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Knowledge and awareness of community about pediatric nocturnal enuresis in Hail City, Saudi Arabia, 2022

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Abstract

Objective: The purpose of the study was to evaluate the awareness, knowledge and attitude towards the nocturnal enuresis (NE) among the population living in Hail, Saudi Arabia. In addition, this study also evaluated the parental beliefs regarding the etiology and treatment of NE. Method: This cross-sectional study was conducted in Hail, Saudi Arabia between November 2021 and February 2022. Residents of the Hail city were invited to participants by generating an electronic version of the questionnaire. All those above 18 years of age irrespective of gender, nationality, marital status and education level were invited to participate in the study. Results: Around 75% of the participants were female and about 60% were aged between 18-30 years. Significantly high proportion of females and university graduates had prior knowledge about enuresis with p-value 0.017 and 0.018 respectively. In addition, university graduates had significantly better knowledge about the types of NE (p=0.036) and its effects on psychological health (p=0.007). Conclusion: High proportions of the study population were aware about the NE, its methods of treatment and its effects on psychological health. Participants who had higher education levels had significantly better knowledge about NE. Therefore, it is required to increase knowledge about enuresis among the population of Hail, Saudi Arabia, and its effective management strategies.

Keywords: Knowledge, awareness of community, pediatric nocturnal enuresis, Hail City.

Introduction

Nocturnal enuresis (NE) is defined as involuntary urination while sleeping after the age at which bladder control at night is expected [1]. Enuresis is defined by the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV) as the repeated voiding of urine into the clothes or bed at least twice a week for a continuous three months in children over the age of five (2). Nocturnal enuresis is a common problem in children and teenagers, and it is the second most common disorder affecting children aged 6 to 14 years (3). According to studies, 30-35% of children under the age of five have at least one episode per year, with 10-15% having more than five episodes per year (4-6).

Enuresis is classified into two types: primary and secondary. Primary enuresis is defined as a child over the age of five who has never experienced a period of complete dryness for six months or more. Secondary enuresis, on the other hand, is a condition that develops at least six months or several years after a child has achieved a period of complete dryness (7). Furthermore, primary enuresis accounts for 90% of all enuresis cases and is frequently associated with a family history of enuresis (2). Furthermore, electrolyte imbalance, low antidiuretic hormone (ADH), and decreased bladder capacity are all well-known causes of enuresis (8,9). Acute psychological trauma due to various situations (such as disturbed homes, enforced separation from mothers, birth of siblings etc.) could also be considered as risk factors of enuresis (10).

Medications like desmopressin and tricyclics are often suggested by the physicians to reduce the episodes of NE (11,12). On the other hand, behavioral treatment such as reward systems or waking the child to urinate during the night perhaps play an effective role (13,14). In addition, setting bedwetting alarm results in dryness in around 2/3 of children (15,16).

Prior studies have evaluated the parental beliefs and attitude about NE treatment and causes (17,18). Some parents perceive NE as a medical condition and seek medical treatment while some parents having strong religious beliefs and seek for traditional healers (19). Very limited literature has been published from Saudi Arabia to evaluate the knowledge and awareness among the community about pediatric nocturnal enuresis. Therefore, this study was designed to assess the awareness, knowledge and attitude about NE in children among the population living in Hail, Saudi Arabia. In addition, this study also evaluated the parental beliefs regarding the etiology and treatment of NE.

Method:

This cross-sectional study was conducted in Hail, Saudi Arabia between November 2021 to February 2022. Ethical approval for the study was taken from the institutional review board committee in Hail. This study included the general population living in Hail to participate in the study that include both genders, Saudi and non-Saudis, population from all educational levels and irrespective to the marital status.

The inclusion criteria were (1) adult population aged more than 18 years old, (2) participants must be the residents of the Hail city. **The exclusion criteria were** (1) Adults who lived outside the Hail city and (2) Population group less than 18 years of age.

Questionnaire used to collect data consisted of the demographics of the participants and their knowledge, behavior and belief about enuresis. The demographic variables consisted of the gender, age, education level and marital status of the participants. The rest of the questionnaire consisted of questions related to the knowledge about enuresis and its treatment and implications. The questionnaire was taken from the previous published study, which was conducted in Taif, Saudi Arabia (20). Therefore, validation of the questionnaire was not required. The questionnaire was translated into Arabic by a doctor who were proficient in Arabic and English. The Arabic version of questionnaire was then sent another doctor to translate back into English.

To calculate the number of participants required as a sample size for the study, simple random sampling technique as used. With the 96% confidence interval the calculated sample size for the study was 388. Therefore, the electronic version of self-administrated questionnaire was developed by using google forms and sent to the study participants via social media. The informed consent was taken from all participants as the first page of the questionnaire, if a participant agreed to participate and click on “Yes” to continue then questionnaire was appeared. The participation was voluntary, and participants could leave at any time.

Statistical package for social sciences (SPSS v.23) was used for data entry and analysis. The descriptive analysis was performed by calculating frequencies and percentages. Furthermore, chi-square and Fisher Exact test was performed to study any significant associations between the variables. All P-values less than 0.05 were considered statistically significant.

Results:

Table 1: Demographic characteristics of the study participants

Gender	**Frequency**	**Percent**
Male	99	25.5
Female	289	74.5
Age		
18-30	231	59.5
31-45	95	24.5
46-60	46	11.9
Above 60	16	4.1
Education Level		
University	58	14.9
High school	253	65.2
Secondary	60	15.5
Illiterate	17	4.4
Marital Status		
Single	171	44.1
Married	202	52.1
Divorced	11	2.8
Widowed	4	1.0
Do you have Children		
Yes	183	47.2
Married and no children	29	7.5
Others (unmarried/single)	176	45.3

Results of the study showed that around 75% of the participants in the study were females while rest were males. About 60% of participants were in the age group 18 to 30 years old, followed by those in the age group 31-45 representing 24.5% As regard the educational level, about two thirds of participants were having high school degree. Table 1 summarized the demographical distribution of the data of the study participants.

Table 2: participants knowledge about Enuresis

	Frequency	**Percent**
What are causes of enuresis in children?		
Organic Cause	207	23.3
Psychological Cause	276	31.1
Genetic factor	88	9.9
Frequent fluid consumption	193	21.8
Deep sleep	86	9.7

Multiple causes	37	4.2
At what age can the child be considered to have enuresis?		
3-4 years	66	17.0
5 years	51	13.1
More than 5 years	168	43.3
Others	103	26.5
Certain number of times urination required to be considered to have enuresis?		
Yes	210	54.1
No	52	13.4
I don't know	126	32.5
Other		
If yes for last question, how many times?		
Once a month	13	3.4
Twice a month	24	6.2
More than twice a month	218	56.2
Other	60	15.5
Are you aware of the types of enuresis?		
Yes	97	25.0
No	291	75.0
Are there any effective method to solve the problem?		
Yes	314	80.9
No	74	19.1
If yes, what are the nature of these methods?		
Only pharmacological treatment	6	1.5
Only behavioral treatment	64	16.5
Both	276	71.1
Others	19	4.9
What are the psychological treatment methods for nocturnal enuresis?		
Use Alarm	8	2.1
Teach child about urination control	72	18.6
Restrict fluid before bedtime	23	5.9
Psychological support	48	12.4
Others	237	61.0
Do you think that enuresis has bad effects on the psychological		
health of children?		
Yes	356	91.8
No	12	3.1
Others	20	5.2
If yes, then what are the psychological effects?		

Shyness and isolation	270	39.9
Low self esteem	277	40.9
Aggressiveness	82	12.1
Others	48	7.1
When should consult a doctor when a child has enuresis?		
At the age of five	269	40.0
Symptoms of uncontrolled urination during the day or presence of urinary infection	180	26.8
If the problem returns again after some time	112	16.7
As soon as child urinates in their bed	80	11.9
I do not know	31	4.6

Out 388 participants, 261(67.3%) had prior knowledge about enuresis while 127(32.7%) did not have any prior knowledge. Regarding the cause of enuresis, most of the participants thought the psychological factor was the main cause of enuresis (31.1%) in children followed by organic problems (23.3). About 43% of the participants replied that a child can be considered to have enuresis after the age of 5. High proportion of the study participants (75%) were not aware about the types of enuresis. However, majority believed (n=314, 80.9%) that there were effectives ways to treat this problem. Among those (n=314) who believed that there were effective ways to treat enuresis, 71.1% thought that both pharmacological and behavioral treatment can help to solve the problem. Furthermore, a very high proportion of the participants (91.8%) were agreed that enuresis can affect the psychological health of children.

It was observed that Females was having more prior knowledge about enuresis (70.6%, p=0.017) as well as the methods of treatment (84.8%, p=0.002) more than men. It was found that education level had significant association with the knowledge about enuresis; Those who were university graduated had significantly better prior knowledge about enuresis (p=0.018), about the types of the enuresis (p=0.036) and its harmful effects on psychological health (p=0.007).

Table 3: Correlation between demographic characteristics and the awareness about enuresis

	Do you have any prior knowledge about enuresis?		***P*-value**
Gender	Yes	No	
Male	57(57.6)	42(42.4)	0.017*
Female	204(70.6)	85(29.4)	
Education Level			
University	48(82.8)	10(17.2)	0.018*
High School	169(66.8)	84(33.3)	
Secondary	35(58.3)	25(41.7)	
Illiterate	9(52.9)	8(47.1)	
	Are their any effective methods to solve the problem?		
Gender	Yes	No	
Male	69(69.7)	30(30.0)	0.002*
Female	245(84.8)	44(15.2)	
Age			
18-30	199(86.1)	32(13.9)	0.002*
31-45	73(76.8)	22(23.2)	
46-60	29(63.0)	17(37.0)	
Above 60	13(81.3)	3(18.8)	
Do you have children			
Yes	137(75.3)	45(24.7)	0.01*
Married and no child	27(93.1)	2(6.9)	
Other	148(85.5)	25(14.5)	
	Do you know any type of enuresis?		
Education Level	Yes	No	
University	23(39.7)	35(60.3)	0.036*
High School	54(21.3)	199(78.7)	
Secondary	16(26.7)	44(73.3)	
Illiterate	4(23.5)	13(76.5)	
	Do you think enuresis can affect the psychological health?		
Education Level	Yes	No	
University	56(96.6)	2(3.4)	0.007*
High School	235(92.9)	7(2.8)	
Secondary	52(86.7)	3(5.0)	
Illiterate	13(76.5)	0(0)	

*Statistically significant at 0.05 level of significance

Significantly high proportion (56.5%) of the participants between the age of 45 to 60 years thought that after the age of 5, a child can be considered to have enuresis (p=0.03). While over 55% of the participants who had children were agreed that enuresis can be considered after the 5 years of age (p=0.004). Furthermore, significantly high proportion (70.7%) of the university graduates were not agreed about the possible treatment methods listed in the question about the treatment of enuresis (p=0.002). In addition, to teach child as a method for treating enuresis, 24.7% of the parents with children were in favor of using this method for treatment (p=0.006).

Table 4: Demographic characteristics in relation with the perception about minimum age for enuresis

	At what age can the child be considered to have enuresis?				***P*-value**
Age	3-4	5	More than 5	Others	
18-30	44(19.0)	29(12.6)	89(38.5)	69(29.9)	0.03*
31-45	16(16.8)	13(13.7)	49(51.6)	17(17.9)	
46-60	2(4.3)	8(17.4)	26(56.5)	10(21.7)	
Above 60	4(25.0)	1(6.3)	4(25.0)	7(43.8)	
Do you have children					
Yes	23(12.6)	17(9.3)	101(55.5)	41(22.5)	0.004*
Married and no child	5(17.2)	6(20.7)	11(37.9)	7(24.1)	
Other	37(21.4)	28(16.2)	55(31.8)	53(30.6)	

*Statistically significant at 0.05 level of significance

Table 5: Demographic characteristics in relation with the treatment methods for enuresis

	Psychological treatment methods to treat enuresis					***P*-value**
Education Level	Use timer	Teach Child	Reduce fluid intake	Psychological support	Other	
University	4(6.9)	4(6.9)	1(1.7)	6(10.3)	41(70.7)	0.002*
High School	3(1.2)	48(19.0)	15(5.9)	31(12.3)	154(60.9)	
Secondary	1(1.7)	16(26.7)	3(5.0)	10(16.7)	28(46.7)	
Illiterate	0(0)	4(23.5)	4(23.5)	1(5.9)	6(35.3)	
Do you have children						
Yes	3(1.6)	45(24.7)	16(8.8)	29(15.9)	86(47.3)	0.006*
Married	1(3.4)	2(6.9)	1(3.4)	2(6.9)	21(72.4)	
and no child						
Other	4(2.3)	24(13.9)	5(2.9)	17(9.8)	120(69.4)	

*Statistically significant at 0.05 level of significance

Discussion:

The study was conducted to assess the knowledge of hail population as regard enuresis in children. Findings revealed that over 67% of the study participants had prior knowledge about enuresis. A study conducted in Taif, Saudi Arabia in 2019 reported the similar proportion 69.1% of the study participants who had prior knowledge about enuresis (20).

In the opinion of the study participants, psychological cause, such as violence against children and family disintegration, was the main cause of having enuresis problem in children. Similar findings were reported by Schlomer et al. in their study in which they found emotional problems were the highest cause of nocturnal enuresis (NE) in the children (17). However, A study reported that majority of the respondents believed that multiple factors contributed to cause enuresis in children (20). Similarly, studies conducted in China and Thailand also reported the same perception of the participants in which they though there could be multiple reasons of creating this problem in children (21,22). According to literature, this problem is mainly occurred due to the developmental delay of the production of antidiuretic hormone at night, delay of arousal threshold and nocturnal detrusor hyperactivity (23-26).

High proportion of the participants believed that the enuresis can be considered after the age of 5 and to treat this problem both medical and behavioral treatment are required. A study conducted by Neveus et al in 2020 reported that the children aged five or more suffer from enuresis (27). In another study by Gaonkar et al, stated that the problem of enuresis in children start occurring after the age of 5 (28). In the behavioral treatment, 18.6% treated children by teach them about urination control, 12.4% thought that psychological support could help to treat this problem while only 2.1% stated to use bed timer. A previous study reported the behavioral treatments as effective treatment strategy according to parents such as child wake up at night, reward system, and fluid restriction (14). In the review of literature published by Bulut et al. in 2020, authors reported that psychological support could also help by assuring the children that this was not

their fault despite this condition was caused by biological and genetic factors, this could provide them enormous sense of relief (29).

Over 80% of participants irrespective of age, gender or having children; were agreed that there were effective ways to treatment enuresis, Contrarily, Schlomer et al. reported that; only 36% of the participants were aware about the effective treatments of NE (17).

Study findings supported that level of education played an important role to have knowledge about enuresis. Those participants who had higher level of education had significantly better knowledge about enuresis, its types, its psychological effects, and non-pharmacological interventions to control enuresis. A study conducted in Jazan, Saudi Arabia found the significant relationship between the Nocturnal enuresis (NE) and fathers' education level (2). In the study by Schlomer et al, it was found that parents with higher education level had higher odds to seek medical care for their child with NE (17). However, it is required to educate both parents and children about enuresis and how to control this problem before giving any pharmacological intervention (20,30). the education could be about normal bladder function, normal voiding habits, and how to change voiding habits (31).

This study included unmarried or single to participate in the study and this was one of the study limitations. Because unmarried respondents likely to have less knowledge about enuresis compared to married once. In addition, this study conducted in primary health care center therefore study population could not be diversified. Sample size of the study was not large enough to generalize the study findings. The study assessed the knowledge only and did not assess the attitude and practices. The survey was electronic therefore only that part of population who had access to electronic devices could be the study participants.

Conclusion:

Less than 50% of the study participants were aware about the age when enuresis should be considered and about the types of the enuresis. Participants over 40 years of age and those who were educated up to secondary level, had significantly low level of knowledge about the effective enuresis, its effects on child's psychological health and the effect ways to treat this problem. Therefore, it is required to increase knowledge about enuresis among the population of Hail, Saudi Arabia, and its effective management strategies.

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