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Prevalence and correlates of sleep disturbance among older women in Vietnam

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Prevalence and correlates of sleep disturbance among older women in Vietnam

Abstract

Aims and objectives: To explore prevalence and correlates of sleep disturbance among women aged 60 and over in Vietnam.

Background: Sleep disturbance can negatively influence human's health. Sleep disturbance is likely to increase with age, and women appear to be more likely to experience sleep

disturbance than men. Knowledge about sleep disturbance in women aged 60 and over in Vietnam is under-researched.

Design: The study presents results from a cross-sectional survey of 440 women aged 60 and over from 16 rural and urban suburbs in Vietnam from 8/2014 to 1/2015.

Methods: Structured questionnaires were used to gather data about residence, age, marital status, educational attainment, employment status, income, body mass index (BMI), physical activity, exercise, perceived stress, general health status, number of chronic diseases, and sleep disturbance. Descriptive analysis, bivariate correlation and binary logistic generalized linear model were used for data analysis.

Results: Among older women in Vietnam, (1) the prevalence of sleep disturbance was 38.9%; (2) the most commonly problem was difficulty maintaining sleep, followed by sleep latency, reduced sleep quality, early waking, and daytime sleepiness; (3) BMI and physical health were significantly associated with sleep disturbance status.

Conclusion: Sleep disturbance was relatively common among older women in Vietnam. Overweight increased their sleep disturbance while physical health were negatively associated with their sleep disturbance.

Relevance to clinical practice: This paper provided evidence about sleep problems among older women in Vietnam and suggested that interventions targeting weight control and physical health promotion would be useful to improve their sleep problems.

Key words: Correlates, Older women; Prevalence; Sleep disturbance; Vietnam

What does this paper contribute to the wider global clinical community?

- The paper provided evidence that older women in Vietnam had a high prevalence of sleep disturbance and supported that sleep assessments and interventions promoting good sleep for older women in Vietnam should be implemented in the community in the future.
- The study also suggested that strategies targeting weight control and physical health promotion would be more likely to reduce sleep disturbance among older women in Vietnam.
- Qualitative research on how Vietnamese older women deal with their sleep problems might provide further useful information for future interventions to reduce sleep disturbance in the study population.

Prevalence and correlates of sleep disturbance among older women in Vietnam

Introduction

Humans spend around one third of their lifetime sleeping, though at times, sleep difficulties arise (Chien et al., 2010). Poor sleep has been linked with a range of health issues, including memory difficulties (Walker and Stickgold, 2005), cognitive decline (Stuart, 2014), increased obesity risk (Kubo et al., 2011), impaired immune function (Bollinger et al., 2009), susceptibility to infectious and inflammatory diseases (Vgontzas et al., 2013), hypertension (Palagini et al., 2013), cardiovascular disease (Cappuccio et al., 2011), stroke (von Ruesten et al., 2012), diabetes (Cappuccio et al., 2010), cancer (Luo et al., 2013, Zhang et al., 2013), and depression (Baglioni et al., 2011). Research has suggested that older people commonly report

a high prevalence of sleep problems, including more fragmented night time sleep (Ohayon et al., 2004), waking after sleep onset, and less effective sleep (Blackwell et al., 2008) than those in younger age brackets. Indeed, a meta-analysis (n = 2009) reported that total sleep time generally decreased by around 10 minutes for every 10 years of age while waking after sleep onset (n = 1012) consistently increased about 10 minutes per 10 years from 30 years of age (Ohayon et al., 2004). Women reported more sleep disturbance than men. Indeed, compared to men, women report higher mean scores of waking after sleep onset (OR=0.86, $p<0.01$) (Ohayon et al., 2004), more insomnia (Zhang and Wing, 2006), poor sleep quality, and daytime sleepiness (Baker et al., 2009). Gender differences have been attributed to hormonal fluctuations during the menstrual cycle, pregnancy, post-partum (Bei et al., 2015), and during menopausal transition (Moline and Broch, 2013).

Recent studies also suggest that socio-demographic characteristics (Heilemann et al., 2012), modifiable lifestyle factors (Seib et al., 2014), psychosocial stress (Baker et al., 2009), and health status (Magee et al., 2011) might also contribute to sleep disturbance. To be specific, research has shown that sleep disturbance is correlated with age (Baker et al., 2009), education level (Arber et al., 2007), employment status (Seib et al., 2014), income (Lallukka et al., 2010), marital status (Nakao et al., 2001), body mass index (Kubo et al., 2011), physical activity (Seib et al., 2014), exercise (Yang et al., 2012), psychosocial stress (Baker et al., 2009), health-related quality of life (Seib et al., 2014), and number of chronic conditions (Ohayon, 2009). Generally, women at aged 60 and over has passed their menstruation, possible pregnancy and menopause. They usually have a different socio-economic status, lifestyles, stress, and health from the youngers and they may have different sleep experience. Thus, more research about sleep among older women at aged 60 and over is warranted.

Whether cultural influences are also linked with sleep disturbance is difficult to determine. Current data indicates that women from some specific ethnic or cultural groups might experience greater sleep disturbance than others (Tom et al., 2009, Seib et al., 2014). Indeed, it is estimated that sleep disturbance ranges from 23% of Australian women aged 60-70 (Seib et al., 2014) to around 38% of British women aged 48 to 54 (Tom et al., 2009). A recent US study suggested that Hispanic women were more likely to report poor sleeping quality compared to their non-Hispanic counterparts (Kachikis and Breitkopf, 2012). While Asian women have different cultural experiences and lifestyles, and these factors may influence their sleep, knowledge of the prevalence of sleep disturbance and its correlates in Asian women is still limited.

Vietnam is a developing country in South East Asia with a population of more than 93 million. The number of older people has been increasing in this nation and this group is projected to increase to 20% of the population by 2050 (United Nations, 2012). Many older people in Vietnam do not have pensions or financial support from the Government and they mostly live dependently on their children (Vietnamese Ministry of Health, 2006). Vietnamese older women usually live in an extended family, where they help their children with the housework and caring for their grandchildren (Galanti, 2000). These may increase their sleep problems and negatively influence their health and well-being. Yet, the current healthcare system in Vietnam mostly focuses on physical health, and the availability of mental healthcare services such as sleeping care is still limited. Knowledge about sleep disturbance among older women in Vietnam is limited and therefore more research is needed.

The study

Aims

This study aims to examine prevalence of sleep disturbance and to explore the contribution of socio-demographic characteristics, modifiable lifestyle factors, psychosocial stress, and health status to sleep disturbance in older women in Vietnam.

Design

This study presents results from a cross-sectional survey of 440 older women from 16 rural and urban suburbs in Vietnam from 8/2014 to 1/2015.

Sample/ participants

Women aged 60 and over in Vietnam were recruited through the Elderly Unions. These organisations organise and manage community activities for all people aged 60 and over in their catchment areas. Therefore, this is an excellent source of potential participants. With permission, lists of all older people in the community were obtained. Using these alphabetical name lists, random sampling was performed to choose 128 women living in urban suburbs and 312 women living in rural suburbs, who were invited to join the study. These numbers were decided based on the real ratio of the numbers of older people living in urban and rural areas in Vietnam, and the total number of older people living in the research communities. Details of recruitment criteria has been published elsewhere (Dao-Tran et al, 2017). Informed written consent was obtained from the potential participants prior to data collection.

Data collection

Data about age, marital status, employment status, income, and highest level of completed education were collected. Participated women were also measured for their weight and height to calculate their BMI (World Health Organization, 2013). The participants were also asked to self-rate their physical activity levels from zero (not at all) to 10 (extremely high) and to report their average number of days practicing exercise per week in the last month (Australian Institute of Health and Welfare, 2010).

The Vietnamese version of Perceived Stress Scale (PSS-10) (Dao-Tran et al., 2017) was used to measure stress. This scale has self-reported 10-items, using 5-point Likert scale response. The scale asked how often one had experienced particular thoughts and feelings during the last month. The answers range from zero (never) to 4 (very often). Possible total scores are from zero to 40. A higher score indicates a higher level of stress that an individual perceives (Cohen, 1988)

The Short Form 12 (SF12) (Ware et al., 1996) was used to measure general physical and mental health. This scale has 12 self-reported items. The scale was scored using a standard scoring procedure. The total possible scores range from 0 to 100 for each health aspects. A higher score indicates a higher level of health at which the individuals estimate their health.

The women in this study were also asked to self-report whether they had ever been diagnosed with one or more of the following chronic conditions: hypertension, chronic heart diseases, stroke, type 2 diabetes, breast cancer, arthritis, osteoporosis and depression (Begg et al., 2007).

The General Sleep Disturbance Scale (GSDS) (Lee and DeJoseph, 1992) was used to measure sleep disturbance. This scale has 21 self-report item, using 8-point Likert-type scale responses. The scale measures a range of sleep issues in the last 7 days, including seven subscales: (1) problems initiating sleep, (2) waking up during sleep, (3) waking too early from sleep, (4) quality of sleep, (5) quantity of sleep, (6) fatigue and alertness at work, and (7) the use of substances to induce sleep. The answers are rated from 0 (never) to 7 (everyday). Possible total scores for this scale range from 0 to 147/. A total score of 43 or more represents general sleep disturbance. For subscales, average scores of 3 or above represents a specific sleep problem.

All instruments used in this study have been previously validated. Due to the variation of the participants' education level and vision capacity, individual interviews using the structured questionnaire were used to collect data. Participants provided answers in a private space at either their residences or a community office.

Ethical consideration

This study received ethical approval from the authors' Universities Research Ethics Committees (No: 192/DHYD-HD and No: 1400000256). Agreement to collect data was also received from Community Leaders in Vietnam.

Data analysis

The SPSS (Statistical Package for the Social Sciences) version 23 was used for data entry and analysis (Armonk, 2013). Descriptive data were presented as counts and percentages, or mean and standard deviation, or median and minimum/maximum as appropriate. Bivariate analysis and the binary logistic generalized linear model were used to examine the associations between variables. The level of significance was set at $\alpha=0.05$.

Results

Sample characteristics

As seen in Table 1, 440 women participated in the study. Their average age was 68 (range 60 -94 years old) (Dao-Tran et al, 2017). Majority of them lived in rural areas (70.9%), had low education (completed primary school or less = 75.9%), were not currently employed (71.2%) (Dao-Tran et al, 2017), reported average physical activity levels, did not undertake exercise (63.9%), and had a normal BMI (67.0%). Many of them were single, widow, separated or divorced (49.8%). They generally reported low perceived stress, low physical health, and average mental health. Older women in this study had 0-6 chronic conditions with an average of two.

[Insert Table 1 about here]

Sleep disturbance among older women in Vietnam

Table 2 details the sleep disturbance scores reported by older women in Vietnam. The table shows that prevalence of sleep problems among older women in Vietnam was 38.9% (n=171). The table also shows that the domains of sleep disturbance most commonly reported were difficulty maintaining sleep (71.8%, n=316), difficulty in getting to sleep (43.2%, n=190), reduced sleep quality (43.4%, n=191), and early waking (37.5%, n=165). About a quarter of older women also reported daytime sleepiness (24.8%, n=109). None of the participants had average scores of three and over for using substances to induce sleep.

Correlates of sleep disturbance among older women in Vietnam

Sleep disturbance status was compared across residency, age, marital status, education levels, employment status, income, BMI, exercise status, physical activity levels, number of chronic diseases, perceived stress, physical health and mental health. Bivariate analysis (Table 3) suggested that BMI and physical health were significantly associated with sleep disturbance status. The binary logistic generalized linear modelling (as seen in Table 4) revealed that overweight and physical health were associated with sleep disturbance among older women in Vietnam, even controlling for other study variables. To be specific, for every unit increase in physical health, their odds ratio of normal sleep changed by 1.024. Compared with those having normal BMI, overweight women were about 40% less likely to have normal sleep (OR= 0.607, $p<0.05$).

Discussion and conclusion

The study was conducted in a previously unstudied population and provided information about sleep disturbance among older women in Vietnam for the first time. The study found that sleep disturbance was relatively common in this sample, being reported by 38.9 % of women (i.e., GSDS ≥43). This prevalence is higher than in Australia (23%) (Seib et al., 2014) or Mexico (36%) (Heilemann et al., 2012). The high prevalence of sleep disturbance reported by older women in Vietnam might be partly explained by their cultural characteristics and chronic conditions existing among the Vietnamese older population. In addition, generally, Vietnamese older people usually live with their children and grandchildren in extended families (Galanti, 2000). They might not have a private place for sleeping. Also, even though only a third of them were employed, older women usually help

their children with the housework and taking care of the children in the Vietnamese extended family (Galanti, 2000). These domestic jobs might also interfere with their rest and cause sleeping problems. In addition, many older people in Vietnam had arthritis (Hoa et al., 2003). Pain and discomfort which are frequently associated with this chronic disease may also contribute to interfering with their ability to sleep.

While using substances to induce sleep are common in Western countries, almost all of the study participants refrained from the listed ways to induce sleep. There are a number of possible explanations for this interesting finding. First, older people in Vietnam may have believed that it is normal for older people to experience sleep problems and no interventions have been implemented. Second, a couple of listed ways (eg. drinking to sleep, smoking to sleep) do not seem culturally appropriate for Vietnamese women. Culturally, Vietnamese women are not supposed to smoke or drink alcohol and almost no women in Vietnam smoke or drink alcohol (Minh et al., 2008). Third, Vietnamese people may have believed that taking medications for sleep problems would cause side-effects and might negatively influence their minds. Therefore, they avoid using medications for sleep problems. Yet, these possible explanations require further study to confirm and extend. Future study is also needed to explore how older women in Vietnam commonly deal with sleep problems.

The study also explored the correlates of sleep disturbance among older women in Vietnam. Findings from this study are consistent with previous studies' findings which showed that those who were overweight (Kubo et al., 2011, Grandner et al., 2012) also had more sleep disturbance. These findings suggest that improved sleep quality in this sample could be achieved in part by weight management. However, the study findings about the associations between age (Baker et al., 2009, Ohayon et al., 2004), marital status (Nakao et al., 2001), education levels (Baker et al., 2009), employment status (Seib et al., 2014), income (Lallukka et al., 2010), physical activity (Seib et al., 2014), exercise levels (Yang et

al., 2012), chronic conditions (Ohayon, 2009), stress (Baker et al., 2009) and sleep disturbance are not in line with previous studies. The current study did not find any direct influence of these factors on sleep disturbance. Given that the propensity of these factors can influence BMI and physical health, they might indirectly influence sleep disturbance.

As sleep problems were commonly reported among older women in Vietnam, and sleep problems had a significant correlation with physical health (Mean =32.88 (SD=13.46) vs Mean=37.32 (SD=13.20)), further interventions to reduce sleep disturbance are highly recommended. Sleep problems and physical health were negative correlated. They may have mutual interactions. More sleep problems will reduce physical health and better physical health will improve sleep problems. To start with, it is important to conduct mass media information campaigns to raise the awareness of sleep problems in Vietnamese people. This may make Vietnamese people consider their sleep problems and the importance of seeking interventions for sleep problems as needed. When people are more aware of the problems, they may be more likely to seek professional assessments and treatment. Next, sleep assessments and interventions to promote good sleep need to be conducted. At the moment, hospitals in Vietnam mostly focus on physical health problems, and are overcrowded with patients. Therefore, sleep assessments and interventions to promote good sleep should be conducted in the primary healthcare settings in the communities. In addition, good sleep requires an appropriate space and time. It is important to ensure that Vietnamese older women have a private, quiet place and enough time for resting.

Apart from that, findings about correlates of sleep problems from this study again supports that for cost-effectiveness purposes, strategies that primarily target weight control and physical health promotion are likely to reduce sleep disturbance among older women in Vietnam. When their sleep disturbance is managed, then their general health can also be

improved. The fact is that ageing populations have increased in many countries around the world. Older women are more vulnerable to sleep problems. Thus, the implications which are taken from this research can also be applied to future research and healthcare practices about older women's health for other Asian and for Vietnamese women internationally, who have similar characteristics to the research population.

Limitations

This study had some noted limitations. First, this study used self-report data, which might have introduced recall and reporting bias. Second, since this study was cross-sectional, findings about the correlates from this study could not be concluded as causative. Finally, though some of the studied factors might somehow influence sleep disturbance indirectly, the examinations of bivariate associations used in in this study were not able to further explore the indirect influences among the study variables.

Relevance to clinical practice

Despite these limitations, this study provided a valuable insight into the prevalence and correlates of sleep disturbance in this under-researched group. The knowledge gained from this study raises concerns about the high prevalence of reported sleep disturbance among older women in Vietnam, and highlights the importance of weight control and physical health promotion for their sleep. Findings from this study can also be applied to other Asian women and for Vietnamese women internationally, who have similar characteristics to the research population. Interventions to reduce sleep disturbance would contribute significantly to increase their health-related quality of life.

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Table 1: Sample characteristics (n=440)

Variable	Median (Range)	N (%)
Residence		
Urban		128 (29.1)
Rural		312 (70.9)
Age	68.0 (60-94)	
Marital status		
Married/ Partnered		221 (50.2)
Single/ Widow/divorced/separated		219 (49.8)
Completed education levels		
Primary or less		334 (75.9)
Junior school		59 (13.4)
Senior school, Diploma, University or college		47 (10.6)
Employed		131 (29.8)
Average month income		
Low (about < 80 USD)		233 (53.0)
Middle (about 80- <450 USD)		189 (43.2)
High (about ≥ 450)		14 (3.2)
Body Mass Index (BMI)		
Underweight (<18.5 kg/m2)		33 (7.5)
Normal (18.5-25 kg/m2)		295 (67.0)
Overweight (25-29.9 kg/m2)		94 (21.4)
Obese (≥30 kg/m2)		18 (4.1)
Exercise status		
None		281 (63.9)
Not daily		26 (5.9)
Daily		132 (30.0)
Self-rating physical activities	5 (0-10)	
Perceived stress	6.5 (0-34)	
Physical health	34.32 (10.37-61.81)	
Mental health	59.52 (17.13-69.77)	
Number of chronic conditions		
≤2 conditions		338 (76.8)
>2 conditions		102 (23.2)

Table 2: Sleep disturbance among older women in Vietnam (n=440)

	Mean (SD)	N (%)
General sleep disturbance scores (GSDS)	36.28 (22.68)	171 (38.9)*
1. Difficulty initiating sleep	2.7 (2.9)	190 (43.2)**
2. Waking up during sleep	4.7 (3.0)	316 (71.8)**
3. Waking up too early from sleep	2.3 (3.0)	165 (37.5)**
4. Quality of sleep	2.6 (2.4)	191 (43.4)**
5. Quantity of sleep	1.4 (1.6)	136 (30.9)**
6. Daytime sleepiness	2.0 (1.5)	109 (24.8)**
7. Use of substances to induce sleep	0.1 (0.3)	0 (0)**

*GSDS ≥43, ** average scores of the subscale ≥3.0

Table 3: Bivariate associations of sleep disturbance among older women in Vietnam (N = 440)

	Correlation	p (2 -tailed)
Residence	$\chi^2(1)=2.587$	0.108
Age	t(437)=1.723	0.086
Marital status	$\chi^2(1)=0.724$	0.395
Education levels	$\chi^2(3)=0.369$	0.338
Employment status	$\chi^2(1)=3.321$	0.068
Income levels	$\chi^2(2)=5.012$	0.082
BMI	$\chi^2(3)=10.304$	0.016
Exercise status	$\chi^2(2)=0.885$	0.642
Physical activity levels	t(437)=-.629	0.530
Chronic conditions	$\chi^2(1)=0.846$	0.358
Perceived stress	t(437)=1.324	0.186
Physical health	t(437)=-3.420	0.001
Mental health	t(437)=-0.579	0.563

Table 4: Factors associated with sleep among older women in Vietnam (N = 440)

	Parameter	Odd ratio	p	95% CI	
Corrected model			<.001		
Intercept		.724	.280	.403	1.301
BMI	Obese	3.085	.083	.864	11.010
	Underweight	.725	.393	.347	1.516
	Overweight	.607	.040	.377	.978
	Normal	ref	ref	ref	ref
Physical health		1.024	.002	1.009	1.039