



Challenging the validity of the association between oversleeping and overeating in atypical depression



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ABSTRACT

Objective: In this study, we used a strict definition of hypersomnia and tested if the association between overeating–hypersomnia remained positive and significant. Hypersomnia was present if the total sleep time was close to 10 h per day or was at least 2 h longer than in normothymic periods.

Methods: Cross-sectional study using the adult general population of California and New York. The sample was composed of 6694 individuals aged between 18 and 96 years. Participants were interviewed by telephone using the Sleep-EVAL system. The interviews included various sleep and health topics and the assessment of DSM-IV sleep and psychiatric disorders.

Results: The one-month prevalence of major depressive episode was 6.1%, including a one-month prevalence of atypical depression of 1.6%, in this sample. Atypical depression subjects had a greater number of depressive symptoms and a longer duration of the current depressive episode than the other depressive subjects. Depressive subjects with hypersomnia slept longer (8 h, 29 min) than the other depressive subjects (6 h, 36 min) and longer than the subjects “getting too much sleep” (6 h, 48 min). Furthermore, hypersomnia was not associated with overeating while “getting too much sleep” showed a positive association with overeating.

Conclusions: Hypersomnia needs to be evaluated using a strict definition. Otherwise, it leads to an overestimation of this symptom in major depressive episode subjects and to a false association with overeating.

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Introduction

Atypical depression was first introduced in the fourth edition of the DSM [1]. The essential criterion of atypical depression is mood reactivity. To meet full criteria, mood reactivity must also be accompanied by at least two of the following symptoms: leaden paralysis, hypersomnia, weight gain/increased appetite or sensitivity to rejection. Historical origins of atypical depression developed from empirical findings of antidepressants trials [2–5]. The diagnosis of atypical depression as per the DSM-IV remains controversial. Some studies supported the validity of the criteria set [6,7], others have only reported a partial validity of the concept [8–10] while still others found no support for the concept [11].

In community surveys, the assessment of atypical depression is mainly based on the assessment of the reversed neurovegetative symptoms (overeating and oversleeping) in individuals with major depressive episodes (MDE) [12,13] instead of using the combination of mood reactivity with the four other symptoms described in the

DSM-IV. For example, the Sullivan et al. [6] study limited the analyses to hypersomnia (oversleeping) and overeating or weight gain. In another study [7], leaden paralysis was defined as fatigue or weakness. The Columbia group varied the inclusion criteria using one or two atypical features in combination with mood reactivity [2,14,15].

In the general population and in sleep disorder centers, the association between overeating and oversleeping is rarely seen. On the contrary, obesity and weight gain have been associated with shorter sleep [13,16–18].

A possible explanation of the high association between overeating and oversleeping in subjects with major depressive episodes can be the broad definition of oversleeping. While overeating is often strictly defined as a significant weight gain (~5 lb or more) or an increase in the appetite nearly every day for a period of 2 weeks or longer, oversleeping is defined broadly as a subjective sense of sleeping “too much” nearly every day for a period of 2 weeks or longer.

The aims of this study are:

- 1) to evaluate the association of “overeating and oversleeping” in people experiencing a major depressive episode, using a more precise definition of hypersomnia rather than a vague and subjective sense of “oversleeping”. Hypersomnia is a total sleep duration per 24-hour period of 10 h or more (or a normal sleep duration accompanied of daytime sleep episode(s) lasting 1 h or more) for a period

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of two weeks [19]. This definition of hypersomnia is similar to one proposed in the DSM-IV for depressive disorders.

- 2) to estimate the frequency of atypical symptoms in DSM-IV major depressive episode and
- 3) to verify the relevance of the concept of atypical depression in the general population.

Methods

Sample

The target populations were adults living in the states of California and New York (USA). This represented 48 million inhabitants. A total of 6694 individuals aged 18 years or older, representative of the general population of these two states (3249 subjects in California and 3445 subjects in New York), were interviewed by telephone. The participation rate was 85.6% in California and 81.3% in New York using CASRO (Council of American Survey Research Organizations) standards.

Procedures

In the first stage, telephone numbers were pulled out proportionally to the population size of each county in California and in New York. Telephone numbers were randomly selected within each state using a computerized residential phone book. In the second stage, during the telephone contact, the Kish method [20] was used to select one respondent per household. This method allowed for the selection of a respondent based on age and gender to maintain a sample representative of these two parameters. If the household member chosen declined to participate, the household was dropped and replaced by another number from the same area, and the process was repeated.

Interviewers explained the goals of the study to potential participants. They requested verbal consent before conducting the interview. The participants had the option of calling the principal investigator if they wanted further information. The study was reviewed by the Stanford University Institutional Review Boards (IRB).

Subjects who declined to participate or who gave up before completing half the interview were classified as refusals even though they might have met an exclusion criterion. Individuals who initially refused were called again 3–4 weeks after the initial refusal. Nearly 30% of the final sample were individuals who initially refused. Excluded from the study were subjects who were not fluent in English, who suffered from a hearing or speech impairment or who had an illness that precluded them from being interviewed. Phone numbers were dropped and replaced only after a minimum of 10 unsuccessful dial attempts were made at different times and on different days, including weekends. An added-digit technique; that is, increasing the last digit of a number by one, was employed to control for unlisted telephone numbers. The final sample included 21.4% unlisted telephone numbers.

The interviews lasted on average 74.5 (\pm 37.8) minutes. An interview could be completed with more than one telephone call when it exceeded 60 min or at the request of the participant. The project manager or the team leaders also called nearly all the participants who completed the interview. During this 6–8 minute call, they asked a series of random questions related to the interview and also asked the participants how satisfied they were with the interviewer.

Instrument

Interviewers used the Sleep-EVAL knowledge-based expert system [21,22] to conduct the interviews. This computer software is specially designed to administer questionnaires and conduct epidemiological studies in the general population.

The system is composed of a non-monotonic, level-2 inference engine, two neural networks, a mathematical processor, the knowledge base and the base of facts. Simply put, the interview begins with a series

of questions asked of all the participants. It includes, in order of appearance: sociodemographic information, sleep/wake schedule, sleeping habits, sleep disturbance symptoms, medical and paramedical consultations and hospitalizations in the last 12-month period, physical diseases, use of prescribed and non-prescribed drugs, a health quality assessment scale, alimentation, fatigue scale, pain questionnaire, height and weight and for women, questions on menopause. Once this information was collected, the system began the diagnostic exploration of mental disorders. On the basis of responses provided by a subject to this questionnaire, the system formulated an initial diagnostic hypothesis that it attempted to confirm or reject by asking supplemental questions or by deductions. Concurrent diagnoses are allowed in accordance with the DSM-IV [1] and the Classification of Sleep Disorders or ICSD [19]. The system terminated the interview once all diagnostic possibilities were exhausted.

The differential process is based on a series of key rules allowing or prohibiting the co-occurrence of two diagnoses. The questionnaire of the expert system is designed such that the decision about the presence of a symptom is based upon the interviewee's responses rather than on the interviewer's judgment. This approach has proved to yield better agreement between lay interviewers and psychiatrists on the diagnosis of minor psychiatric disorders [23]. The system has been tested in various contexts; in clinical psychiatry and sleep disorders clinics [24–26]. In psychiatry, kappas have ranged from .44 (schizophrenia disorders) to .78 (major depressive disorder).

Variables

Major depressive episode

The part of the questionnaire assessing the symptoms of a major depressive episode was composed of 48 questions covering all depressive symptoms listed in the DSM-IV. Each symptom was answered on severity, intensity and frequency scales. The duration of the depressive mood was also determined, along with current and past treatment and psychiatric and medical consultations.

Definitions

In DSM-IV, criteria for atypical features include mood reactivity accompanied with two of the following symptoms: (1) significant weight gain or increased appetite; (2) hypersomnia; (3) leaden paralysis; and (4) interpersonal rejection sensitivity.

Mood reactivity, i.e., when the mood brightens in response to positive events, was assessed with six questions. More specifically, participants were asked if during depressive periods, they will, for example, feel suddenly happier for a couple of hours or if they were cheered up by good news, invitations, etc. Each question was answered on a graduate scale.

Hypersomnia

The total sleep period, including daytime napping, is close to 10 h (or more) per day and nearly every day OR the total sleep period, including daytime napping, is about 2 h longer than in normothymic periods nearly every day. A total of 7 questions were asked to assess hypersomnia.

Leaden paralysis was defined as a feeling of heaviness in the arms or legs or being weighed down lasting at least 1 h per day and occurring nearly every day. This was assessed using three questions.

Weight gain was considered present if the subjects reported a gain of at least 5 lb occurring in a period of 2 weeks during a depressive episode. Increased appetite was considered present if the subjects reported their appetite increased "a lot" or "extremely," nearly every day, during at least 2 weeks.

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