important for functions such as neural development, emotional regulation, cardiovascular management, metabolic balancing and cellular toxin removal. Therefore, good sleep quality is important for good health and overall quality of life (Mukherjee et al., 2015).

Sleep quality is used to refer to a series of sleep metrics, such as overall sleep duration, sleep onset latency, sleep efficiency, wakefulness after sleep onset and sleepiness during the day (Mollayeva et al., 2016). Good subjective sleep quality can be indicated by shorter sleep latencies, adequate overall sleep time, decreased wake after sleep onset and daytime alertness (Ohayon et al., 2017).

However, due to the changes in society and also the needs of industry which have impacted upon the working hour arrangements, the individual lifestyles and sleep quality have been indirectly influenced. The causes of sleep deprivation are multifactorial and come into two primary groups, which are occupational or lifestyle and sleep disorders. Large social changes, including longer working hours, shift work and greater access to television and the internet, are also factors that lead to sleep deprivation (Colten & Altevogt, 2006). Sleep disturbance can have a significant impact on employee behaviour, mental alertness, physical appearance, daytime physiology, emotional and health conditions (Chen et al., 2010). A recent study in Malaysia also found that the majority of adults in our country have experienced inadequate sleep (Farah et al., 2019).

In the study of Rai & Sherkhane (2017), it showed that 83.3% of working women were married and 78.9% of them had low sleep quality, which was higher than that of single working women. Poor sleep quality has also been reported to be correlated with work-family conflict among Malaysian working women over different age groups. This is because married women with children tend to experience the problems of balancing the working-life with household and childcare responsibilities, which the imbalance of work and home responsibilities may cause work-family conflict (Aazami et al., 2016). Hence, it causes sleep disturbance more common among married working women than single working women. Baker et al. (2009) also indicated that women who were primary caregivers were more likely to report a lower quality of sleep.

Other than that, sleep quality among female workers is also closely associated with increased poor health, job stress, psychological distress and depressive symptoms (Baker et al., 2009; Cho et al., 2013). Previous study done among Malaysia adults also found out that psychological distress typically causes sleep difficulties and daytime sleepiness (Othman Mydin et al., 2012). However, linkage between psychological distress and sleep disturbance among married and single working women is not studied in Malaysia previously.

Furthermore, study findings suggested that lack of awareness and sleep hygiene education can also contribute to poor sleep quality among the working women (Mallampalli & Carter, 2014). However, there are still little evidence relating sleep hygiene awareness among the working women of the Malaysia population. The current study therefore seeks to investigate the relationship between psychological issues and awareness of sleep hygiene with quality of sleep among married and single working women in Malaysia. Other than that, this study also

compares the sleep quality and the sleep hygiene awareness between married women and single working women.

RESEARCH METHODOLOGY

Convenience sampling method was employed in this study. This study recruited participants from a number of private companies and public places in Kuala Lumpur and consenting participants were screened for inclusion criteria using a proforma checklist. The purpose and details of the study were explained by the investigators and consent were obtained prior to the screening process.

This project was approved by Perdana University Institutional Review Board (PU IRBHR0265). The hardcopy questionnaires were distributed by hand and online questionnaires via Google forms to all participants. The questionnaire consisted of four sections, including:

Demographic data which include age, nationality, marital status, number of children, ethnicity, socio- economic status, education status, general health condition, working status and working hours.

Pittsburgh Sleep Quality Index (PSQI) (Daniel J. et al., 1989) to measure sleep quality.

Depression Anxiety Stress Scales- 21 (DASS-21) (Lovibond, P. and Lovibond, S., 1995) to assess the level of psychological problems.

Sleep Beliefs Scale (SBS) (Ana et al., 2006) to evaluate sleep hygiene awareness.

Collected data in this study were analysed using Statistical Package for the Social Sciences (SPSS) version 26.0. According to the Shapiro-Wilk significance test for normality testing, the value of the tested variables was significantly deviated from a normal distribution. Hence, non-parametric tests were employed in this study. Mann-Whitney U test is used to compare two independent samples whereas Spearman correlation is used to determine the association between two variables in the study. Other than that, descriptive analysis is also used to analyse the distribution of the samples based on their demographic data using SPSS. All the information provided by the participants are completely confidential. No information of participants is identifiable and only two members of the research team have access to the data.

RESULTS

Out of the 256 working women (n = 256) that had participated in the survey, only 233 (n = 233) completed the questionnaire correctly. Table 4.1 shows the distributions of demographic data of the participants.

TABLE 4.1: Participants' Characteristics

Variables	Frequency (n)	Percentage (%)
Age		
15-24	58	24.9
25-34	84	36.1
35-44	44	18.9
45-54	43	18.5
55-64	3	1.3
65 and above	1	0.4
Race		
Malay	20	8.6
Chinese	198	85.0
Indian	10	4.3
Others	5	2.1
Marital Status		
Single	126	54.1
Married	107	45.9
Number of Children		
No child	147	63.1
1 child	22	9.4
2 children	43	18.5
3 children	16	6.9
4 children	2	0.9
More than 4 children	3	1.3

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Age of Youngest Child		
No child	147	63.1
Child 6 months to <2 years	12	5.2
Child 2 to 5 years	25	10.7
Child 6 to 11 years	18	7.7
Child 12 to 18 years	20	8.6
Child >18 years	11	4.7
More than 8 Hours of Work per Day		
Yes	165	70.8
No	68	29.2
Total Household Income		
Lower than 1000	13	5.6
1000-1999	16	6.9
2000-2999	43	18.5
3000-3999	24	10.3
4000 and above	137	58.8
Education Status		
Some high school	9	3.9
Graduated from high school	21	9.0
Some college	22	9.4
Graduated from college or more	181	77.7
General Health Conditions		
Excellent	35	15.0
Good	153	65.7
Fair	44	18.9
Poor	1	0.4
Very poor	0	0.0

Among the participants, 36.1% (n = 84) were ranged from 25 to 34 years old, which covered most from the participants. Among the working women in this study, 54.1% were single (n = 126) and 45.9% were married (n = 107). Only 80.4% of the married working women (n = 86) had at least one child and most of them (n = 43) had two children. It was also reported that 10.7% out of the participants (n = 25) had the young children who ranged from 2 to 5 years, which constituted the most among the working mothers.

Among 70.8% of the working women (n=165) had to work more than 8 hours per day. Over 58% of the participants had a total household monthly income more than RM4000. Most of the participants had graduated from college and higher education, which constituted of 77.7% (n = 181) of the overall samples. There were 65.7% of the participants (n = 153) rated their general health conditions as good and none of the participants had self-rated very poor general health conditions.

Figure 4.1 shows a pie chart of the sleep quality among all the participants. Respondents are categorised as 'poor sleepers' if their global scores are more than 5, whereas those with a score of 5 or less are classified as 'good sleepers'.

FIGURE 4.1: Pie chart of sleep quality distribution

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According to the pie chart shown above, there were more poor sleepers (n = 135) than good sleepers (n = 98) among the working women in this study.

Table 4.2 shows the descriptive statistics of the PSQI score in the study.

TABLE 4.2: Descriptive statistics of PSQI score

n	233
Minimum	0
Maximum	16
Mean	6.31
Standard Deviation	2.765
Variance	7.647

Scoring of PSQI score can range from 0 to 21. The score of the PSQI in this study ranged from 0 to 16, which the mean score was 6.31±2.765.

TABLE 4.3: Ranks table for PSQI score

	Marital Status	n	Mean Rank	Sum of Ranks
PSQI Score	Single	126	120.64	15200.50
	Married	107	112.71	12060.50
	Total	233		

TABLE 4.4: Test statistics table for PSQI score

	PSQI Score
Mann-Whitney U	6282.500
Z	-0.900
Asymptotic Significance (2-tailed)	0.368

It was shown in Table 4.3 and Table 4.4 that there was no significant difference with sleep quality among married and single working women in Malaysia (U = 6282.5, p =.368).

TABLE 4.5: Descriptive statistics of SBS score

n	233
Minimum	28
Maximum	58
Mean	46.93
Standard Deviation	6.029
Variance	36.344

According to Table 4.5, scoring of SBS can range from 20 to 60. The score of the SBS in this study ranged from 28 to 58, which the mean score was 46.93±6.029.

TABLE 4.6: Ranks table for SBS score

	Marital Status	n	Mean Rank	Sum of Ranks
SBS Score	Single	126	107.81	13584.00
	Married	107	127.82	13677.00
	Total	233		

TABLE 4.7: Test statistics table for SBS score

	SBS Score
Mann-Whitney U	5583.000
Z	-2.264
Asymptotic Significance (2-tailed)	.024

It was shown in Table 4.6 and Table 4.7 that the SBS score in the married group was statistically significantly higher than the single group (U = 5583, p =.024). This can conclude that the level of sleep hygiene awareness among married working women was higher than single working women in Malaysia.

TABLE 4.8: Correlation between PSQI score and SBS score

Variable	PSQI Score		
	n	p-value (p)	Spearman rho (r)
SBS Score	233	0.262	0.074

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Table 4.8 showed that the Spearman's correlation coefficient, rs, is 0.074, and that this is not statistically significant (p =.262). Hence, there was no correlation between sleep hygiene awareness with sleep quality among the working women in Malaysia.

TABLE 4.9: Correlation between PSQI score and DASS-21 score

Variable	PSQI Score		
DASS-21 Score	**n**	**p-value (p)**	**Spearman rho (r)**
Depression Score	233	0.000	0.434**
Anxiety Score	233	0.000	0.421**
Stress Score	233	0.000	0.499**

** Correlation is significant at the 0.01 level (2-tailed).

In Table 4.9, it was shown that the Spearman's correlation coefficient, r, of the PSQI score to depression score, anxiety score and stress score is 0.434, 0.421 and 0.499 respectively. There were strong, positive correlation between the PSQI score with depression, anxiety and stress scores, which were all statistically significant (p =.000).

TABLE 4.10: Correlation between PSQI score and demographic background

Variable	PSQI Score		
Demographic Data	**n**	**p-value (p)**	**Spearman rho (r)**
Age	233	0.373	-0.059
Marital Status	233	0.369	-0.059
Number of Children	233	0.677	-0.027
Age of Youngest Child	233	0.643	-0.031
More than 8 Hours of Work per Day	233	0.562	0.038
Total Household Income	233	0.525	0.042
Education Status	233	0.512	0.043
General Health Conditions	233	0.000	0.288**

** Correlation is significant at the 0.01 level (2-tailed).

It was shown that the sleep quality is correlated with general health conditions with (r = 0.288, p = 0.000) but not with other demographic data in Table 4.10.

DISCUSSION

Based on the results obtained in this study, it was found that 57.9% of the study participants had poor sleep quality, which also showed that around 6 out of 10 working women in Malaysia were suffering from poor sleep quality. Mean PSQI score of the study population was also on the higher side (6.31±2.765). This finding was also supported by some of the previous studies which showed that sleep quality among working women was rather poor (Chen et al., 2010; Lallukka et al., 2010; Rai & Sherkhane, 2017). This may be explained by duration of work more than 8 hours per day, along with strenuous

working environments, excessive psychological job stress as well as the complications from the obligation of balancing work-family life among working women nowadays (Baker et al., 2009; Mallampalli & Carter, 2014; Aazami et al., 2016). Besides, this may be also due to the hormonal effects caused by menstruation, pregnancy and menopause in women (Mallampalli & Carter, 2014)

However, contrary to the hypothesised association that there will be a difference of sleep quality among two different groups of working women according to their marital status, the result in our study indicates that there were no significant differences between the single and married groups of working women. According to a study among midlife women in which the models were adjusted, it was also found that there is no significant difference in sleep quality and sleep continuity between partnered and single women. This may be due to the diversity of outcomes of being married which may be experienced as beneficial or detrimental to different individuals. Hence, the results of the study suggested that being married, intrinsically, may not induce a better sleep, but instead, it might be a factor for other predisposing reasons for sleep deprivation (Troxel et al., 2010).

Furthermore, it is also found that marital status and sleep quality is negatively correlated in this study. This may also possibly be due to one of the limitations of the study which included women who were divorced and widowed under the marital status of single as the study method from Rai and Sherkhane (2017). In the study of Baker et al. (2009), women who were divorced/separated were found to be associated with poorer sleep quality compared to married/cohabiting women. Besides, other confounders of sleep disturbance among working women may be stemmed from work-family conflicts like assuming the role for elderly care which may be applicable to both single and married working women, despite the common perceptions that single working women may have lesser sleep disturbance as they do not have issue in child care. With an increased longevity in the aging population due to better healthcare support, some young adults are struggling to work harder and choose to compromise on their sleep to accomplish financial independence. The amount of burdens, responsibilities, stress and time needed to put on the care of elderly could be the factors of inadequate sleep among the working population (Mausbach et al., 2006; Aazami et al., 2016).

Pursuant to the results obtained, the data suggests that married working women have higher levels of sleep hygiene awareness compared to single working women in Malaysia. This might be explained by the increase of responsibilities by married working women in balancing the working-life with the household and childcare duties. Therefore, in order to deal with the burden and try to have better sleep quality, they are more likely to seek treatment or information for health and medical problems, which may result in more correct sleep hygiene knowledge among them (Dolan, 2013). Nonetheless, based on the findings, there is no relationship between sleep hygiene awareness and sleep quality among the female employees in Malaysia. This is supported by previous study among midlife women that found that there was no relationship between sleep hygiene awareness and sleep quality (Shaw & Carpenter, 2016). This may be also explained by sleep quality is associated with practice of sleep hygiene, not only sleep hygiene awareness (Brown et al., 2002; Alsalem et al., 2017). Another study also reported that having a good sleep hygiene awareness cannot really ensure a higher quality of sleep, but it may be a sign of dissatisfaction with the sleep acquired (Voinescu & Szentagotai-tatar, 2015).

It was corroborated that psychological problems including depression, anxiety and stress are related to sleep quality in accordance with the results. In the studies of Baker et al. (2009) and Othman Mydin, Mohd Zaharin, and Ahmad Almashor (2012), it was shown that factors of sleep difficulties and sleep disorders can come from psychological distress. Several earlier studies also supported that poorer sleep quality is bracketed to greater levels of depressive and anxiety symptoms (Augner, 2011; Zhai et al., 2015; Afonso et al., 2017; Teker, 2017). In another study by Anon (2017), it as well suggested that sleep quality was correlated strongly with level of stress. Depressive symptoms and job stress has been demonstrated

to be associated with each other in many studies and this was shown to have adverse effects on sleep quality among female workers (Cho et al., 2013). These psychological problems often are also elevated due to poor rest and sleep among the workers which eventually causes daytime sleepiness, fatigue psychologically, poor health, menstrual disruption and other complications (Mallampalli & Carter, 2014; Zhai et al., 2015). Therefore, it's important to address these issues in working females and develop coping strategies to help them achieve physical and mental health equilibrium in order to improve their daily occupational performance as well as quality of life.

The current study replicates the same findings that age was not associated with poor sleep quality among working women, as shown by a previous study of Baker et al. (2009). Research about ethnic variation in sleep is quite finite, especially in a multi-ethnic Asian population like Malaysia, yet this study suggests that there is no correlation between race and sleep quality among working women in Malaysia. Few earlier studies have examined the relationship between having children at home and poor sleep quality. Our findings indicate that having children and number of children are not associated with the sleep quality in employed women. This study results support previous studies findings that having children did not heighten the risk for sleepiness and sleep quality after adjusting other factors (Theorell-Haglöw et al., 2006; Baker et al., 2009). In other general characteristics like working hours, total household income and education status, they are not found to be positively correlated with sleep quality in this population as the study done by Aazami et al. (2016).

However, this study demonstrated a correlation between the general health status and sleep quality. These results build on the existing evidence that poor health quality is closely associated with sleep disturbance among middle-aged and older adults (Lee et al., 2009). It was also proven that inadequate sleep is related to a variety of adverse health effects (Cappuccio et al., 2010; Fernandez-Mendoza et al., 2012; Bertisch et al., 2018). Moreover, practicing healthy lifestyles patterns is related with eliciting a better sleep quality. It is also recommended that practicing a good sleep hygiene like doing exercise regularly, proper stress management, lessening noise of sleeping environment, always sleeping on time, and reduction of taking caffeine, smoking, drinking alcohol and taking nap during daytime is advantageous for both good health as well as sleep quality (Irish et al., 2015).

CONCLUSION

Based on the finding in this study, there is no difference in sleep quality between the single and married working women, however, around 6 out of 10 working women in our study are found to have poor quality in sleep. Married working women have more correct beliefs in terms of sleep hygiene than those who are single. Although sleep quality is not associated with sleep hygiene awareness level in this study, it may be related to sleep hygiene practice among the working women (Brown et al., 2002; Alsalem et al., 2017). Sleep hygiene education is also found to improve sleep quality among working women with sleeping problems (Chen et al., 2010). Women nowadays play multiple role responsibilities in the workforce and family. The more roles a woman occupies, the greater the likelihood that she will experience emotional, mental and physical illness. Sleep quality is strongly associated with psychological problems and general health of working women in this study. This further emphasises the importance of both having good mental and physical health in order to have better sleep quality which can affect the daytime functioning. Diminished daytime functioning may cause other great difficulties in social life, as well as affect the enjoyment with family members, work performance, and social interaction with friends. Therefore, they need to be taken into account in health promotion programmes at the workplace and in occupational healthcare. Early screening of mental and physical health as well as sleep-related disorders at an early stage can be suggested among the female workers to prevent further complications and adverse effects to their well-being. Aside from that, with an eye to improve sleep quality and maintain well-being of the working women population, positive

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psychology interventions like counselling, health education sessions regarding quality of life to improve work-life balance need to be implemented at work place across all levels.

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