



Research report

Self-help behaviors for sleep and depression: A Japanese nationwide general population survey

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ABSTRACT

Objective: The aim of this study was to examine the relationship between self-help behaviors for sleep (SHBS) and depression among the general adult population in Japan.

Methods: The survey was conducted in June 2000 using self-administered questionnaires for subjects living in 300 communities randomly selected throughout Japan. A total of 24,686 responses were analyzed from individuals aged 20 years or older. The Center for Epidemiologic Studies Depression Scale was used to assess the prevalence of depression with two cut-off points: 16 and 25. Details of 6 types of SHBS were asked, based on given examples of actual behavior and frequency.

Results: After adjusting for sociodemographic variables, sleep problems and other SHBS, multiple logistic regression analyses revealed that “snacking on food and/or beverages” was independently associated with an increased odds ratio for depression, whereas “maintaining lifestyle regularity” was independently associated with a decreased odds ratio for depression. “Drinking alcoholic beverages,” “having a bath,” and “reading books or listening to music” were associated with an increased odds ratio for depression in crude analyses, but the significance of the association disappeared after adjusting for sociodemographic variables, sleep problems and other SHBS.

Limitation: Complex constructs are being correlated.

Conclusions: These results suggest that individual SHBS are differentially associated with depression, thus providing important clues for establishing sleep hygiene for treatment and prevention of depression.

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1. Introduction

Sleep disturbance is common among individuals suffering from depression, and it has been reported that 50–90% of patients with depression suffer from insomnia (Tsuno et al., 2005). Conversely, previous epidemiological studies have documented that 14–20% of individuals with insomnia were diagnosed as having depression (Ford and Kamerow, 1989;

Mellinger et al., 1985). Recent findings in the field of sleep and depression research have indicated that insomnia is not only a symptom of, but also a risk factor for depression (Brabbins et al., 1993; Chang et al., 1997; Foley et al., 1999; Livingston et al., 1993; Paffenbarger et al., 1994).

It has been well demonstrated that antidepressant treatments significantly improve insomnia in depressive patients, even when no interventions are employed to treat insomnia (Benca, 2000). Recently, it has been reported that co-administration of hypnotics in addition to antidepressants leads to significantly greater improvement of insomnia and depressive symptoms in patients suffering from both (Fava et al., 2006; Lundborg et al., 2000). A non-controlled study has

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suggested that cognitive-behavioral therapy (CBT) for insomnia is effective for ameliorating not only insomnia but also symptoms of depression (Taylor et al., 2007). A more recent randomized controlled study comparing antidepressant therapy with and without CBT for insomnia documented that additional CBT for insomnia improved depressive symptoms more effectively than drug therapy alone (Manber et al., 2008). The results obtained from these studies indicate that attempted interventions to improve insomnia in patients with depression may ameliorate coexisting depressive symptoms.

Most of those who experience insomnia, before visiting physicians, seem to cope by adopting self-help behaviors for sleep (SHBS) (Morin, 2004). Previous studies have reported that such SHBS include intake of alcohol or natural products, reading books, listening to music, mental relaxation techniques, and over-the-counter sleep medications (Ancoli-Israel and Roth, 1999; Morin et al., 2006). Some SHBS may allow individuals to cope successfully with insomnia, whereas others may not. Since insomnia is reported to be one of the earliest symptoms of depression (Jackson et al., 2003; Perlis et al., 1997), it is possible to consider that patients with depression might attempt SHBS in the early stage of the disorder. Moreover, SHBS in patients with insomnia might influence the risk of developing depression, given that attempted interventions to improve insomnia have been reported to influence depression with respect to hypnotic medication therapy and CBT for insomnia, in addition to treatment of depression (Fava et al., 2006; Londeborg et al., 2000; Manber et al., 2008; Taylor et al., 2007). However, there has been virtually no information about the relationships between depression and SHBS.

In the present study we investigated the associations between SHBS and depression using a cross-sectional approach, based on epidemiologic data for a large sample of the general population of Japan. Our findings provide the first documented evidence that some SHBS have a positive or negative association with depression, providing important data for establishing sleep hygiene for the treatment and prevention of depression.

2. Methods

2.1. Selection of subjects

The present study was part of a national survey (Active Survey of Health and Welfare) conducted by the Ministry of Health, Labor and Welfare of Japan in June 2000. The Active Survey of Health and Welfare was conducted in 1996, 1997, 1999 and 2000 to provide the information required for establishing governmental health and welfare policies. To ensure that the survey sample was representative of the general population, study participants were selected from residents aged 12 years or over living in 300 target areas. These areas were selected randomly, through stratified sampling, from 881,851 areas included in the national census (2000). Part-time investigators paid by the public health center in each area delivered self-administered questionnaires to the subjects and collected the completed questionnaires a few days later. Oral informed consent to participate was obtained from the subjects, whose privacy

was protected in accordance with Declaration of Helsinki guidelines.

2.2. Procedures

The self-administered questionnaire consisted of 44 items, including: (1) sociodemographic information such as age, gender, and size of the community, (2) general health status, (3) physical and psychological complaints, (4) information on mental stress, (5) sleep habits and sleep problems, and (6) the Japanese version of the Center for Epidemiologic Studies Depression Scale (CES-D) (Shima et al., 1985).

The CES-D, which is a 20-item inventory designed specifically to assess symptoms of depression in the general population, was used to screen for current depressive states during the period of one week leading up to the survey (Radloff, 1977). This questionnaire is adequately reliable and valid for use in a general population. The CES-D yields an item score (range: 0–3) and a sum of the 20-item scores (range: 0–60). Higher scores indicate increasing severity of depressive symptoms. Although this scale is designed to screen, but not diagnose, major depressive disorder, a score of 16 or higher is highly suggestive of symptoms of depression. In addition, a severe cut-off point has been assumed in several studies (Cho et al., 1998; Madianos et al., 1988; Nagase et al., 2009). We set a score of 25 or higher to define CES-D-25 depression as described previously (Kaneita et al., 2006), because the cut-off point of 16 demonstrated that nearly 30% of the Japanese adult population had depression, indicating an over-estimation of prevalence in comparison with Western countries (20% or less) (Barnes et al., 1988; Eaton and Kessler, 1981; Hsu and Marshall, 1987).

The following six questions about SHBS during the previous month were embedded in the questionnaire:

1. Do you drink alcoholic beverages? (None/Once or twice per month/Once or twice per week/Three times or more per week)
2. Do you snack on food and/or beverages? (Yes/No)
3. Do you take light exercise? (Yes/No)
4. Do you take a bath? (Yes/No)
5. Do you read a book or listen to music? (Yes/No)
6. Do you try to maintain lifestyle regularity? (Yes/No)

One of the four options (“None,” “Once or twice per month,” “Once or twice per week,” or “Three times or more per week”) was to be selected regarding use of alcohol. In the statistical analysis, these four optional categories were regrouped, if required, into two categories: the former two categories and the latter two (i.e., “Once or more per week” and “Less than once per week”).

With regard to sleep duration, we asked the question, “What was your average sleep duration per night?” Participants who answered “less than 6 h” were categorized as having “short sleep duration”.

For subjective sleep insufficiency, participants were asked to respond to the question, “Have you had sufficiently restful sleep?” by selecting one of the following four options: “Sufficient,” “Fairly sufficient,” “Rather insufficient,” and “Completely insufficient”. Those who selected the latter two options were categorized as having “subjective insufficient sleep”.

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