

Sleep disorders and excessive daytime sleepiness in the Palestinian population

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ABSTRACT

Objective: The aim of this study was to screen a sample Palestinian population for sleep habits and various sleep disorders using a standard questionnaire.

Methods: The questionnaire was designed to assess sleep habits, the degree of daytime sleepiness using the Epworth Sleepiness Scale (ESS), and specific sleep problems. A random sample of Palestinian people from Gaza City, Palestine was selected during August 2002.

Results: There were 361 respondents to the questionnaire (59 females and 302 males). The mean ESS score was 8.25 for males and 8.2 for females. There was 99 (27.4%) subjects with an ESS >10 (with excessive daytime sleepiness), normal sleepers without any sleep problems

reported an ESS score of 7.37. One hundred and seventeen (32.4%) subjects (23 females and 94 males) had insomnia. There were 3 females and 101 males with snoring, but only 5 females and 48 males reported a history of sleep apnea. Symptoms of sleep paralysis were reported in 37 (10.2%) subjects, restless leg syndrome in 41 (11.4%) and cataplexy in 7 (1.9%) subjects.

Conclusion: The prevalence of excessive daytime sleepiness in the Palestinian population is higher compared to reported western populations, and it is the same as reported populations with similar habits. Generally, sleep disorders are common all over the world but ignored and unrecognized in our society.

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In the last 9 years, following implementation of the Palestinian Self Government Agreement according to the Oslo agreements signed in Washington on the 13th of September 1993, great changes have taken place in Palestinian society in the West Bank and Gaza, socially, economically, and politically, affecting our daily rhythms. In everyday life, Arabic television satellite channel programs, video, computers, and more social activities take place in the evenings and shops and restaurants open later than they used to during the Israeli occupation period. However, over the last 2 years, with the starting of the second Intifada in September 2000, the Palestinian society has suffered politically affecting normal lifestyles. The previously mentioned factors are perhaps reasons for the recent phenomena of sleep and alertness, irregular sleeping habits, late bedtime, short sleeping time during the

week, poor sleep quality with insomnia and night waking leading to a growth in daytime sleepiness. Sleep disorders are a common problem in Western populations.¹ In an Australian study, 20% of the subjects had habitual snoring and 27% reported breathing pauses during sleep at least occasionally. In the same study, the prevalence of excessive daytime sleepiness (EDS) was reported as 11% of the sample-studied.² In another large survey conducted in the United Kingdom, 40% of the population reported snoring regularly, and 49% were reported to experience breathing pauses during sleep.³ A recent survey in the United States of America (USA) showed a prevalence of 34% which was significantly related to respiratory symptoms.⁴ The prevalence in the Arab population has not been defined, they are probably common but undiagnosed and unreported, and to our

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knowledge there have been no published studies on this issue. We have found only one similar study⁵ with which we will compare our results. The objective of this study was to screen a sample Palestinian population from Gaza City, Palestine for various sleep disorders and daytime sleepiness using a standard questionnaire.

Methods. Questionnaires were distributed among a random sample of Palestinian employees working as medical, paramedical, engineers and administrative personnel and other social classes in Gaza City, Palestine during August 2002. All subjects were asked to complete the questionnaires at their convenience, and preferably with their spouses. The questionnaires addressed some questions regarding age, gender, weight, height, sleep habits, and specific sleep problems including duration of sleep, sleep latency and daytime naps. Degree of daytime sleepiness using the Epworth Sleepiness Scale (ESS), frequent awakening at nights, snoring history, history of breathing pauses while asleep, symptoms of restless leg syndrome (RLS) were also included. The ESS is a simple questionnaire measuring the general level of daytime sleepiness. It consists of 8 different situations and activities that are often part of everyday life. The total ESS score is a measure of the average sleep propensity and the probability of falling asleep in those conditions. The ESS score ranges from 0-24, with the upper limit of normal based on previous studies on healthy adults estimated to be 10.⁶ Statistical analysis was performed using chi-square analysis.

Results. Of 510 questionnaires distributed, 361 respondents (59 females and 302 males) properly completed and returned their questionnaires. The mean age of the subjects was 37.1 ± 10.9 years. The mean body mass index was 27.15. The mean ESS score for the group as a whole was 8.25 ± 3.8 , for females was 8.2 ± 3.1 and for males 8.25 ± 3.8 . The number of subjects with ESS>10 with excessive daytime sleepiness was 99 (27.4%) and was more frequent with men at 84 (27.8%) than with women at 15 (25.4%). One hundred and six subjects, 15 females and 91 males were considered normal sleepers (they had no history of any sleep disorders); their mean ESS score was 7.34 ± 3.83 with no significant sex differences. In normal sleepers, item 5 (sleepiness laying down afternoon) obtained the highest score of 2.08, followed by item 7 (after eating lunch without alcohol) at 1.92 ± 0.94 . The lowest score was item 6 (sitting and talking with someone) at 0.056 ± 0.27 (**Table 1**). The mean duration of sleep was 6.89 ± 0.82 , with no differences between sexes. The number of subjects with daytime napping was 158 (43.8%) with no differences between sexes. The number of subjects with inadequate sleep (insomnia) was 117 (32.4%), 23 females (39%) and 94 males (31.1%). Awakening at

Table 1 - Epworth Sleepiness Scale for normal sleepers.

Situation	Score	SD
Sitting and reading	0.88	0.98
Watching television	1.08	0.97
Sitting inactive in a public place	0.61	0.86
As a passenger in car for an hour without a break	0.56	0.9
Lying down to rest in the afternoon	2.08	1.01
Sitting and talking to someone	0.056	0.27
Sitting quietly after lunch without alcohol	1.92	0.94
In a car stopped for few minutes in the traffic	0.1	0.47
Total	7.34	3.83
SD - standard deviation		

Table 2 - Characteristics of sleep disorders (N=361).

Characteristic	Females (59)		Males (302)		P value	Total	
	n	(%)	n	(%)		n	(%)
ESS > 10	15	25.4	84	27.8	0.42	99	27.4
Snoring	3	5.1	101	33.4	-	104	28.8
Breathing pauses	5	8.5	48	15.9	0.097	53	14.7
Inadequate sleep	23	39	94	31.1	0.152	117	32.4
Awakening at night	23	39	64	21.2	0.004	87	24.1
Daytime nap	25	42.4	133	44	0.465	158	43.8
RLS Symptoms	12	20.3	29	9.6	0.02	41	11.4
Cataplexy	-	-	7	2.3	0.283	7	1.9
Sleep Paralysis	8	13.6	29	9.6	0.241	37	10.2
Sleep Duration (mean)	7.05		6.85		0.551	6.9	
ESS (mean)	8.2		8.25		0.123	8.2	
ESS - Epworth Sleepiness Scale, RLS - restless leg syndrome							

night was reported by 87 subjects, 23 females (39%) and 64 males (21.2%). The causes of awakening were not always specified, but they included going to the bathroom and the need to attend to children. Snoring in our study was not divided into occasional and habitual; we ignored all cases with occasional snoring. Habitual snoring was reported in 104 subjects, only 3 females (5.1%) and 101 males (33.4%) with significant differences between sexes. Fifty-three subjects reported history of sleep breathing pauses (apnea), 5 females (8.5%) and 48 males (15.9%). Thirty-seven subjects (10.2%) reported a history of sleep paralysis; there were 41 (11.4%) subjects with history of RLS, cataplexy was reported in only 7 subjects (1.9%) (**Table 2**).

Discussion. The efficacy of the ESS in determining the degree of sleepiness during the daytime has been verified with both healthy patients and subjects with various sleep disorders.⁷⁻⁹ Our data showed that the mean ESS score of the selected Palestinian sample (8.24 ± 3.75) was less than the Saudi sample (9.4 ± 3.6).⁵ But both the Saudi and the Palestinian sample are much higher than that of samples from Australia (5.9 ± 2.2) and Spain ($6.1 \pm$

2.9).^{10,11} Approximately 27.4% of our subjects and 39.3% of the Saudi samples had excessive daytime sleepiness, defined as ESS>10, this with the high mean ESS score, shows that the prevalence of sleep disorders presenting with EDS is substantial, with no significant gender variation. In a sample from the Australians, the prevalence of EDS was found in only 10.9%² while it was 18.3% in men and 16.2% in women in a large randomized sample in the United Kingdom.¹² In our normal sleepers the mean ESS score (7.34 ± 3.83) and in the Saudi normal sleepers (8.9 ± 3.6) do not differ significantly from that of the rest of the sample population (8.24 ± 3.75 in our sample and 9.8 ± 3.7 in the Saudi sample). This difference may be related to the selectivity of our subjects, and a warm climate may unmask physiological sleepiness but it does not increase daytime sleepiness by itself.^{5,13,14} It is interesting to note that the score obtained for item 5 and item 7 in our normal sleepers and in the Saudi normal sleepers is close to that reported in western populations.^{5,6,10} This raises the possibility that despite cultural background, everyone would like to take an afternoon nap and this would seem to indicate that ESS might reflect a physiological increase in the sleepiness in the afternoon, as suggested by Izquierdo-Vicario et al.¹⁰ In our study habitual snoring was reported in 28.8% but the breathing pauses during sleep (possible apnea) was reported in 14.7%, the difference of sexes may be due to our small sample size and the selectivity of our group.¹⁵ In a similar study from a sample Australian population, Johns et al reported that 21.8% of men and 11% of women had habitual snoring, while 30.4% of men and 14.1% of women reported a history of breathing pauses while asleep. Subjects with inadequate sleep (insomnia) were 23 females (39%) and 94 males (31.1%) this is lower than in the Saudi population of 51.5% in women and 34.6% in men⁵ and higher than that in the Australian population where it was 18.8 in women and 11.3 in men.² Although definitive data is not available regarding the prevalence of RLS, symptoms of RLS has been identified in 5-15% of normal subjects,¹⁶ which is similar to our statistics of 11.4% and the Saudi statistics of 12.9%.⁵ A history of sleep paralysis was reported in 10.2% of Palestinian subjects and 16% of Saudi subjects, and it was reported that sleep paralysis occurs at least once in a lifetime in 40-50% of normal subjects. In our study only 7 subjects reported having cataplexy. Cataplexy is a major feature of narcolepsy, and in the presence of EDS it is virtually diagnostic.¹⁷ Narcolepsy is a common disorder in the western population and its prevalence has been calculated as 0.07% in the Los Angeles area and as 0.06% in the San Francisco area.^{18,19} It is possible that with a larger sample, subjects with narcolepsy may be identified.

Extensive daytime sleepiness measured by a standard method appears to have a high prevalence when the western ESS range is used. The range of

normal score of ESS is probably the same for the Palestinians compared with the Saudi population and wider if compared with other western populations. Sleep disorders are common but unrecognized in our community. This is the first study regarding sleep disorders in the Palestinian population, a field that is totally ignored and needs more attention from the health authorities and physicians.

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