



Obstructive Sleep Apnea Syndrome OSAHS of Children: Screening at the Dental Clinic of the Blida University Hospital Center-Algeria

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Abstract

Introduction: The orthodontist is in a strategic position to screen for obstructive sleep apnea syndrome (OSAHS), and the use of a questionnaire is recommended to better understand the presence of signs and symptoms suggestive (snoring, awakenings and breathing pauses, daytime sleepiness). The PSQ-SRBD was the most accurate and reliable questionnaire used by dental surgeons.

Materials and Methods: We conducted a descriptive cross-sectional study on a representative sample of the pediatric population of Blida (310 children) who attended the Ahmed ZABANA dental clinic. Our study spanned six weeks from January 2019 to February 2019. We used CHERVIN's PSQ-SRBD. The SRBD scale is a questionnaire administered to parents of children aged 2 to 18. It is made up of 22 items that investigate the frequency and severity of snoring during sleep, the presence of apnea during sleep, daytime sleepiness, disturbance in attention, hyperactivity and other symptoms related to SAHOS.

Results: The PSQ-SRBD score reveals that 21% of the children surveyed are suspected of having OSAHS. In our sample, the suspected OSAHS is concentrated in children between 6 and 13 years old. More than (90% of children) suspected of OSAHS have the following characteristics: mouth breathing, daytime sleepiness and disturbed attention and hyperactivity. Snoring is represented at 71% and breathing difficulties at 88%.

Discussion: The prevalence of skeletal class III in our clinic between 2015/2016 was 8.37%, while in 2017 it was 5.56% despite the fact that the population retained in 2017 was larger. This inconsistency is most likely related to the extent of the field taken in 2017, which results in a reduced percentage of unhealthy cases. Among other things, the prevalence of skeletal class III experienced a quantifiable decrease between 2015 and 2017.

Conclusion: OSAHS in children is multifactorial in origin, but the most common cause is enlarged tonsils and adenoids. The OSAHS treatment of choice in children is based on adeno-tonsillectomy surgery, which can be treated effectively. It will have the effects of lowering respiratory resistance, harmonizing facial growth and improving behavioral and cognitive disorders.

Keywords: *Obstructive Sleep Apnea Syndrome (OSAHS); Dental Clinic; Blida University Hospital Center*

Interest of the Study

In children, obstructive sleep apnea syndrome (OSAHS) is a common condition that is underdiagnosed.

The orthodontist is in a strategic position to screen for OSAHS, and the use of a questionnaire is recommended to better under-

stand the presence of signs and symptoms suggestive (snoring, awakenings and breathing pauses, daytime sleepiness). The PSQ-SRBD was the most accurate and reliable questionnaire used by dental surgeons.

Objectives of the Study

- The main objective of our study is to estimate the prevalence of OSAHS in the pediatric population of Blida.
- The secondary objective is to identify the characteristics of the disease of the children surveyed (snoring, mouth breathing, disturbance of attention and hyperactivity).

Materials and Methods

Type of study

We conducted a descriptive cross-sectional study on a representative sample of the pediatric population of Blida (310 children) who attended the Ahmed ZABANA dental clinic.

The sample size is calculated using the following formula:

$$N = e^2 \cdot p \cdot q / i^2$$

Whose:

N: The size of the sample.

p: Estimated proportion of the population exhibiting the characteristic.

q: 1-p.

i: The margin of error (generally set at 5%).

e: Confidence level (the typical 95% confidence level will be 1.96).

$$N = [(1.96)^2 * (276135/1002937) * (1-0.275)] / 0.05^2$$

$$N = [3.8416 * 0.2753 * 0.7246] / 0.0025$$

$$N = 306 \sim 310.$$

The duration of the study

Our study spanned six weeks from January 15, 2019 to February 29, 2019.

Patient selection criteria

The questionnaire was systematically offered to parents accompanying their children.

The inclusion criteria are:

- Children aged 2 to 17 years old;
- Female or male;
- Child present to measure height and weight (BMI calculation); Agreeing to participate in the study.

The exclusion criteria are

- Lack of information about the child;
- Adults and elderly patients;
- Refusing to participate in the study.

Materials

The support for the study is based on: The questionnaire

We used the PSQ-SRBD from CHERVIN (See annex). The SRBD scale is a questionnaire administered to parents of children aged 2 to 18. It is made up of 22 items that investigate the frequency and severity of snoring during sleep, the presence of apnea during sleep, daytime sleepiness, disturbances in attention, hyperactivity and other symptoms related to SAHOS.

The possible answers are "Yes", "No" and "Don't know".

Six items are related to snoring and breathing difficulties, two to mouth breathing, four to daytime sleepiness, six to behavioral problems and four general items.

The total SRBD score is the average of the scores for each item excluding any missing responses.

- A scale;
- A fathead.

Conduct of the study

Conduct of the survey

The survey proceeded as follows:

- a) We look in the waiting room of the ZABANA dental clinic for parents accompanying their children and we explain the interest and the context of our survey;
- b) Each element of the team moves the child’s date of birth, sex and place of residence, and measures height and weight to calculate the BMI of each child;
- c) Afterwards he explains the questions to the parent, and moves the answers individually and anonymously;
- d) The average duration of the interview was 5 - 10 minutes.

Data processing

After completing the questionnaires and in order to be able to process them, we proceeded as follows:

- a) Assign sequential numbers to questionnaires;
- b) Codify the responses (See appendix N° 06);
- c) Enter the responses on an “Excel®” data processing system, to be able to process them and get the results.

Results

Description of the sample

Description of the sample by age

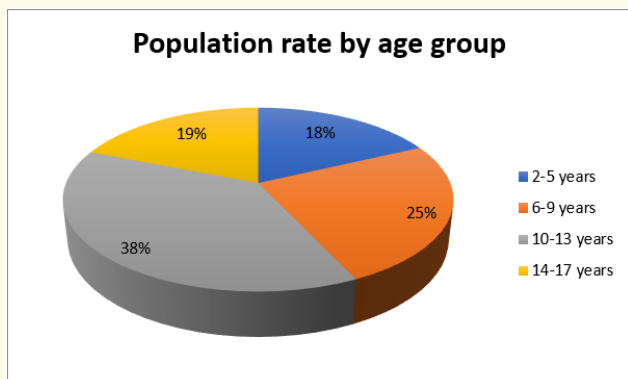


Figure 1: Distribution of the sample by age.

In our sample, the most represented age group is the one between 10 - 13 years old (38%).

Description of the sample by gender

The children surveyed are more girls (59%) than boys (41%).

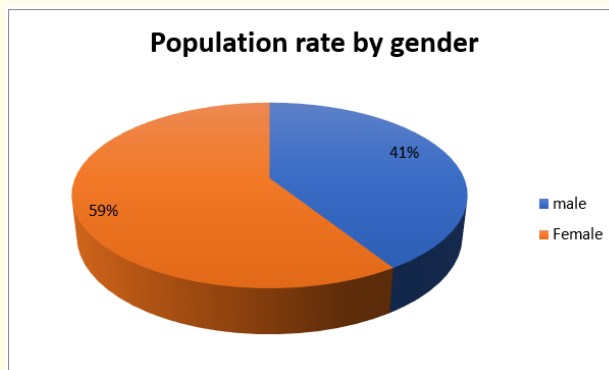


Figure 2: Distribution of the sample by gender.

Description of the sample by place of residence

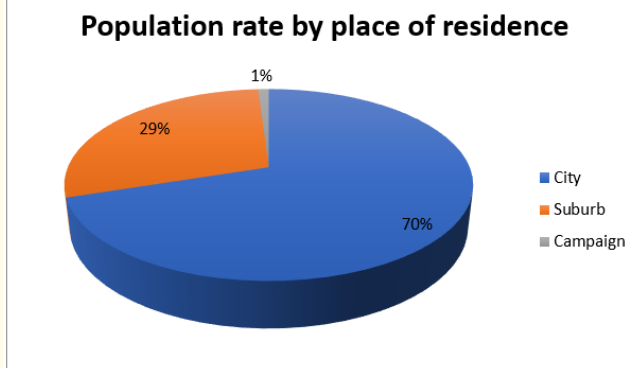


Figure 3: Distribution of the sample by place of residence.

The majority of parents questioned are concentrated in the city (70%).

Description of the sample according to BMI

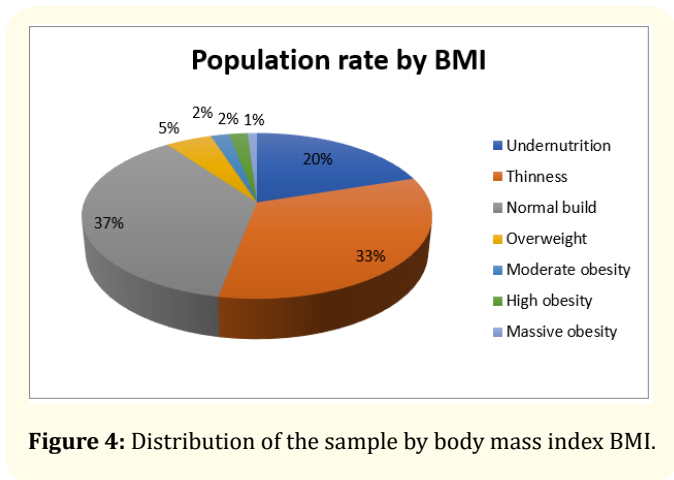


Figure 4: Distribution of the sample by body mass index BMI.

The vast majority of the surveyed population is between normal build (37%), thinness (33%) and undernutrition (20%).

The prevalence of OSAHS risk among children surveyed OSAHS rate

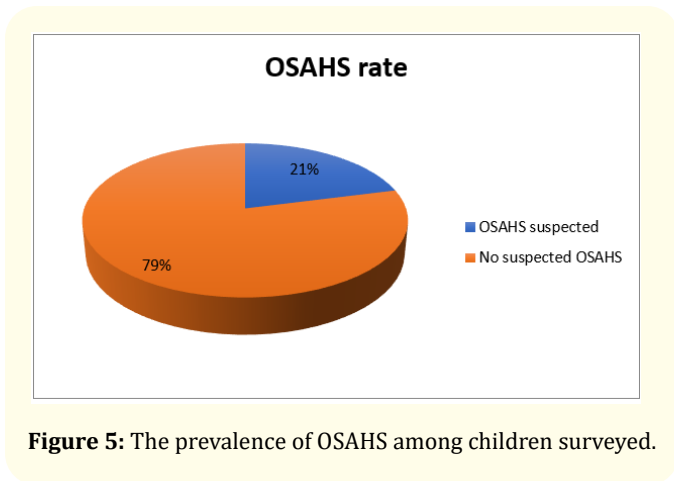


Figure 5: The prevalence of OSAHS among children surveyed.

The PSQ-SRBD score reveals that 21% of the children surveyed are suspected of having OSAHS.

The prevalence of OSAHS by age

In our sample the suspected OSAHS is concentrated in children between 6 and 13 years old.

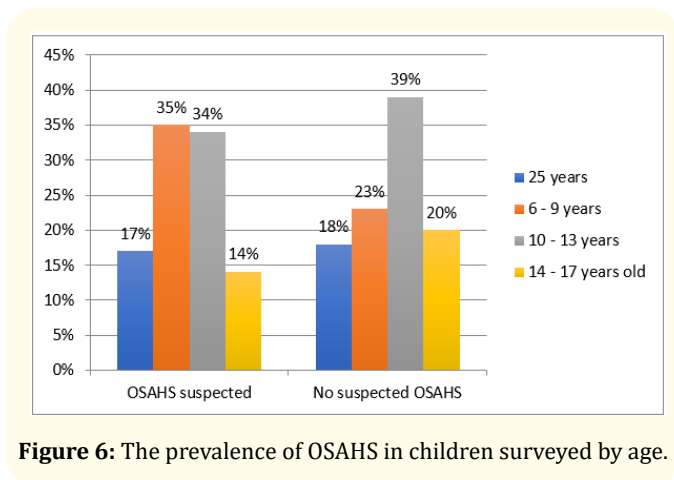


Figure 6: The prevalence of OSAHS in children surveyed by age.

The prevalence of OSAHS risk by gender

According to our survey, the risk of OSAHS is 57% in girls.

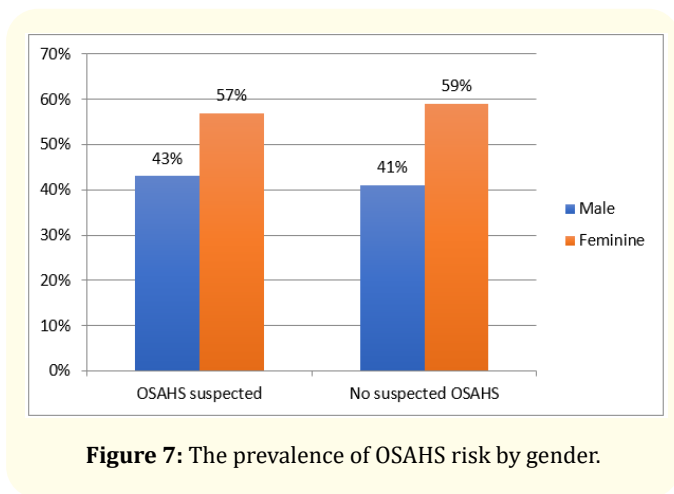


Figure 7: The prevalence of OSAHS risk by gender.

The prevalence of the risk of OSAHS according to the BMI of the children surveyed

In prevalence, 40% of children suspected of having OSAHS are of normal build while 13% are between overweight and massive obesity.

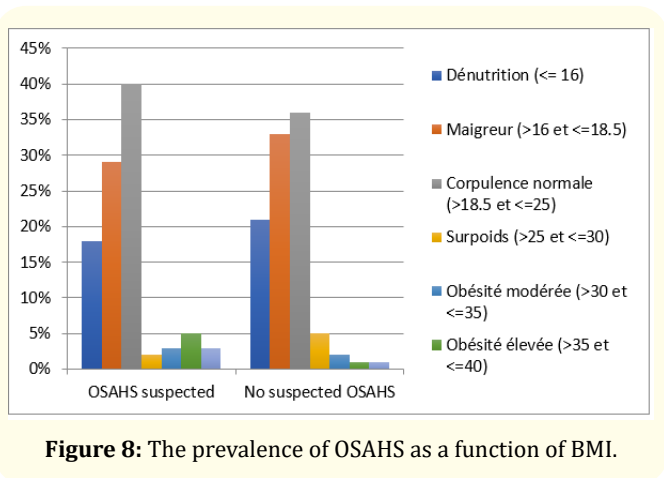


Figure 8: The prevalence of OSAHS as a function of BMI.

The prevalence of the risk of OSAHS according to the different subgroups (Snoring, difficulty breathing, mouth breathing, daytime sleepiness, disturbances in attention and hyperactivity)

Sub group	Prevalence of OSAHS risk	Observation
Snoring	0.48	Average correlation
Difficulty breathing	0.49	Average correlation
Mouth breathing	0.43	Relatively weak correlation
Daytime sleepiness	0.55	Relatively strong correlation
Attention disorders and hyperactivity	0.54	Relatively strong correlation

Table

Distribution of the prevalence of OSAHS risk according to the different subgroups

Snoring is represented at 71% and breathing difficulties at 88%.

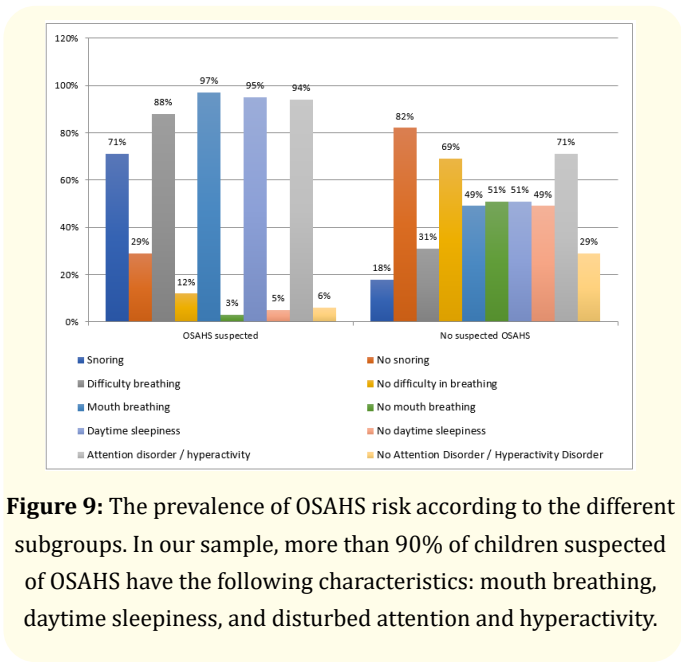


Figure 9: The prevalence of OSAHS risk according to the different subgroups. In our sample, more than 90% of children suspected of OSAHS have the following characteristics: mouth breathing, daytime sleepiness, and disturbed attention and hyperactivity.

Discussion of the Study Results

The results of our study show that 21% of children can develop the risk of OSAHS and the average age is 10 years with predominance in girls.

Children with suspected OSAHS suffer from daily snoring, apnea, mouth breathing, fatigue and daytime sleepiness, and behavioral disturbance.

The answer to question 9 “is your child overweight?”, Is not sufficient to determine if the child is overweight which requires the calculation of BMI.

The results of our study reveal that the large majority of children suspected of developing OSAHS have normal build, thinness and undernutrition, while a minority are overweight or obese [1-8].

Conclusion

OSAHS at children is multifactorial in origin, but the most common cause is enlarged tonsils and adenoids. The OSAHS treatment

of choice in children is based on ENT surgery by adeno-tonsillectomy, which can be treated effectively. It will have the effects of lowering respiratory resistance, harmonizing facial growth, promoting nasal breathing and improving behavioral and cognitive disorders, if they are present.

Annex

Clinique Ahmed ZABANA

Pediatric Sleep Questionnaire PSQ SRBD (Sleep Related Breathing Disorder)

N° patient (enfant) : _____

Date du questionnaire : _____ Date de naissance (enfant) : _____

Taille : _____ Poids : _____

Sexe : Masculin Féminin

Vous vivez : En ville En banlieue En campagne

Répondez « oui », « non » ou « ne sais pas » en cochant la case correspondante :

	Oui	Non	Ne sais pas
1. Pendant son sommeil, votre enfant :			
➢ Ronfle au moins la moitié du temps ?			
➢ Ronfle tout le temps ?			
➢ Ronfle bruyamment ?			
➢ Respire fort ?			
➢ Respire avec difficulté ?			
2. Avez-vous déjà vu votre enfant s'arrêter de respirer pendant la nuit ?			
3. Votre enfant :			
➢ A-t-il tendance à respirer la bouche ouverte la journée ?			
➢ A-t-il la bouche sèche en se réveillant le matin ?			
➢ Fait-il pipi au lit quelques fois ?			
4. Votre enfant :			
➢ Est-il fatigué au réveil le matin ?			
➢ Est-il somnolant la journée ?			
5. Un enseignant ou un autre encadrant vous ont-ils fait la remarque que votre enfant semble endormi la journée ?			
6. Est-il difficile de réveiller votre enfant le matin ?			
7. Votre enfant se réveille-t-il souvent avec des maux de tête le matin ?			
8. Depuis sa naissance y a-t-il eu un moment où la croissance de votre enfant a été ralentie ?			
9. Votre enfant est-il en surpoids ?			
10. Souvent, votre enfant :			
➢ N'a pas l'air d'écouter quand on lui parle directement ?			
➢ A du mal à organiser tâches et activités ?			
➢ Est facilement distrait par tout ce qui se passe autour de lui ?			
➢ Agite nerveusement ses mains ou ses pieds ou se tortille sur son siège ?			
➢ Est constamment actif, est « comme une pile » ?			
➢ Interrompt ou s'immisce dans les discussions ou les jeux des autres ?			

Merci beaucoup

Figure

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