

NOCTURNAL SLEEP PATTERN IN NATIVE BRAZILIAN TERENA ADULTS

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ABSTRACT - Social-economic factors influence sleep habits. This research analyzes characteristics of nocturnal sleep in Brazilian Native Terena adults. Sixty-four adults (31 M; 33 F) from 18 to 75 years, with a mean age of 37.0, from the Indian Reservation village of Córrego do Meio, in the central region of Mato Grosso do Sul, an agriculturally oriented group were evaluated. Nocturnal sleep characteristics were evaluated by means of a standard questionnaire applied to each individual. It was observed that reported nocturnal sleep was longer, sleep onset was earlier and wake up time was also earlier than usually described in urban populations. The mean total time in bed was 8.5 h or more, in every age bracket. The seven-day prevalence rate of insomnia was 4.6%, while the seven-day prevalence rate of hypnotic use was 1.5%, both remarkably less than described in urban populations. These findings stress the need to consider ethnic influences on sleep patterns and disorders.

KEY WORDS: sleep, sleep habits, insomnia, sleep disorder, hypnotic, Native, Indian, Terena, Mato Grosso do Sul, ethnic.

Padrão de sono noturno em adultos indígenas Terena

RESUMO - Fatores sócio-econômicos influenciam os hábitos de dormir. A presente pesquisa analisa as características do sono noturno em indígenas Terena. Avaliamos 64 adultos (31 M; 33 F) de 18 a 75 anos de idade (média 37,0 anos) da aldeia Córrego do Meio, situada em reserva indígena na região central do Mato Grosso do Sul, basicamente agrícola. As características do sono noturno foram avaliadas por meio de questionário padronizado. Como resultado, verificamos o sono noturno relatado foi mais longo, o início do sono foi mais cedo e o despertar pela manhã também mais cedo, do que os índices descritos em populações urbanas. A média do tempo na cama foi 8,5 h ou mais em todos os grupos etários. A prevalência de insônia (no período de 7 dias) foi 4,6%, ao passo que a prevalência do uso de hipnótico (no período de 7 dias) foi 1,5%, ambos acentuadamente menores que os descritos em populações urbanas. Tais achados ressaltam a necessidade de se considerar as influências étnicas ao avaliar características e distúrbios do sono.

PALAVRAS-CHAVE: sono, hábito de dormir, insônia, distúrbio do sono, hipnótico, nativo, índio, Terena, Mato Grosso do Sul, étnico.

Social-economic and cultural factors play a relevant role determining diurnal¹ and nocturnal sleep habits, including sleep duration, regular sleep onset time and morning wake up time. Several sleep disorders and treatments are also influenced by these factors, including the insomnias (disorders of initiating and maintaining sleep), and the use of hypnotic.

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Table 1. Distribution of Terena adults evaluated, according to age and sex in Córrego do Meio village.

Age (years)	M	F	Total
18-19	3	3	6
20-29	9	7	16
30-39	5	11	16
40-49	7	8	15
50-59	3	2	5
60-69	3	3	6
70-79	1		1
Total	31	33	64

This research is part of a larger project that we have been systematically conducting to describe and understand ethnic influences on sleep, with emphasis on the Native Brazilian²⁻⁵. The present study characterizes Terena adult nocturnal sleep habits, insomnia and the use of hypnotic. Literature focusing on nocturnal sleep in Native Brazilian adults is unknown to us.

METHOD

The Brazilian Native Terena belongs to the Aruak-speaking Native branch^{6,7}. The group in this study are agriculturally oriented, peaceful and well-adapted to the fertile lands and tropical climate of the central region of Mato Grosso do Sul.

We studied the Córrego do Meio (CM) village, in the municipality of Sidrolândia, Mato Grosso do Sul. CM is located on an Indian Reservation; 40 km from the nearest town, Sidrolândia. The interviews

were conducted from house to house, encompassing all homes in this age range.

Sixty four Native Terena adults with ages (Table 1) ranging from 18 to 75 years (mean age 37.0 years) were evaluated (31 M; 33 F). Mean age of males was 36.8 years, ranging from 18 to 75 years. Mean age of females was 37.2 years, ranging from 18 to 66 years. Sleep characteristics were investigated through interviews during the summer of January 1999. Interviews were conducted personally by the authors. Three male adults were not included because they worked out of the Indian Reservation, on an irregular sleep-wake schedule.

Ten yes/no multiple choice questions were employed focusing primarily on nocturnal sleep habits, the presence of insomnia and the use of medications to induce sleep with the questionnaire standardized by SBD Giglio⁸. This is part of a larger sleep questionnaire data set that will be presented elsewhere.

RESULTS

The reported total time in bed (TTB) was mean of 8.5 h or more in every age bracket during weekdays (Fig 1) and week ends (Fig 2). There were no clear tendencies between gender or age groups. Even in the 60-69 year group the mean TTB was remarkably long of 10.3 h for M and 9.5 h for F.

Table 2. Sleep onset time and wake up time in Terena adults in Córrego do Meio village, according to age and sex.

Age (years)	Sleep onset time (mean h)			Wake up time (mean h)		
	M	F	Total	M	F	Total
18-19	17.0	21.3	19.1	7.2	6.3	6.7
20-29	21.4	20.7	21.0	6.2	6.5	6.3
30-39	22.4	21.0	21.7	5.8	6.2	6.0
40-49	20.1	21.5	20.8	7.4	5.7	6.5
50-59	21.0	20.0	20.5	4.5	6.0	5.2
60-69	19.0	19.5	19.2	5.3	5.0	5.1
70-79	19.5		19.5	5.5		5.5

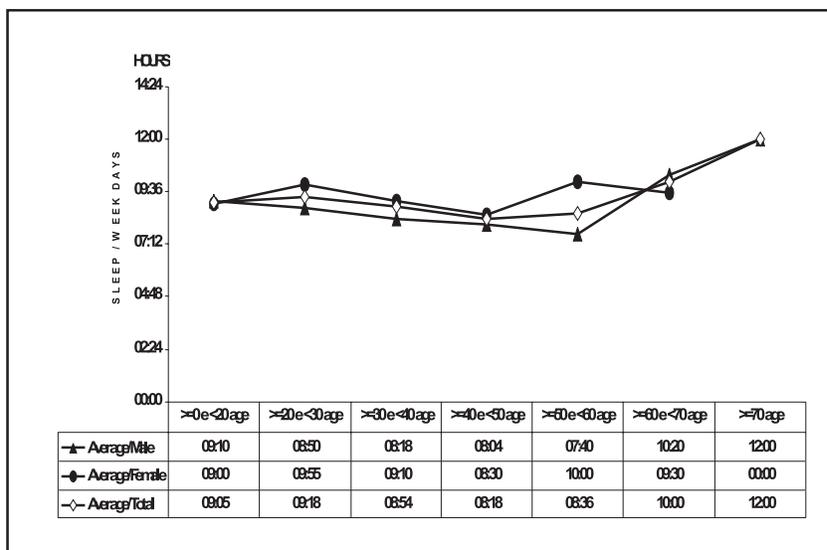


Fig 1. Week days reported nocturnal sleep duration in Terena adults in Córrego do Meio village, according to age and sex.

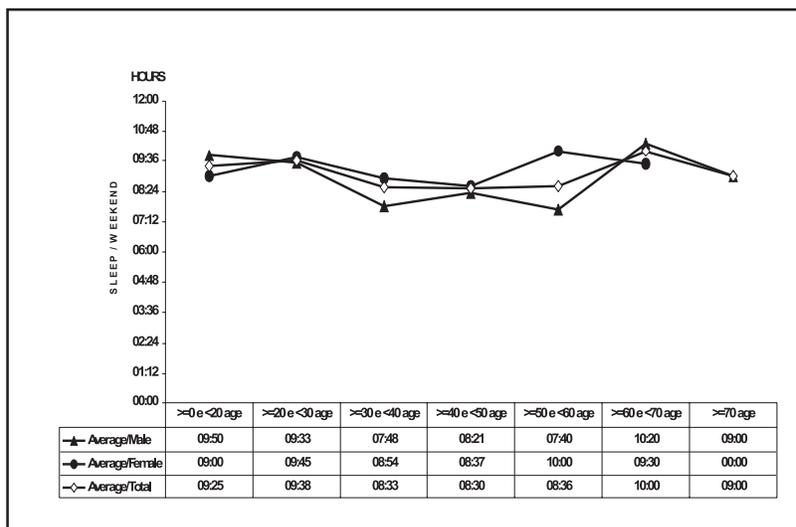


Fig 2. Weekends reported nocturnal sleep duration in Terena adults in Córrego do Meio village, according to age and sex.

The mean nocturnal sleep onset time was 20.8 h in males, and 17.7 h in females (Table 2). There was a mild tendency to sleep earlier in the 20 to 60 year olds, as the 20 year old group had a mean nocturnal sleep onset time of 21.0 h and the 60 year old group a mean of 19.2 h . The eldest group (>70 years) was composed of only one individual precluding conclusions.

The mean morning wake up time was 5.7 h in males and 5.1 h in females. There was a slight trend to wake up earlier in the 20 to 60 year old group, as the 20 year old group had a mean morning wake up time of 6.3 h and the 60 year old group a mean of 5.1 h.

In the entire sample of 64 adults, only 3 referred present insomnia, so that seven-day prevalence rate of insomnia was 4.6%. All these 3 cases were females, ages 21, 22 and 44; all of them described difficulty in initiating and maintaining sleep as well as waking up earlier than desired. Only one of them (44 years old) had ever reported the insomnia to a health care provider, and regularly takes a hypnotic; the two others had never used hypnotic, including Folk Medicine sleep inducing substances and alcohol.

In the entire sample of 64 adults, only one subject used hypnotic, so that seven-day prevalence rate of hypnotic use was 1.5%. This was a 44 year old woman that took diazepam regularly.

DISCUSSION

The Terena population evaluated presented TTB longer than urban populations. In São Paulo city the mean TTB evaluation rate was of 7.7 h on weekdays (7.5 h M; 7.8 h F)⁸.

The progressive reduction of total sleep time with age has been described in early urban population studies^{9,10}. However, more recent population studies focusing on healthy aged people (60-75 years old), also known as successful aging, suggest that the reduction is not seen or is mild¹¹⁻¹⁴. It is supposed that the marked reduction present in the early studies could be due to concomitant diseases present in the general elderly population, and less in the healthy aged group. In the Terena population studied, there was a mild decrease in sleep duration from 20 to 60 year olds, this suggested that in a situation of very low time pressure, the sleep time reduction is mild.

In an urban population, Carrier et al.¹⁵ evaluated normal individuals 20 to 50 years old and observed a progressive reduction in the reported total sleep time, total time in bed, as well as sleep onset time progressively earlier as well as the early morning awakening. In this normal group, the mean TTB was 460.6 min; the mean sleep onset time was 23.4 h; the mean morning wake up time was 7.1 h. In a population study with São Paulo city population, the mean sleep onset time was 23.6 h in A and B social-economic classes, while it was 22.6 h in the C and D ones⁸.

The sample of the Terena group here described confirm the longer TTB, earlier sleep onset time and earlier sleep wake up time compared to these urban populations, and one may propose that these habits are linked to basic agricultural activities, and minor influence of electricity, TV and radio. The time pressure reducing TTB is a fundamental trait in stressful urban industrial populations but not in the Terena culture. Several other factors also influence this pattern in Terena nocturnal sleep: A) the agricultural chores are also characterized by group participation and the Terena sleep pattern in which numerous persons sleep in the same room may facilitate the relatively homogeneous sleep schedule in this population; B) More than 90% of the Terena bedrooms are described as silent and comfortable for sleeping^{3,5}; C) Weekends and week days have little difference in the agricultural chores in the Terena culture.

The seven-day prevalence rate of insomnia in the Terena was 4.6%. which was remarkably lower than that reported in urban populations. In São Paulo city urban population, the seven-day prevalence rate was over 50% of the population⁸; in this population, insomnia was more prevalent in females and in those 30 years old or over. In a recent cross-sectional sample of the French population, the prevalence rate of insomnia was 48%, and also more common in females¹⁶. Utilizing the same method of seven-day prevalence, the large Upper Bavarian Field Study adult population found that the prevalence rate was 28.5%¹⁷, and confirmed the higher prevalence in females. Using the two-week paradigm the insomnia prevalence rate was 34.9% in Brazilian university students¹⁸.

In a large representative sample of adults in the USA, Ancoli-Israel and Roth¹⁹ determined the prevalence of occasional insomnia in one fourth of the adult population; the prevalence of insomnia occurring regularly every night was found in 9%. In this sample, insomniacs rarely visited a physician to discuss their problem; and four out of ten insomniacs self-medicated with either over-the counter medications or with alcohol.

Among older persons, the prevalence of insomnia was determined as 23.4%²⁰. Foley et al.²¹ found that insomnia was more prevalent in older Afro-American women (19%) compared in Afro-American men (12%) and compared to Caucasian men and women (both 14%). In this population²¹ they determined that women tend to maintain chronic insomnia longer than men.

In regard to health care, among adults that seek health services, 69% reported occasional insomnia in San Diego, and 50% in Honolulu; 19% mentioned chronic insomnia²².

Among individuals enrolled in a healthcare system in the USA²³, one third reported insomnia with daytime dysfunction. In an evaluation of the São Paulo urban population, 9.8% stated that they had previously looked for medical services reporting insomnia⁸.

Despite the fact that the prevalence of insomnia in this Terena group was remarkably lower than in urban population, it was predominant in middle-aged females, as in the urban populations. Several publications suggest that the predominance of insomnia in middle-aged females may be due to the fact that several mood and anxiety disorders start between 20 and 49 years of age. Major depression, bipolar depression, dysthymia, and generalized anxiety are predominant in females²⁴⁻³¹. Stressful life situations, sub-optimal working conditions and inadequate sleep hygiene are relevant for maintaining insomnia³². Our present report did not aim to reach individual diagnosis, but this may be part of a future study.

The seven-day prevalence of hypnotic use observed in this Terena population was remarkably less than the described in recent urban population studies: A) A large cross-sectional sample of the French adult population¹⁶ showed that 2% to 10% of the population take hypnotic drugs; 8% take hypnotic regularly or for more than 6 months; 6.1% take them for more than 6 months and frequently or every night; 4.4% take hypnotic regularly for more than 5 years. B) In Germany¹⁷, the seven-day prevalence rate of hypnotic or other psychotropic drugs for insomnia in the general population was 9.5%. Among those who referred insomnia, the seven-day prevalence of hypnotic use was 33.7%. C) In the São Paulo urban population, the seven-day prevalence of hypnotic use was 25.9%⁸. The hypnotic consumption by women was twice that of male consumption. In this urban sample⁸, the most reported drug was diazepam.

The remarkably reduced use of hypnotic by the Terena compared to urban populations may be due to the following factors. First, we would propose as the main factor the low prevalence of insomnia in this population, determined in the present report. Second, of less importance, one must mention the low availability of the hypnotic drugs. The Indian Reservation is distant from town and from medical resources reducing the availability of hypnotic drugs. The lack of reported regular use of Folk Medicine sleep inducing substances, and the lack of drive to look for treatment for insomnia in the cases described support the possibility that these women did not know that treatment was available, that insomnia was treatable, or did not wish it treated. This complex concept of insomnia and its treatment must be taken into account in the framework of the Terena culture.

CONCLUSION

The present report showed that nocturnal sleep in Terena adults was characterized by longer TTB, earlier sleep onset time, and earlier morning wake-up time than that described in urban populations. The prevalence of insomnia and the prevalence of hypnotic use were remarkably less than described in urban populations. Agricultural society, with much less time pressure than urban populations, more adequate sleep environment and habits may be factors favoring it. These findings point out the need to consider social-economic and ethnic factors in order to understand sleep and its disorders.

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