Original Article

Increasing trends of sleep complaints in the city of Sao Paulo, Brazil

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Abstract

Objective: The aim of this study was to compare the prevalence of sleep habits and complaints and to estimate the secular trends through three population-based surveys carried out in 1987, 1995, and 2007 in the general adult population of the city of Sao Paulo, Brazil.

Methods: Surveys were performed using the same three-stage cluster-sampling technique in three consecutive decades to obtain representative samples of the inhabitants of Sao Paulo with respect to gender, age (20–80 years), and socio-economic status. Sample sizes were 1000 volunteers in 1987 and 1995 surveys and 1101 in a 2007 survey. In each survey, the UNIFESP Sleep Questionnaire was administered face-to-face in each household selected.

Results: For 1987, 1995, and 2007, respectively, difficulty initiating sleep (weighted frequency %; 95% CI) [(13.9; 11.9–16.2), (19.15; 16.8–21.6), and (25.0; 22.5–27.8)], difficulty maintaining sleep [(15.8; 13.7–18.2), (27.6; 24.9–30.4), and (36.5; 33.5–39.5)], and early morning awakening [(10.6; 8.8–12.7), (14.2; 12.2–16.5), and (26.7; 24–29.8)] increased in the general population over time, mostly in women. Habitual snoring was the most commonly reported complaint across decades and was more prevalent in men. There was no statistically significant difference in snoring complaints between 1987 (21.5; 19.1–24.2) and 1995 (19.0; 16.7–21.6), but a significant increase was noted in 2007 (41.7; 38.6–44.8). Nightmares, bruxism, leg cramps, and somnambulism complaints were significantly higher in 2007 compared to 1987 and 1995. All were more frequent in women.

Conclusions: This is the first study comparing sleep complaints in probabilistic population-based samples from the same metropolitan area, using the same methodology across three consecutive decades. Clear trends of increasing sleep complaints were observed, which increased faster between 1995 and 2007 than from 1987 to 1995. These secular trends should be considered a relevant public health issue and support the need for development of health care and educational strategies to supply the population's increased need for information on sleep disorders and their consequences.

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1. Introduction

Sleep disorders are recognized as a major public health concern [1]. Population surveys that address sleep complaints and disorders to assess secular trends are still limited. The literature shows a scarcity of data from South America, as opposed to the number of studies conducted in North America, Europe, Australia, and Asia [2]. Also, previous epidemiological studies applied different sampling and recruitment procedures, making comparison of prevalence estimates difficult [2,3]. Most studies evaluated a portion of the population of interest and extrapolated that prevalence to the entire population [2], introducing a potential selection bias between results from the sampled populations vs. results applied to the entire group. Despite these limitations in earlier estimates of the prevalence of sleep complaints and disorders, some cohort studies evaluating sleep disorders in clinical populations have already been published [4,5].

Sao Paulo is the capital of the state of Sao Paulo and is located in southeast Brazil. The city is the largest in the southern hemisphere, with an area of 1523 square kilometers. National censuses have shown that in the last three decades, the mean rate of geometric annual population growth of Sao Paulo was 1.1, while the population grew from 8.5 to 11 million [6]. Sao Paulo is one of the most ethnically diverse cities of Brazil because of its history of European