ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 12, Issue, 07, pp.12233-12240, July, 2020

DOI: https://doi.org/10.24941/ijcr.39062.07.2020

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

PREVALENCE AND DETERMINANT OF INSOMNIA AMONG SECONDARY SCHOOL FEMALE STUDENTS IN THE EAST SECTOR OF MAKKAH AL-MUKARRAMAH, KSA, 2019, CROSS-SECTIONAL STUDY

Alaa Sami Bakhsh[1,*] and Osama Al Wafi[2]

[1]Family Medicine Resident, Ministry of Health, Saudi Arabia
[2]Family Medicine Consultant, Ministry of Health, Saudi Arabia

ARTICLE INFO

Article History:
Received 20th April, 2020
Received in revised form
29th May, 2020
Accepted 27th June, 2020
Published online 25th July, 2020

Key Words:
Aframomum Danielli ,
Lycopene, Ascorbic Acids,
Total Carotenoid.

ABSTRACT

Back Ground: Insomnia can lead to major of side effect although there is limited data about its prevalence and risk factor among the adolescent age group Objectives: To estimate the prevalence of insomnia among secondary school female students in the east sector of Makkah, 2019, and to list the associated factors related to insomnia particularly smart devices use. **Design:** Cross-sectional analytic study Setting: Secondary schools in the east sector of Makkah. **Patient and methods:** random selection of students and distribution of the valid questionnaire. Main outcome measures: sociodemographic data, PSQI, and use of smart devices via questionnaire. Sample size: 341 students. **Results:** Based on Global PSQI Score 65.4% of the respondents are poor sleepers, while 34.6% are classified as good sleepers. Among the participants with good PSQI, 0.88% don't use smart devices during the day, 2.93% used for less than one hour a day, 7.04% use for more an hour less than two hours,20.82% for 2 hours and more, and 2.93% used for an uncertain period a day. while the persons with poor PSQI,2.35% don't use smart devices during the day, 4.11% used for less than one hour a day, 6.74% use for more an hour less than two hours,49.27% for 2 hours and more, and 2.93%use for an uncertain period which is statistically significant (P=0.026). **Conclusion:** Approximately half of the selected population is suffering from insomnia with mild dysfunction, which indicates the need for a further broad study of other sectors and cities. Limitation: Covering a large population in a limited time Conflict of interest: none

Citation: ***Alaa Sami Bakhsh and Osama Al Wafi.*** **2020.** "Prevalence and determinant of insomnia among secondary school female students in the east sector of Makkah Al-Mukarramah, KSA, 2019, cross-sectional study", *International Journal of Current Research*, 12, (07), 12233-12240.

INTRODUCTION

Enough period of sleep is mandatory to maintain health and elaborate functioning during a waking period. (1) Insomnia is a widely used term in medical literature reviews and popular press.(2) It's defined as repeated difficulty in starting sleep, having an adequate duration of sleep, maintaining sleep overnight or having a good quality of sleep which occurs despite accepted time, the opportunity of sleep and ends by daytime functioning impairment (3). Depending on the duration insomnia, is divided into short-term insomnia and chronic insomnia. Starting with short-term insomnia which is also known as adjustment insomnia or acute insomnia, usually, it happens in response to a known stressor, and the symptoms duration is less than three months. While in chronic insomnia, the symptoms present at least three times per week and persist for at least three months (4).

Corresponding author: **Alaa Sami Bakhsh,**
Family Medicine Resident, Ministry of Health, Saudi Arabia.

Insomnia is considered a risk factor of depression, mood problems, diabetes, obesity, heart disease, decrease rate of work attendance, traffic accident, and health care utilization (1)(5). There is about one-third of the adult population having some difficulty in getting asleep and/or maintaining sleep in the previous 12 months with 17% reporting this problem as a significant one. 95% of Americans have reported episodes of insomnia at some point in their life. (3) In Makkah, the prevalence of insomnia in an adult who's attending PHC was 29.4%, the females were two times affected than the males. (5) The researcher put in her mind the sensitivity of this transitional period from childhood to adulthood which in turn involves many physiological, psychological, and social changes.(6) If this age affected by insomnia issues this, in turn, may affect their school performance which motivates the researcher to conduct this study about the prevalence and determinant of insomnia among secondary school female students in the east sector of Makkah Al Mukarramah, KSA, 2019.

LITERATURE REVIEW

In 2013 Dr. Hisham Bashawri conducted a study aimed to estimate the prevalence of insomnia among PHCCs visitors in Makkah city. It was a cross-sectional study with a sample size of 463 patients of both male and female genders. The tool has been used is PSQI, and the result of this study shows that 61.8% of the intended population classified as good sleepers while 38.2% ranked a bad sleeper, with about 80% of them revealed they sleep less than 7 hours at night. In contrast, females were double affected than males with less than 20% of the affected population seek medical treatment for their sleep disturbance issue (7). Dr. Amin A Alahdal et al. Conducted a cross-sectional study about prevalence and determinant of insomnia among family medicine residents at the joint program of family medicine and community medicine in Makkah Al-Mukarramah and Jeddah, 2012. The study involved 105 family medicine residents with a mean age 28.3 years and SD 2.4 years. The male participant was about 51.4% there was 77.1% reported poor sleeping during the previous month based on PSQI questionnaire. Sleep complaints were reported as 74.3% in the participant. 18.1% suffered frequently, or always from difficulty falling asleep, trouble staying asleep and frequent waking from sleep were reported as frequent or always complain in 11.5% and 18.2% of them. 16.2% and 25.7% of them reported sleep wasn't refreshing as frequent or always and this is causing extreme sleep feeling in 6.4% of them.(3)

Another study was conducted in KAMC, Riyadh in 2015 by Dr. Anwar E Ahmed which aimed to determine the prevalence of insomnia among the adult Saudi population. The study showed a crude prevalence of 77.7% with 95%CI = 75.9-79.5%. Regarding the gender female were 88.7% affected 95%CI = 86.4-90.7% than males who's 70.4% affected 95%CI = 67.8-72.9%. The P-value was 0.001 which consider significant. Regarding the age insomnia was higher in elderly 93.7% with 95%CI = 90.6-96.0%, more than middle-age which estimated as 79.8% with 95CI% = 77.4-82.1%, as well as more than young's whose intern estimated as 64.2% with 95%CI = 59.9-68.4%. The P-value =0.001. Chi-square analysis revealed that once being an elderly, widow, divorced, female, housewife, lack of education and habit of excess tea consumption all were significantly associated with insomnia with P-value <0.05 (8).

Jessica C Levenson conducts a national representative study about social media use before bed and sleeps disturbance issues among young adults in the US. There were 1763 persons who are involved in the study. They were between the age of 19-32 years old. Each participant estimates the extent they use social media in 30 min before bed while the sleep disturbance assessed via PROMIS (patient-reported outcomes measurement information system). After testing the proportional odds, they use ordered logistic regression to compute the independent association between use the social media before bed and sleep disturbance. Comparing the people whose labeled as rarely or very rarely check social media and those with often or very often check the social media had an odds ratio 1.62 with 95%CI = 1.31-2.34 to increase the sleep disturbance. They found a significant linear trend in the odds ratio between the frequencies of checking social media in 30 minute before bed and increase sleep disturbance issue with P-value 0.007% (9). Another Japanese study was done to evaluate the association between the use of mobile phones after lights out and sleep disturbance among Japanese adolescents. 95680 students were involved in this cross-sectional analytic study, all of them selected via cluster sampling. A self-reported anonymous questionnaire was sent for them to fill it. The results show that 84.4% were daily using the mobile phone even if for a brief period, 8.3% reported using the phone for calling while 17.6% reported using the phone for text messaging. A multiple logistic regression analysis shows that mobile use for calling or texting after the light has been off being associated with sleep disturbance. (10)

Aim: This study aimed to estimate the prevalence of insomnia and to identify its associated risk factor among secondary school students in the east sector of Makkah city, KSA, 2019. Therefore, contributing to better management of insomnia.

Objectives

- To estimate the prevalence of insomnia among secondary school female students in the east sector of Makkah Al-Mukarramah, 2019.
- To list the associated factors related to insomnia particularly smart devices use before bed among the same population.

METHODOLOGY

Study design: Cross-sectional analytic study.

Study population: Secondary school female students in the east sector of Makkah Al Mukarramah which estimated to be 5989 students (11).

Inclusion criteria: All secondary school students in the east sector of Makkah.

Governmental and private schools: Daytime schools Schools for General education, Holy Quran memorize, and Muqararat.

All students' nationalities.
Transfers students.

Exclusion criteria

Male students.
Schools from other sectors in Makkah Al Mukkaramah.
Literacy school students.
Foreigner school students.
Night school students.
Special education schools for special needs students.
Any student diagnosed with mental illness previously.

Study area

This study will be conducted in Makkah Al Mukkaramah which is the holy capitalas it has the holy mosque which contains the God house "KAABA". It's considered one of the largest cities in KSA, and it's a land area about 850 m2.(12)

There are 1603 schools for both males and females in Makkah city, including primary, intermediate, secondary, kindergarten, and literacy schools. The types of these schools are general education, Holy Quran memorize, foreigner school, literacy, Muqararat education style, and special education schools for special needs students. Also, it can be divided into daytime and night schools.(13)The researcher is interested in the secondary school students upon which the study was conducted.

Sample size

The first step to being done by the researcher is to look for the whole number of the intended population. This is achieved by looking to the ministry of education website which has a complete demonstrated statistical data schedule for the year 1438-1439 (11). The second step is to identify the distribution of insomnia among Makkah population, according to Dr. Hisham Bashawiri study the prevalence of insomnia in Makkah were 29.4% in 2012 (7). Data shows 6110 female students are studying in 17 schools representing the study population. (11)(13)Using araosoft sample size calculation website, the recommended sample size estimated as 304 students and by adding 10% to compensate for any defect, the final number appear to be 341 students.

Sample technique: After the calculation of sample size and through using a stratified sampling technique, the secondary schools are divided into:

Governmental schools

Private schools

Next, a proportional allocation was applied with 80% of the sample size will be recruited from governmental schools while the remaining 20% from private schools. This is according to the data from the ministry of education website where both percentages represent the division of the number of female students between the two strata.(11)(13) The schools involved in each strata is determined through a simple random sampling technique until the required number of participants is covered. The number of participants in each school was divided equally and selected through simple random sampling technique among the three grades of secondary school.

Data collection tool

A combination of self-administer questionnaire, Pittsburgh Sleep Quality Index (PSQI) questionnaire.

The questionnaire was divided into three main categories:

- Sociodemographic: age, nationality, living situation, house income status, school grade and school achievement.
- Sleep status: a valid Pittsburgh Sleep Quality Index (PSQI) questionnaire will be used to assess insomnia.
- Smart devices use: total use per day in minutes, how often check smart devices before bed and space-time between checking and falling asleep.

Categories No 1 and 3 was constructed by the researcher and the final questionnaire has been validated via face validation by Dr. Emad Raffa, family medicine consultant, Dr.Majedah Janadi, family medicine consultant, and Dr. Waseem marei, psychiatry consultant and it was tested in the pilot study after ethical approval from IRB.

The testing reliability of the questionnaire was done via alpha Cronbach's that in turn give value 82which considered as good internal consistency. The final form of the questionnaire was in Arabic, the translation from English to Arabic was done by a family medicine resident colleague and from Arabic back to English by another family medicine resident colleague.

Data collection technique: After taking all permissions, the self-administered questionnaire was submitted to the main teachers of each grade of the involved school. The researcher met those teachers and explain the study aim and explore the questionnaire with them. Afterward, the teachers have handled the questionnaires to the selected involved students during break time and collected back after finishing. During the 1st week of the study period which is one month, the researcher delivers the questionnaires to the teachers of the involved schools. During the 2nd week, the researcher collected them back. Any student who refuses to participate was replaced by the next one on the list. This technique has been used until the required sample size is completed.

Study variables

Dependent
Insomnia prevalence.
Independent
Age.
Nationality.
House income status.
School grade.
School achievement.
Smart devices use.

Data entry and analysis: The statistical program for social sciences (SPSS) 24 version was used, differences were considered as a significant result if P value less than 0.05. Pilot study (Pretesting). It was done on 10% of the sample size (33 students) at 1st secondary school students in Jarwalwho's not involved in the study.

The pilot resembles excellent outcomes from many views as good student cooperation, testing the questionnaire reliability, and discover any barriers which have been avoided in the future.

Limitations: Covering a high number of populations in a limited given time.

Budget: This study was Self-funded.

Statistical Analysis

RESULTS

This study has been done to estimate the prevalence of insomnia among secondary school female students in the east sector of Makkah Al Mukaramah and to list the associated factors related to insomnia particularly smart devices use before bed, the results indicate that more than one-thirds of the respondents were aged 16 years, and the majority of the sample are Saudi, moreover, more than one-third of the sample

Table (1.1): Factors associated with overall sleep quality in the past month

Variables		Good		Poor		Test	P
Age	Choices	Number	Percent	Number	Percent	χ^2	
	15	22	6.45%	35	10.26%	6.812	0.146
	16	40	11.73%	85	24.93%		
	17	34	9.97%	45	13.20%		
	18	16	4.69%	50	14.66%		
	19	6	1.76%	8	2.35%		
Variables		Good		Poor		Test	P
Nationality	Choices	Number	Percent	Number	Percent	χ^2	
	Saudi	114	33.43%	205	60.12%	2.803	0.094
	Non-Saudi	4	1.17%	18	5.28%		
Variables		Good		Poor		Test	P
Schoolgrade	Choices	Number	Percent	Number	Percent	χ^2	
	First secondary	40	11.73%	73	21.41%	0.357	0.836
	Second secondary	41	12.02%	73	21.41%		
	Third secondary	37	10.85%	77	22.58%		
Variables		Good		Poor		Test	P
School achievement	Choices	Number	Percent	Number	Percent	χ^2	
	acceptable	0	0.00%	9	2.64%	14.107	0.003
	good	15	4.40%	33	9.68%		
	very good	63	18.48%	78	22.87%		
	Excellent	40	11.73%	103	30.21%		
Variables		Good		Poor		Test	P
House income	Choices	Number	Percent	Number	Percent	χ^2	
	Less than 5000	9	2.64%	45	13.20%	9.122	0.003
	More than or equal 5000	109	31.96%	178	52.20%		

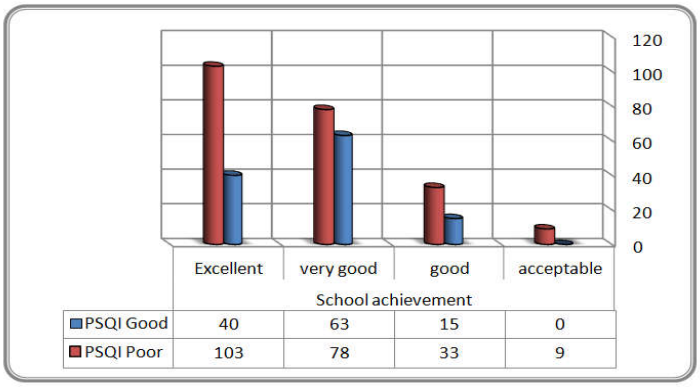

Figure (1.1). Relationship between PSQI and School achievement

Relationship between PSQI and Smart devices use

Table (2.1): Relationship between PSQI and what is the duration of smart devices use during the day

Variables		Good		Poor		Test	P
what is the duration of smart devices use during the day	Choices	Number	Percent	Number	Percent	χ^2	
	None	3	0.88%	8	2.35%	11.045	0.026
	Less than one hours	10	2.93%	14	4.11%		
	1<2 hours	24	7.04%	23	6.74%		
	2 hours and more	71	20.82%	168	49.27%		
	uncertain	10	2.93%	10	2.93%		

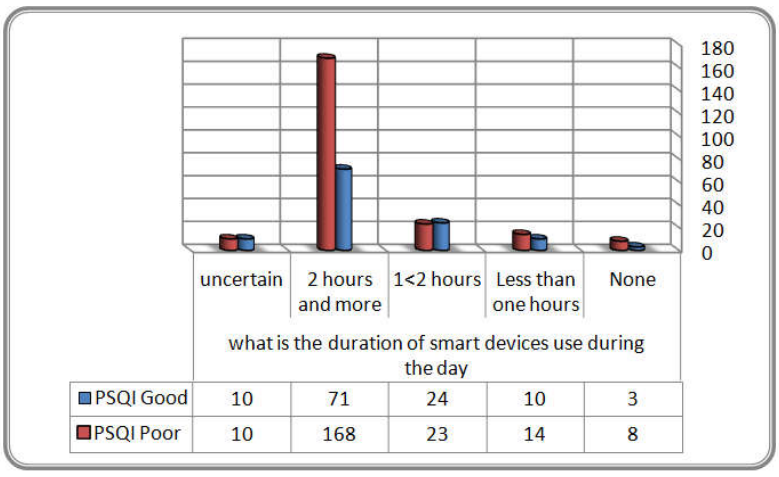

Figure (2.1): Relationship between PSQI and what is the duration of smart devices use during the day

Table (2.2): Relationship between PSQI and how often you use smart devices when light is off

Variables		*Good*		*Poor*		*Test*	*P*
how often you use smart devices when light is off	*Choices*	*Number*	*Percent*	*Number*	*Percent*	χ^2	
	none	15	*4.40%*	20	*5.87%*	8.270	*0.142*
	1-3 times / month	4	*1.17%*	20	*5.87%*		
	once / week	12	*3.52%*	15	*4.40%*		
	several times / week	26	*7.62%*	36	*10.56%*		
	Daily	44	*12.90%*	101	*29.62%*		
	Uncertain	17	*4.99%*	31	*9.09%*		

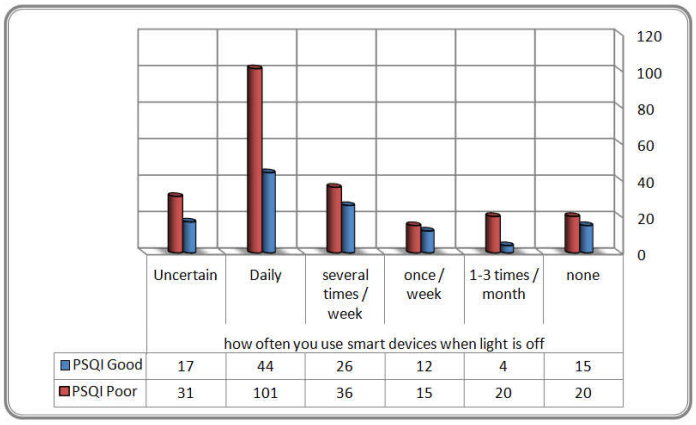

Figure (2.2): Relationship between PSQI and how often you use smart devices when light is off

Table (2.3). Relationship between PSQI and in approximation what is the space time between using smart devices and falling asleep

Variables		*Good*		*Poor*		*Test*	*P*
in approximation what is the space time between using smart devices and falling asleep	***Choices***	***Number***	***Percent***	***Number***	***Percent***	χ^2	
	Less than one hours	81	*23.75%*	124	*36.36%*	5.47	*0.019*
	One hour and more	37	*10.85%*	99	*29.03%*	2	

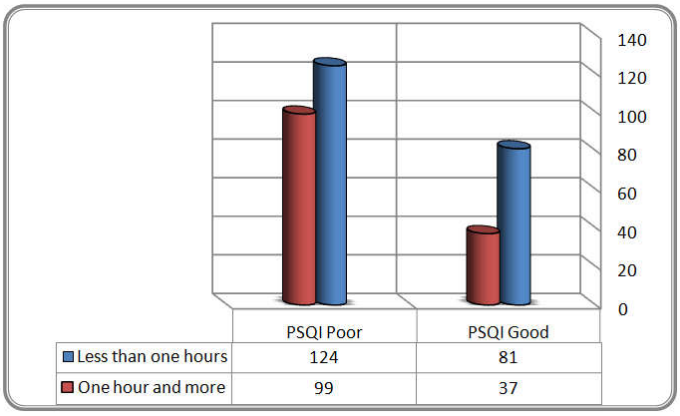

Figure (2.3). Relationship between PSQI and in approximation what is the space time between using smart devices and falling asleep

their school grade is Second secondary and also the majority of the sample their type of school is governmental, regarding the most of the respondents their School achievement is (Excellent) , while the marital state approximately all the samples were single, the majority of the sample their Living situations variable were average, two-thirds of the respondents there House income is More than or equal 5000. The results also show Pittsburgh Sleep Quality Index (PSQI) components of the sample, it indicated that on one hand, about the half of the respondents (55.5%) Sleep quality during the past month is very good, and also about half of the sample (51.9%) Sleep latency in minutes during the past month Less than or equal 15 minutes. Moreover about two-thirds of sample the Sleep duration in hours during the past month is above 7 hours, about three-quarters of respondents (70.4%) Habitual sleep efficiency during the past month above 85%, more half of respondent (58.4%)Sleep disturbance during the past month is mild. In addition, the majority of the sample (89.4%) not Use of sleep medication during the past month, and about (42.2%) Daytime dysfunction during the past month is mid;finally, Overall sleep quality based on Global PSQI Score during the past month is poor. The results also show Factors associated with overall sleep quality in the past month. On one hand, there is no Relationship between PSQI and (Age, nationality, School grade)each one separately. On the other hand, there are relationships between PSQI and (School achievement, House income)each one separately. The results also show Frequency Smart devices use in the past month of the sample. About three-quarters of the sample use the smart devices during the day 2 hours and more, less half of

respondents (42.5%) use smart devices when light is off daily, about two-thirds of the sample (60.1%) use smart devices when light is off less than one hour. Finally, the results also show a relationship between PSQI and Smart devices use. On one hand, there is no Relationship between PSQI and (how often you use smart devices when light is off while On the other hand, there is relationship between PSQI and (what is the duration of smart devices use during the day, in approximation what is the space-time between using smart devices and falling asleep) each one separately.

DISCUSSION

Age: The age of this study sample population ranged from 15 to 19 years. The mean age for the sample population was 16.6 years. The most common age group was 16 years with (125 persons) (36.7 %). While the age group (19 Years) was the lowest number between the respondents with (14 persons) (4.1%).

Other demographic data: Other demographic data e.g. house income status, school grade, type of school, school achievement, smart devices use, nationality,are illustrated in the following tables(1.1).

General sleep habits

Sleep status and sleep latency: The study showed that 55.5 % had a very good sleep quality during the past month, which represents almost half of the study population. Interestingly, 15.8% had a fairly good sleep. Amongparticipants, 15.5 % were had fairly bad sleep while 13.2% had a very bad sleep during the past month. It took almost half of the participants less than or equal 15 minutes to fall asleep, while 32.8% took from 16 to 30 minutes, 7.8% took 31-60 minutes, and 7.5% took more than 60 minutes as a time of sleep latency.

Length of sleep: The study showed that 60.1% (205) of the respondents had slept more than 7 hours during the past month, while 15% (51) of them slept from 6 to 7 hours. Among this, 8.8% (30) of the respondents slept from 5 to 6 hours, and 16.1% (55) did with less than five hours.

Habitual sleep efficiency: According to the study data, the most of the respondent's habitual sleep efficiency during the past month above 85% with 70.4% (240), while the minority of them (4.4%) (15persons) had an efficiency 65-74%, among this 17.3% (59) had (75-84%) efficiency, and 7.9% (27) less than 65%.

Sleep disturbance: According to the study, more than half of the respondents (58.4%) (199) suffered on average from a sleep disturbance. While the respondents habitual sleep disturbance during the past month Is moderate with 35.8% (122), and 1.2% (4) suffered from sleep disturbance several times, but 4.7% (16) hadn't sufferer at all from disturbance.

Sleep medications: More than two-thirds of the respondents (89.4%) (305) didn't use sleep medication during the past month, which 4 .7% (16) used less than once a week. While also,4.7% (16) used once or twice a week, and just 1.2% (4) used three or more times a week.

Dysfunction: The study showed that the respondent's use of daytime dysfunction during the past month was mid with 42.2% of all respondents (144), while 2.9% (10) daytime dysfunctions are (several). Overall sleep quality based on Global PSQI the score during the past month The study showed that 223 of the respondents (65.4%) overall sleep based on Global PSQI Score during the past month are poor(bad) sleepers, while 118(34.6%) are classified as good sleepers. 11.73% of the respondents had a good sleep quality with age 16 years, while 24.93% of them were had poor sleep quality. Among this, 6.45% of respondent who was 15 years had a sleep quality(good) but 10.26% had poor quality. With persons whose age 17 years, they divided into two parts, 9.97% of them with good sleep quality, the other 13.20 % of them with poor sleep quality. In addition, 4.69% of whom age 18 years had a good quality but 14.66% had a poor one. Six persons (1.76%) with good sleep quality while eight (2.35%) with poor sleep quality. The relation between PSQI and age isn't statistically significant (P=0.146). It's clear from the study that 33.43% (114) Saudi respondents had a good PSQI, while 60.12% (205) had poor quality. on the other side, 1.17% (4) of the Non-Saudi persons had a good PSQI, and 5.28% (18) had poor. The relation between PSQI and nationality isn't statistically significant (P=0.094). The study showed that 40 of the first Secondary respondents (11.73%) had a good PSQI and the second secondary had a good also with 12.02%(41) while the third one had a good with 10.85, the schools had a poor PSQI with 21.41% of the First secondary , 21.41 % with the Second, and 22.58% with the third Secondary.

The relation between PSQI and school grade isn't statistically significant (P=0.836). Notably, 2.64% (9) of the students whose school achievement was acceptable were had poor PSQI, while none of them had good PSQI. Among those who had a good PSQI 4.40% (15) had a good school achievement < 18.48% (63) with very good and 11.73% (40) with excellent school achievement. People with poor PSQI divided as (9.68%) (33) with good school achievement, 22.87% (78) with very good, 30.21% (103) with excellent. the relation between PSQI and school achievement is statistically significant (P=0.003). According to the study, it's clear that 2.05% (7) had a good PSQI with a wealthy living situation, 32.26% (110) also had a good PSQI but with average status,0.29% (1) with good PSQI and poor living situation. While those with poor PSQI,8.21% (28) of them were living a wealthy life, 57.18% (195) were living average life, none of them were living a poor life. the relation between PSQI and living situation isn't statistically significant (P=0.065). In the category of house income, 2.64% (9) of people with an income of less than 5000 had a good PSQI, and 13.20% (45) of them had poor PSQI. On the other hand, 31.96% (109) of people with an income of more than or equal 5000 had good PSQI, while 52.20% (178) of them had poor PSQI. The relation between PSQI and house income is statistically significant (P=0.003)

Smart devices

Duration of smart devices use: Among the participants with good PSQI, 0.88% (3) don't use smart devices during the day, 2.93%(10) use for less than one hour a day, 7.04%(24) use for more an hour less than two hours,20.82%(71)for 2 hours and more, and 2.93%(10) use for an uncertain period a day. while the persons with poor PSQI,2.35%(8) don't use smart devices during the day, 4.11%(14) use for less than one hour a day, 6.74%(23) use for more an hour less than two hours,49.27%(168)for 2 hours and more, and 2.93%(10) use for an uncertain period.

The relation between PSQI and what is the duration of smart devices use during the day is statistically significant (P=0.026). Use smart devices while light is off. According to the study data 15 persons(4.40%) don't use smart devices when light is off with good PSQI, 4 persons(1.17%)did that 1-3times per month, with good PSQI, for people with good PSQI also, 12(3.52%) use once a week,26 (7.62%) several times a week, 44(12.90%) daily, 17(4.99%) uncertain times. For persons who had poor PSQI,5.87% (20) don't use smart devices when light is off,5.87% (20) did that 1-3times per month, 4.40% (15) use once a week,10.65% (36) several times a week, 29.62% (101) daily, 9.09% (31) uncertain times. The relation between PSQI and how often you use smart devices when the light is off isn't statistically significant (P=0.142).

The space between smart devices use and falling asleep: 81 persons (23.75%) with good PSQI leave space for less than one hour between using smart devices and falling asleep,37persons (10.85%) leave one hour and more, with a good index too. For whom had a poor index, 124 persons (36.36%) leave less than one hour,99 persons (29.03%) leave. one hour and more. The relation between PSQI and in approximation what is the space-time between using smart devices and falling asleep is statistically significant (P=0.019). It's clear from the table we reject the null hypothesis for all items except "The categories of "School grade" occur with equal probabilities" and "The categories of "During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?" occur with equal probabilities." Sleep habits among secondary school female students in east sector of Makkah Al Mukaramah. In this study, 65.4% were classified as good PSQI (good sleep), while 34.6% were classified as poor PSQI (bad sleep). Most of the study population (60.1%) slept more than7 hours per night during the past month, which is almost suitable with the National Sleep Foundation's recommendation. To understand these results clearly, we have to look at a wider perspective and economic changes and development which have occurred recently. In this study, more than half of the respondents 55.5% tend to have very good sleep quality, and 13.2% have very poor(bad) sleep quality. And also, about half of the sample (51.9%) Sleep latency in minutes during the past month Less than or equal 15 minutes, this is due to several factors related to insomnia including the use of smart devices. Moreover about two-thirds of sample the Sleep duration in hours during the past month is above 7 hours, about three-quarters of respondents (70.4%) Habitual sleep efficiency during the past month above 85%, more half of respondent (58.4%) Sleep disturbance during the past month is mild. In addition, the majority of the sample (89.4%) not Use of sleep medication during the past month, and about (42.2%) Use of Daytime dysfunction during the past month is mild, finally, Overall sleep quality based on Global PSQI Score during the past month is poor. Another factor that can affect sleep disturbance in participants, the use of smart devices while the light turned off, because of its negative effects on humans, such as the inability to regulate sleep, eyes damage, some mental discords, and factors that help to develop many serious diseases.

Relations: There is no Relationship between PSQI and (Age, nationality, School grade) each one separately. On the other hand, there are relationships between PSQI and (School achievement, House income) each one separately. The results also show Frequency Smart devices use in the past month of the sample. About three-quarters of the sample use the smart devices during the day 2 hours and more, less half of respondents (42.5%) use smart devices when light is off daily, about two-thirds of the sample (60.1%) use smart devices when light is off less than one hour. Finally, the results also show a relationship between PSQI and Smart devices use. On one hand, there is no relationship between PSQI and (how often you use smart devices when light is off. On the other hand, there are relationships between PSQI and (what is the duration of smart devices use during the day, in approximation what is the space-time between using smart devices and falling asleep) each one separately.

Awareness: Through the results of this study, it was concluded that there is a good degree of awareness among the participants. The majority of them have not had any sleep-medications in the past month. While a small percentage of them took these three times or more. Note that these medicines are taken from the doctor's prescription to help sleep, and a number of specific times, i.e. may not be used randomly or frequently without consulting a doctor.

Conclusion and recommendations: Insomnia in specific and sleep problem in general are always underestimated and undertreated. Increase the awareness and effective management is the beginning through:

- Establishing sleep clinic by MOH in each health sector
- Screening about sleep quality should be enhanced
- Family medicine physicians should be trained for proper evaluation of sleep problem and proper management accordingly.

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