

Risk factors for developing co-morbid sleeping problems: Results of a survey of 1,925 women over 50 with a chronic health condition

This study examined sleeping problems and multiple epidemiological factors, among women over 50 with a chronic health condition.

Major:

1. The methods section of the abstract is very sparse. While space limits certainly constrain what can be detailed, some additional information is necessary.

We thank the reviewer and in line with the suggestion we have now added additional information and extended the methods section from:

“Methods: A sub-study of the 45 and Up Study was conducted with 1,925 women diagnosed with a chronic health condition.”

to:

“Methods: The Medical Outcomes Study Sleep Scale (MOS-SS) was employed to measure sleep problems among 1,925 participants with chronic health conditions who also responded to questions about health service use, self-care and demographics.”

2. The abstract talks about financial issues and sedentary behavior as significantly linked with sleeping problems, and your intro discusses this a bit, but your methods section talks about 5 chronic condition so the economic and movement related factors get lost. Please tighten this up and make sure there is a common thread throughout the paper guiding the reader.

As suggested, we have now revised the manuscript to ensure it is more cohesive by outlining the risk factors such as economic and physical activity levels in more detail. For example, we have changed the following from (changes underlined):

“This is pertinent as recent studies examining sleeping problems amongst mid-age and older women, including women in their fifties, have reported that being aged 50-59 was strongly associated with sleeping problems (C. M. Morin, M. LeBlanc, M. Daley, J. P. Gregoire, & C. Merette, 2006; Simpson, Allegra, Ezeamama, Elkins, & Miles, 2014). This paper aims to examine risk factors for sleeping problems in women with at least one of five chronic health conditions (depression, diabetes, asthma, osteoporosis and osteoarthritis) that are prominent for mid-age and older Australian women (Hoy, 2016).”

to:

“This is pertinent as recent studies examining sleeping problems amongst mid-age and older women, including women in their fifties, have reported that being aged 50-59 was strongly associated with sleeping problems (Morin et al., 2006; Simpson, Allegra, Ezeamama, Elkins, & Miles, 2014).”

“Because being female (Byles et al., 2005; Morin et al., 2006)), the existence of chronic conditions (Smagula, Stone, Fabio, & Cauley, 2015) and being over 50 (Morin et al., 2006) are three of the main risk factors for sleeping problems, other factors that may contribute to sleeping problems for older women with a chronic condition are not discussed at length in the literature. This is despite the World Health Organization (WHO) warning that issues such as reduced levels of exercise and socio-economic struggle are amplified hazards to health for certain populations such as older women and people with chronic disability or illnesses (Marmot, Allen, Bell, Bloomer, & Goldblatt, 2012) and despite being associated with sleeping problems (Arber, Bote, & Meadows, 2009; de Castro Toledo Guimaraes, de Carvalho, Yanaguibashi, & do Prado, 2008; Paine, Gander, Harris, & Reid, 2004). This paper therefore aims to examine risk factors for sleeping problems in women over 50 with a prominent chronic health condition (Hoy, 2016) to better address underlying causes for sleeping problems amongst mid-age and older women.” (pp 3-4)

We have also added the following sentence to the methods:

“This paper examines health service use, self-care and demographic factors associated with sleeping problems among older women with chronic health conditions. (page 5)”

3. Please provide a citation that shows evidence supporting the 5 conditions you focused on – why these conditions as opposed to others? What evidence supports this? I see the reference to the governmental priorities but beyond that – what is the scientific and epidemiological evidence?

The selected sentences have been amended as recommended (changes underlined below) to underscore the scientific and epidemiological evidence supporting the 5 conditions focused on in this review:

These five conditions were originally chosen to represent common chronic health conditions among Australian women over 45 and to provide a broad spread of chronic health conditions that includes respiratory, cardiovascular, musculoskeletal and psychological conditions. These five chronic health conditions are included by the Australian Government as areas of national public health priority (Caughey et al., 2010; Hoy, 2016). Such priority conditions are thought to cost 42% of Australia’s designated health expenses alone and account for 60% of Australia’s burden of injury and disease(Caughey et al., 2010). On an international stage, the prevalence of such chronic conditions is rising rapidly in the developing world in tandem with aging populations (Briggs et al., 2016; Caughey et al., 2010; Shaw, Sicree, & Zimmet, 2010). The World Health Organization (WHO) has emphasized that musculoskeletal conditions such as osteoarthritis and osteoporosis—known to affect older women disproportionately—are global threats to healthy aging (Briggs et al., 2016). Additionally, depression (Beekman et al., 2002) asthma (Gibson, McDonald, & Marks, 2010) and

diabetes (Caughey et al., 2010) have been shown to have a substantial impact on the social and economic well-being of older adults.

4. This paper examines factors that predispose older women with chronic health conditions to sleeping problems.” This word choice implies a directional hypothesis, and causation. How can you be sure that the chronic health condition appeared before the sleeping problem? How do you know that the chronic health condition predisposed or increased susceptibility to the sleeping problem?

We thank the reviewer for raising this point. We have now modified this sentence to ensure that a directional hypothesis is not implied in addition to providing further information in the limitations:

This paper examines health service use, self-care and demographic factors associated with sleeping problems among older women with chronic health conditions

and:

Fourth, as this is a cross sectional study, we are unable to make statements regarding causation.

5. Please provide further psychometric details (quantified) for the Medical Outcomes Study Sleep Scale (MOS-SS) Sleep Problems Index II

As suggested we have provided further psychometric details for the MOS-SS Sleep Problems Index II:

“The Medical Outcomes Study Sleep Scale (MOS-SS) Sleep Problems Index II has been shown to have good psychometric properties amongst the general population and populations with chronic conditions (Allen, Kosinski, Hill-Zabala, & Calloway, 2009; Cappelletti et al., 2009; Hays, Martin, Sesti, & Spritzer, 2005). For example, the reliability and validity of the Medical Outcomes Study Sleep Scale (MOS-SS) Sleep Problems Index II has been tested in a large nationally representative sample of American adults (Hays et al., 2005) and was found to have acceptable reliability (Hays et al., 2005). Where Cronbach’s α coefficient recommends internal reliability scores be over 0.70 for scales to be deemed sufficiently reliable (Cronbach, 1951), the Sleep Problems Index II internal reliability estimates were $\alpha = 0.83$ in the general population (Hays et al., 2005).”

6. Please provide evidence of the applicability of the Medical Outcomes Study Sleep Scale (MOS-SS) Sleep Problems Index II to your sample comprised of Australian women mid-to-older in age

We have provided evidence of the applicability of the Medical Outcomes Study Sleep Scale (MOS-SS), including the Sleep Problems Index II, with the addition of the following:

“The Medical Outcomes Study Sleep Scale (MOS-SS), including the long form Sleep Problems Index II, has also shown good shown good psychometric properties amongst studies of mid age and older women in previous large studies (Zagalaz-Anula, Hita-Contreras, Martínez-Amat, Cruz-Díaz, & Lomas-Vega, 2017). The MOSS-SS has also been validated in studies of large cohorts of older adults (Haut, Katz, Masur, & Lipton, 2009; Zimmerman, Bigal, Katz, Derby, & Lipton, 2013), mid-age and older women (Kline et al., 2012; Zagalaz-Anula et al., 2017) , international populations with chronic conditions (Coyne et al., 2013; Leonavicius, 2015; Schaefer et al., 2016; Schofield & Khan, 2014; Smith & Wegener, 2003; Viala-Danten, Martin, Guillemin, & Hays, 2008; Wolfe, Michaud, & Li, 2006; Zimmerman et al., 2013) including in Australia (Viala-Danten et al., 2008) and specifically amongst populations with conditions with include arthritis, depression, diabetes and asthma (Smith & Wegener, 2003).

7. How was depression measured?

Participants were asked if they had been diagnosed or treated by a doctor for depression in the previous 12 months. We have now clarified this in the manuscript as underlined below:

“Women who answered affirmatively to the question ‘has a doctor ever told you that you have...’ with regard to at least one of the five aforementioned chronic conditions were invited to participate in the sub-study. Data collection took place between August and November 2016. Participants in the sub-study were then asked if they had been diagnosed or treated by a doctor for diabetes, asthma, osteoarthritis, osteoporosis or depression in the previous 12 months. This paper examines factors associated with co-morbid sleeping problems among older women with chronic health conditions.”

8. What are the depression medications you took into account?

We adjusted our logistic regression model for diagnosed depression regardless of whether participants were currently taking anti-depressant medications or not. Participants were asked if they had been diagnosed or treated by a doctor for depression in the previous 12 months. We have now added this information to the manuscript (see answer to question 7) to make it clearer.

9. How many individuals in the sample reported both sleep and depression issues?

14% of the sample reported both sleep and depression. We have clarified this by adding the underlined sentence below in the results section:

“Of the 1,925 women participating in this 45 and Up Study sub-study, 43% (n=835) indicated they had a sleeping problem (Table 1). Of those with a sleeping problem, 14% indicated that they had depression, 11% diabetes, 19% osteoarthritis, 12% asthma and 10% osteoporosis.”

I think the discussion itself is very interesting and well-done. My comments are mainly focused on a strengthening of the intro/background, a more focused approach throughout, and significant additional detail in the methods.

Minor

10. p. 3 – general, adult population – why the comma? It seems to provide a confused meaning to the sentence even though this is very minor.

We have deleted the comma as suggested:

“...among the general adult population...”

11. The pattern of comma use throughout is inconsistent – in some cases used too often and in some cases, not enough. Perhaps a thorough check of this would be helpful.

We have made a thorough check of the document to check grammar and, specifically, to amend instances of inconsistent use of the comma. For example, amongst others, we have removed the commas highlighted below:

“To test the association between sleeping problems and multiple epidemiological factors, among women over 50 with a chronic health condition.” (abstract, page 1)

and:

“Women were more likely to have a sleeping problem if they reported some difficulties with available income (OR=1.61; 95% CI: 1.27, 2.04; p<0.005), or were struggling with available income (OR=2.84; 95% CI: 2.04, 3.96; p<0.005).” (abstract, page 1)

and:

“Evidence suggests that the socio-economic costs of conditions that frequently manifest concomitantly with sleeping problems, such as depression...(page 2).”

12. This study appears to be missing a word... in addition, consider breaking this

up, and providing a citation to the study. “The study sample was acquired via the 45 and Up Study. The 45 and Up Study – the largest ongoing study of healthy ageing in the Southern Hemisphere – assesses various aspects of health and quality of life of adults over the age of 45 in the state of New South Wales (NSW) with baseline data collected from 267,153 women and men.”

We have incorporated the suggestions above so that it now reads (changes underlined):

“The study sample was acquired via the 45 and Up Study (Banks, 2008). The study is the largest ongoing study of healthy aging in the Southern Hemisphere with baseline data collected from 267,153 women and men. The study assesses various aspects of health and quality of life of adults over the age of 45 in the State of New South Wales (NSW), Australia.”

13. In addition, since this is an international journal, please situate NSW in the context of a country.

This has now been added, see above

14. Throughout: Grammatical: ‘in regards to’ should be ‘with regard to’

As suggested, we have now amended all instances of ‘in regards to’ to ‘with regard to’ as below:

“Women who answered affirmatively to the question ‘has a doctor ever told you that you have...’ with regard to at least one of the five aforementioned chronic conditions were invited to participate in the sub-study.”

and:

“With regard to health-seeking characteristics, women with sleeping problems were more likely to consult with a conventional health care provider...”

and:

“This approach to communication between medical professionals and patients with regard to sleeping problems is relevant in light of...”

References

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