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RESEARCH ARTICLE

PREVALENCE AND RISK FACTORS OF OBSTRUCTIVE SLEEP APNEA SYNDROME AMONG ADULT MALES IN WESTERN REGION POPULATION IN KINGDOM OF SAUDI ARABIA

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Manuscript Info

Abstract

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Introduction:-

Obstructive sleep apnea (OSA) refers to recurrent episodes of an absence of or decline in breathing during sleep despite a continuous effort to breathe normally. The condition is characterized clinically by excessive daytime sleepiness (EDS), disruptive snoring, and periodic nocturnal hypoxemia with frequent arousals during sleep. OSA is also associated with serious health complications, such as an increased risk of vehicle crashes, occupational accidents, hypertension, cardiovascular and cerebrovascular diseases, glucose intolerance, decreased functional ability, and impotence. Furthermore, OSA may also increase all-cause mortality, particularly vascular mortality, which leads to increased utilization of health-care services.

Rationale:

Obstructive sleep apnea is a chronic morbid condition and many patients don't know how much this disease can affect the quality of his life.

This research important to benefit the researcher to determine the prevalence is increased or decreased and why? this makes it easy to deal with disease and patient and diagnose it early.

As for the patient this research educates the patient about his condition and how to deal with it, to enjoy a better health life.

Literature review:

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The conclusion was: Similar to other populations, sleep apnea syndrome is a common disorder among Saudis as it is noted in at least 4.0% and 1.8% of males and females, respectively. COSAS is likely a more practically applied definition; its estimated overall prevalence was 8.5%, affecting 12.4% of males and 4.8% of females. The male gender, age, obesity, and hypertension were independent predictive risk factors of OSA based on a multivariate regression analysis.

On the other hand, this study (Wali, Abalkhail and Krayem, 2017). It was comprehensive in general (females and males), and the target population it was school employees where it varies gender in tight surrounding and the number of samples it's 2682 which is large number include only studies.

Another study Prevalence of High-Risk Group of Obstructive Sleep Apnea Among Western Region Population in Saudi Arabia. (Assiri et al., 2018)

The conclusion was: about the prevalence of high-risk group of OSA in western region in Saudi Arabia. It showed around 28% of population is in high risk group. Further studies are required among population of OSA in Saudi Arabia to evaluate and avoid the risk factors for such cases and improve their sleep and their patterns of life.

This study (Assiri et al., 2018) Similarly of my study which is in western regions also.

On the other hand, the number of samples 214 which is a small number on the occasion with the western region.

Research Objectives:-

The Aim:-

Assessment of the most affected group of adults by obstructive sleep apnea disorder in western area of Saudi Arabia and help them to get a good quality of life.

Objective:-

1. To determine the prevalence of OSA especially in males.
2. To determine the risk factors of OSA.
3. To identify common factors among OSA patients.
4. The extent of the patient awareness about his health state associated with OSA.

Methods:-

Study design:

This is an analytical cross-sectional study. Study Setting and period: This is an analytical cross-sectional study conducted at Universities, schools and hospitals (from the general population), KSA from may 2019 till November 2019.

Study Population And Sampling:

Study participants:-

Inclusion criteria; Males ≥ 18 years old. Exclusion criteria; Females and males those younger than 18 years old.

Sampling Method:-

Participants will be randomly selected and carried out by questionnaire.

Sampling size:-

A number has been collected 1753 males from the general population.

According to the prevalence study, 39.42% of patients They were under the age of 25 years old, 87.22% they don't suffer from snoring, 43.53% they feel tired during the day, 46.89% of them they are smokers.

Explanatory variables:

1. Sociodemographic characteristics: age, Patient State, nationality.
2. Disease-related information: Having snoring, Family history, Obesity, receive treatment, the type of dealing with the disease in terms of seriousness, presence of complications and associated disease, etc.

Outcome measures:

The outcome measure is by counting the ratio of the number of males with obstructive sleep apnea syndrome this will be measured using:

By determining the extent of the disease in addition to the risk factors that lead to suffering from OSA.

Prevalence study:

will be carried to test the questionnaire if easily understood and the response of the participants. Data from the pilot study will be used to calculate the sample size.

By measuring the proportion of adult males suffer from OSA, this will be measured using:

By determining the most effected age group and the symptoms and complications of the OSA.

The outcome has been divided accordingly: patient suffer from OSA without any relationship with other chronic disease such as DM and HTN, patient suffer from OSA with a relationship with appearance of symptoms and complications.

Statistical analysis:-

Data will be entered and analyzed using SPSS version 17.0 Descriptive statistics will be performed and categorical data will be displayed as frequencies and percentages while measures of central tendencies and measures and dispersion will be used to summarize continuous variables. Univariate and multivariate analysis will be performed to investigate association between exposure factors age, patient state, nationality, having snoring, Family history, Obesity, receive treatment, the type of dealing with the disease in terms of seriousness, presence of complications with the outcome. statistical significance is set at a P value of 0.05 or less.

Results:-

In this study, the aim was to Assessment of the most affected group of adults by obstructive sleep apnea disorder in western area of Saudi Arabia and help them to get a good quality of life., participants 1753 males, were consecutively recruited from outpatient clinics, during a period from 14/5/2019 to 1/12/2019

Socio-demographic characteristics of the studied group and to make sure of that, most of the participants were Saudis 72.68%, the most effected age group below than 25 years old 39.42%.

According to symptoms of OSA as snoring the most of participants 87.22% they don't suffer from snoring. 43.53% they feel tired during day, the most of participants 71.76 they don't suffer from any cardiac disease, regards if there is any past stroke 71.19% they said no.

According to the chronic disease 85.62 they are non-diabetic patient:-

According to the most important and dangerous complication of OSA the 89.16% they don't expose to motor vehicle accident, 40.50% they have positive family history of similar condition, 81.35% they don't suffer from allergic rhinitis, 46.26% they suffer from enlarged tonsils, 87.62% they don't have nasal polyp, 74.22% they don't do tonsillectomy , 87.85% they don't do adenoidectomy, 46.89% they are smokers, 83.86% don't receive treatment,51.11% think it's a serious problem.

Correlations:**Correlations**

		Do you feel tired during the day?	Do you have any cardiac disease?
Do you feel tired during the day?	Pearson Correlation	1	.073**
	Sig. (2-tailed)		.002
	N	1753	1753
Do you have any cardiac disease?	Pearson Correlation	.073**	1
	Sig. (2-tailed)	.002	
	N	1753	1753

** . Correlation is significant at the 0.01 level (2-tailed).

P value is 0.002 which means there is a strong relationship between feeling tired during the day and having cardiac disease.

Correlations

		Do you have any cardiac disease?	Did you have stroke?
Do you have any cardiac disease?	Pearson Correlation	1	.180**
	Sig. (2-tailed)		.000
	N	1753	1753
Did you have stroke?	Pearson Correlation	.180**	1
	Sig. (2-tailed)	.000	
	N	1753	1753

** . Correlation is significant at the 0.01 level (2-tailed).

P value is 0.000 which means there is a strong relationship between having stroke and having cardiac disease.

Correlations

		Do you have any cardiac disease?	Do you smoke?
Do you have any cardiac disease?	Pearson Correlation	1	.127**
	Sig. (2-tailed)		.000
	N	1753	1753
Do you smoke?	Pearson Correlation	.127**	1
	Sig. (2-tailed)	.000	
	N	1753	1753

** . Correlation is significant at the 0.01 level (2-tailed).

P value is 0.000 which means there is a strong relationship between smoking and having cardiac disease.

Correlations			
		Have you received treatment for OSA?	Patient state
Have you received treatment for OSA?	Pearson Correlation	1	.075**
	Sig. (2-tailed)		.002
	N	1753	1753
Patient state	Pearson Correlation	.075**	1
	Sig. (2-tailed)	.002	
	N	1753	1753

** . Correlation is significant at the 0.01 level (2-tailed).

P value is 0.002 which means there is a strong relationship between patient state and receiving treatment for OSA.

Correlations			
		Did you do tonsillectomy ?	Do you have allergic rhinitis ?
Did you do tonsillectomy?	Pearson Correlation	1	.203**
	Sig. (2-tailed)		.000
	N	1753	1753
Do you have allergic rhinitis ?	Pearson Correlation	.203**	1
	Sig. (2-tailed)	.000	
	N	1753	1753

** . Correlation is significant at the 0.01 level (2-tailed).

P value is 0.000 which means there is a strong relationship between doing tonsillectomy and having allergic rhinitis.

Correlations			
		Have you received treatment for OSA?	Have you been exposed to motor vehicle accidents?
Have you received treatment for OSA?	Pearson Correlation	1	.450**
	Sig. (2-tailed)		.000
	N	1753	1753
Have you been exposed to motor vehicle accidents?	Pearson Correlation	.450**	1
	Sig. (2-tailed)	.000	
	N	1753	1753

** . Correlation is significant at the 0.01 level (2-tailed).

P value is 0.000 which means there is a strong relationship between being exposed to motor vehicle accidents and receiving treatment for OSA.

Conclusion:-

The results of the study showed positive results in terms of low incidence of the causes that increases the risk of getting sleep apnea syndrome, such as family history of the disease and the presence of fevers, nasal allergies, heart disease and stroke. But one of the disadvantages is that a large proportion of them are smokers, and smoking is one of the causes of the disease, also, a large group of the sample have not been treated and this is dangerous for their health.

Discussion:-

This study was based on a number of 1753 participants, 39.42% of them below age 25 year old, 1529 of them they don't suffer from snoring which is meaning the snoring does not have an important relationship with OSA, according to cardiac disease 495 they have cardiac disease although it is a small number of the total sample, this must be taken into consideration.

The current study showed statistically significant association between feeling tired during the day and having cardiac disease ($p=0.002$).

there is a strong relationship (P value is 0.000) between having stroke and having cardiac disease, on the other hand, which means that patients suffering from cardiac disease are linked to being more prone to stroke, (P value is 0.000) which means there is a strong relationship between smoking and having cardiac disease, (P value is 0.000) which means there is a strong relationship between doing tonsillectomy and having allergic rhinitis, (P value is 0.000) which means there is a strong relationship between doing tonsillectomy and having allergic rhinitis.

Conclusion:-

The study findings show that obstructive sleep apnea more common in males below age 25 year old, this health problem was not significantly related to snoring as it is more than the middle of the total sample number do not suffer from snoring, on the other hand, smoking was one of the most important and related causes a most are smokers and the other part were x-smokers and the minority are very non-smokers, For chronic diseases related to this disease like DM there is unnoticeable or clear relationship. Perhaps that which is a very big problem is that more than half were not receiving treatment, which means that there is an unconsciousness and lack of understanding of the seriousness of the obstructive sleep apnea syndrome. It is recommended to provide healthcare workers with launch specific awareness programs on not neglecting the any health problem related to respiratory diseases and effective of ease of treatment and methods.

Replication of this study in multiple hospitals or areas across different caregiver staff is recommended, thus making problem in the domain of evidence-based medicine.

Recommendation:-

we recommend setting up health education programs about the obstructive sleep apnea syndrome this health problem must be presented broadly and beneficially and, in a way, that everyone understands, as most deal with this health problem ignoring and not being important, work should be done on health conferences and medical discussions on that.

Acknowledgement:-

The authors would like to thank the participants for their great cooperation for collecting data from the (general population). They worked hard to collect data greatly, and a large sample number was collected for their great effort.

Ethical considerations:

Administrative approval will be sought from the unit of biomedical ethics research committee Ethical approval will be sought from the ethical committee of the faculty of medicine, king Abdulaziz university. An informed consent will be sought from the participants. All procedures of the research will be according to the declaration of Helsinki on ethical principles for medical research involving human subjects [10]

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Appendices:

Prevalence and Risk Factors of Obstructive Sleep Apnea Syndrome Among Adult Males in Western Region Population in Kingdom of Saudi Arabia questionnaire

1-Patient State: حالة المريض

1. In Patient داخل المستشفى
 2. Out Patient خارج المستشفى
- 2- Age العمر

3-Nationality الجنسية

1. Saudi سعودي
 2. Non-Saudi غير سعودي
- 4-Do you have snoring? هل لديك شخير

1. Yes نعم
2. No لا

5-Do you feel tired during the day? هل تشعر بالتعب خلال النهار

1. Yes نعم
2. No لا

6- Do you have any cardiac disease? هل لديك أي امراض متعلقة بالقلب

1. Yes نعم
2. No لا

7- Did you have stroke? هل اصبت بالسكتة الدماغية

1. Yes نعم
2. No لا

8-Do you have DM? (هل لديك داء السكري)

1. Yes نعم
2. No لا

9- what is your (Body mass index) weight/height? ما طولك ووزنك

10- Have you been exposed to motor vehicle accidents? هل تعرضت لحوادث السيارات?

1. Yes نعم
2. No لا

11- Family history of similar condition? تاريخ عائلي من حالة مماثلة?

1. + إيجابي (يوجد)
2. - سلبي (لا يوجد)

12- Do you have allergic rhinitis? هل لديك التهاب الأنف التحسسي?

1. Yes نعم
2. No لا

13- Do you have enlarged tonsils? هل لديك تضخم أو زيادة حجم اللوزتين?

1. Yes نعم
2. No لا

14- Do you have nasal polyp? هل لديك لحمية الأنف?

1. Yes نعم
2. No لا

15- Did you do tonsillectomy? هل قمت باستئصال اللوز?

1. Yes نعم
2. No لا

16- Did you do adenectomy? هل قمت باستئصال لحمية الأنف?

1. Yes نعم
2. No لا

17- Do you smoke? هل أنت مدخن?

1. Yes نعم
2. No لا
3. x- smoke مدخن سابق

18- Did you receive treatment for obstructive sleep apnea syndrome? هل تلقيت العلاج لمتلازمة الاضطراب التنفسي?

1. Yes نعم
2. No لا

19- In your opinion this is serious condition? برأيك هذه حالة خطيرة?

1. Yes نعم
2. No لا
3. Maybe ممكن

The end.

Thank you.