

Knowledge and Attitude of Adenoid Hypertrophy Manifestation and Complications in Children among Population of Al Ahsa City, Saudi Arabia

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KEYWORDS

Adenoid hypertrophy, complication, Children, awareness

ABSTRACT

Introduction

Adenoid hypertrophy is one of the most common disorders that occur in children and affect their quality of life. It causes loud snoring, daytime sleeping, drowsiness, loss of concentration, and poor performance during work and school.

Aim

This study aimed to assess the awareness of society about complications of adenoid hypertrophy in children.

Methods

This is a cross-sectional study conducted among the general population living in Al Ahsa, Saudi Arabia. A self-administered questionnaire was distributed to the population using an online questionnaire. The questionnaire consisted of two main parts; socio-demographic characteristics and a questionnaire to assess the awareness of adenoid hypertrophy and its complications. The data was coded and cleaned in MS Excel and all statistical analyses were performed using SPSS version 26.

Results

A total of 165 respondents were recruited (72.1% females vs. 27.9% males). Most of the participants had heard of adenoid hypertrophy (93.3%) and knew that it can cause snoring and sleep problems (93.3%), rhinorrhea and nasal congestion (83%). The total mean awareness score was 5.58 (SD 2.39) out of 9 points. 50.3% had a good awareness level, and 49.7% had poor awareness. Factors associated with increased awareness were being young in age, having a bachelor's or higher degree, and not being married.

Conclusion

There was a deficient awareness in society regarding adenoid hypertrophy complications in children. Respondents who were younger but more educated and unmarried tend to be more knowledgeable about the complications of adenoid hypertrophy than the rest of the groups. Further research is needed to establish the level of awareness of the general population regarding children's adenoid hypertrophy in our region.

Introduction

Adenoids are a type of lymphatic tissue found in the posterior nasopharynx. The adenoids, along with the tonsils, form the Waldeyer ring, a ring of lymphoid tissue found in the pharynx. This ring's lymphoid tissue protects against pathogens. The Waldeyer ring is involved in the production of immunoglobulins as well as the development of B and T cells (1).

Adenoid hypertrophy is an unusual enlargement of the adenoids; the size of the adenoids increases up to the age of 6 years, then gradually atrophies and disappears by the age of 16 years (2). Thus, adenoids hypertrophy is a very common finding in children (3). Adenoid hypertrophy can be physiological or secondary to infection (bacterial or viral), allergy, and many other etiologies (4). Symptoms of adenoid hypertrophy may include rhinorrhea, chronic mouth breathing, snoring, sleep disturbance, hyponasal voice quality, and conductive hearing loss (5).

As per complication, adenoid hypertrophy is the most common cause of chronic airway obstruction in children. Chronic airway obstruction is marked by episodic upper airway obstruction that occurs during sleep; thus, it is called obstructive sleep apnea (OSAS) syndrome (6). Obstructive sleep apnea can have a significant impact on patient's quality of life; it may cause snoring, daytime sleeping, drowsiness, loss of concentration, and poor work and school performance (7). Furthermore, it can also cause dangerous complications including cardiovascular, behavioral, and growth complications (8). For these reasons, obstructive sleep apnea is considered an absolute indication for adenoidectomy (9).

Adenoidectomy is still one of the most popular surgical procedures performed in pediatric populations across the world. Adenoids seldom recur following adenoidectomy, although children experiencing symptoms caused by regrown adenoid tissues may require revision surgery in the future (10). Hence, this study aims to assess awareness of society about complications of adenoid hypertrophy in children in the form of nasal congestion, rhinorrhea, frequent ear infections, face changes, poor school performance, breathing, and sleep problems.

Methods

This is a cross-sectional study conducted among 165 participants from the general population living in Al Ahsa, Saudi Arabia. The representative sample was selected randomly, including Saudi and non-Saudi males and females of different age groups (18-60 years). A self-administered questionnaire was distributed to the population using an online questionnaire. The questionnaire consisted of two main parts; socio-demographic characteristics and a questionnaire to assess the awareness of adenoid hypertrophy and its complications.

Categorical variables were presented as numbers and percentages (%), while continuous variables were summarized as mean and standard deviation. The awareness of adenoid hypertrophy has been assessed using 9 questions where "yes" was coded with 1 and "no/not sure" was coded with 0. The total awareness score has been obtained by adding all 9 items, and a score range from 0 to 9 has been generated; the higher the score indicates higher awareness of adenoid hypertrophy. Participants were divided into two groups based on awareness score, such that participants were considered as having poor awareness if the score was 60% or below and good awareness if the score was above 60% of the total awareness score. The awareness score was compared to the socio-demographic characteristics of the patients by using Mann Whitney Z-test. Normality tests were conducted using Shapiro Wilk, Kolmogorov and Smirnov tests. The awareness score follows the abnormal distribution. Thus, non-parametric tests were applied. Two-tailed analysis with $p < 0.05$ was used as the cutoff for statistical significance. All data analyses were performed using the statistical package for social sciences, version 26 (SPSS, Armonk, NY: IBM Corp, USA). The study was approved by the Ethics Research Committee at the College of Medicine, King Faisal University [KFU-REC-2022-AUG-ETHICS109].

Results

Table 1: Socio-demographic characteristics of participants (n=165)

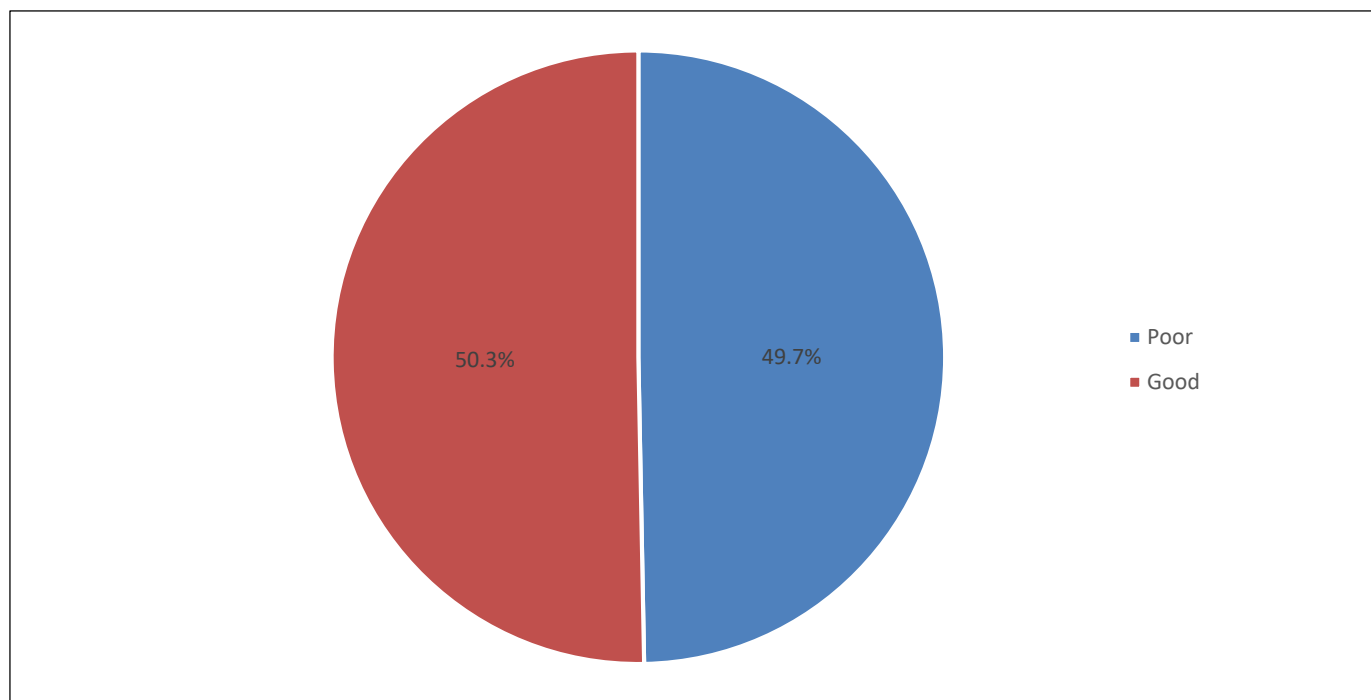
Study Data	N (%)
Age group	
• 18–30 years	138 (83.6%)
• 31–50 years	27 (16.4%)
Gender	
• Male	46 (27.9%)
• Female	119 (72.1%)
Nationality	
• Saudi	163 (98.8%)
• Non-Saudi	02 (01.2%)
Educational level	
• Secondary or below	22 (13.3%)
• Diploma	18 (10.9%)
• Bachelor	122 (73.9%)
• Phd or more	03 (01.8%)
Marital status	
• Single	67 (40.6%)
• Married	93 (56.4%)
• Divorced or widowed	05 (03.0%)
Monthly income (SAR)	
• <5000	28 (17.0%)
• 5000 - 10000	65 (39.4%)
• 10001 - 15,000	39 (23.6%)
• 15,001 - 20000	18 (10.9%)
• >20000	15 (09.1%)

This cross-sectional study involved 165 participants. Table 1 describes the socio-demographic characteristics of the participants. The most common age group was 18–30 years old (83.6%), with females being dominant (72.1%). Most participants were Saudis (98.8%). With regards to education, 73.9% had bachelor's degrees. With respect to marital status, 56.4% were married. Participants who were earning 5,000–10,000 SAR monthly were 39.4%.

Table 2: Assessment of awareness of adenoid hypertrophy and its complications (n=165)

Awareness statement	Yes (%)
1. Did you hear about adenoid hypertrophy before?	154 (93.3%)
2. Did you know that adenoid hypertrophy can cause snoring and sleep problems?	154 (93.3%)
3. Did you know that adenoid hypertrophy can cause rhinorrhea and nasal congestion?	137 (83.0%)
4. Did you know that adenoid hypertrophy can cause recurrent ear infections?	106 (64.2%)
5. Did you know that adenoid hypertrophy can cause heart and lung problems?	105 (63.6%)
6. Did you know that adenoid hypertrophy can cause facial changes?	98 (59.4%)
7. Did you know that adenoid hypertrophy can cause school problems and developmental delay?	81 (49.1%)
8. Did you know that adenoid hypertrophy can cause failure to thrive?	70 (42.4%)
9. Did you know that adenoid hypertrophy can cause nocturnal enuresis?	15 (09.1%)
Awareness total score (mean ± SD)	5.58 ± 2.39
Level of awareness	
• Poor	82 (49.7%)
• Good	83 (50.3%)

Figure 1: Level of awareness toward adenoid hypertrophy



The assessment of awareness of adenoid hypertrophy was given in Table 2. It can be observed that nearly all respondents have heard about it (93.3%). 93.3% were aware that adenoid hypertrophy can cause snoring and sleep problems. 83% knew that it can cause rhinorrhea and nasal congestion. 64.2% were knowledgeable that it can cause recurrent ear infections. Approximately 63.6% knew that it can cause heart and lung problems, and 59.4% were aware that it can cause facial changes. Nearly half (49.1%) believed that adenoid hypertrophy can affect school problems and developmental delay, and 42.4% knew that it can cause failure to thrive among children. Finally, only minorities (9.1%) believed that adenoid hypertrophy can cause nocturnal enuresis. The overall mean awareness score was 5.58 (SD 2.39) out of 9 points where poor and good awareness were found among 49.7% and 50.3%, respectively (see Figure 1).

Table 3: Differences in the awareness score according to the socio-demographic characteristics of participants (n=165)

Factor	Awareness Score (9) Mean ± SD	Z-test	P-value §
Age group			
• 18–30 years	5.91 ± 2.35	4.142	<0.001 **
• 31–50 years	3.89 ± 1.87		
Gender			
• Male	5.57 ± 2.64	0.349	0.727
• Female	5.58 ± 2.31		
Educational level			
• Diploma or below	4.00 ± 2.05	4.929	<0.001 **
• Bachelor or higher	6.08 ± 2.28		
Marital status			
• Unmarried	6.04 ± 2.24	2.194	0.028 **
• Married	5.22 ± 2.47		
Monthly income (SAR)			

• ≤10,000	5.42 ± 2.49	0.931	0.352
• >10,000	5.78 ± 2.27		

§P-value has been calculated using Mann Whitney Z-test.

** Significant at p<0.05 level.

When measuring the differences in awareness scores in relation to the socio-demographic characteristics of participants, it was found that higher awareness scores were more associated with being younger age ($Z = 4.142$; $p < 0.001$), being more educated ($Z = 4.929$; $p < 0.001$), and being unmarried ($Z = 2.194$; $p = 0.028$), while the differences in awareness score of gender and monthly income did not reach statistical significance ($p > 0.05$) (see Table 3).

Discussion

The present study attempted to establish the level of awareness of society regarding adenoid hypertrophy and its causes among children. The findings of this study revealed that the awareness of society regarding adenoid hypertrophy in children was lacking. Approximately half of the participants (49.7%) were having poor awareness levels while the rest were good (50.3%) (mean score: 5.58; SD 2.39, out of 9 points). This is consistent with the paper of Felamban et al. (11) According to their reports, 43.2% of the parents demonstrated insufficient knowledge about the complication of recurrent adenotonsillitis and its surgical treatment. This has been concurred by Kwon et al (12), who reported that the awareness of the general population regarding tonsil and adenoid hypertrophy was poor, emphasizing that more efforts on behalf of the Korean Society of Otorhinolaryngology head and neck surgery are needed in order to achieve a better understanding of the community regarding adenoid-related diseases in children. The awareness of the general public, specifically parents and caregivers, regarding adenoid hypertrophy is necessary so that they can provide appropriate action if their child were showing symptoms associated with this disease.

The younger age group (18–30 years) showed significantly better awareness scores than the older ones (31–50 years), suggesting that being younger, probably in the twenties at most, was likely to have a better understanding of adenoid hypertrophy in children. Similarly, respondents who had better educational levels demonstrated good knowledge about the complications of this disease better than those who accomplished lower educational levels. Interestingly, we have learned that unmarried respondents tend to be more knowledgeable about this disease than those who were married. Consistent with our findings, a study conducted in Medina, Saudi Arabia (11), indicated that parents who were university or postgraduate degrees were more knowledgeable than lower educated parents. Another significant finding was that a family history of recurrent disease was more associated with an increase in knowledge and awareness about the disease complication and its surgical treatment. On the other hand, they found no significant association between participants' age, sex, and nationality according to their knowledge of the complications of recurrent adenotonsillitis and its surgical treatment. In our study, gender and monthly income did not show as predictors of increased awareness about the adenoid hypertrophy-related disease of children.

Regarding the specific assessment of adenoid hypertrophy, we observed that most of the respondents have heard about the disease (93.3%). Most of them were aware that the most common causes of adenoid hypertrophy were snoring and sleep problems (93.3%), followed by rhinorrhea and nasal congestion (83%), recurrent ear infection (64.2%), heart and lung problems (63.6%), and facial changes (59.4%). However, respondents showed a lack of awareness that adenoid hypertrophy can cause school problems (49.1%), failure to thrive (42.4%), and nocturnal awareness (9.14%). In Southeastern, Nigeria (13), the clinical manifestations of patients with adenoid hypertrophy were shown some similarities with the knowledge reported by the participants in our study. The study indicated that cough (73.1%), catarrh (69.2%), history of allergy (57.7%), fever (50%), snoring (38.4%), expiratory rhonchi (19.2%), and mouth breathing (15.4%) were the clinical profiles and patterns of adenoid hypertrophy found among children attending a private hospital in Southeast Nigeria.

It is important to note that adenoid hypertrophy is a common disease detected among children (3). However, this disease is treatable. Its management depends on the severity of the disease (14). Above all of these, it is important to consult a doctor to get appropriate advice on how to manage this disease at home. Early intervention can be beneficial among children with adenoid hypertrophy. The most popular surgical intervention was adenotonsillectomy (8,15-21), which has shown improvement in children's quality of life after its invention. Hence, the awareness of society regarding the management and treatment of this disease is equally important to provide our children with the best treatment and achieve a better quality of life.

Conclusion

There was a deficient awareness in society regarding adenoid hypertrophy complications in children. Respondents who were younger but more educated and unmarried tend to be more knowledgeable about the complications of adenoid hypertrophy than the rest of the groups. Community awareness about adenoid hypertrophy complications is needed. This can be done through health education among caregivers and parents of children. A better understanding of this disease, its complications, and its treatment can surely lead to better management and ultimately lead to a better quality of life among children who were suffering from adenoid-related diseases. Further research is needed to establish the level of awareness of the general population regarding the complications of children's adenoid hypertrophy in our region.

Conflict of interest

All authors declare that they have no conflicts of interest and that they have no financial or personal relationships with any people or organizations that could improperly affect (bias) our work.

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