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## The Knowledge of Causes of Enuresis among Residents in Accra, Ghana

**Dr. Samuel Atindanbila**

Department of Psychology, University of Ghana, Legon

**Edward Abasimi**

School of Medicine and Health Sciences, University for Development Studies, Tamale

**Akua Afriyie Nkrumah**

Department of Nursing, Valley View University, Oyibi

**Michael Mahamoud Mahamah**

School of Medicine and Health Sciences, University for Development Studies, Tamale

### **Abstract:**

*This paper examined the knowledge of causes of enuresis among residents of Accra- Ghana with regards to their demographic characteristics. A self constructed survey instrument was administered to a total of 70 children with enuresis and their relatives in Accra, Ghana who were sampled using the convenience method. Results were analysed using the independent t test, ANOVA and MANOVA. The findings of the study revealed that there was no significant difference in overall knowledge of enuresis among the various ages of the respondents. The various ages however differed significantly in knowledge with regards to physical, spiritual and behavioral causes of enuresis. Secondly, there were no significant differences of overall knowledge of enuresis among male and female respondents. There were also no significant differences of knowledge of enuresis among the respondents on the 4 categories of causes of the condition with regards to gender. Thirdly, patients demonstrated more knowledge in two main causes (physical and behavioral) of enuresis than their relatives. In relation to status (patients and relatives), overall knowledge of the condition was not significant. Lastly, there was a statistically significant difference in levels of knowledge among the various religions on only spiritual causes, with Christians reporting the highest, followed by both Muslims and non religious groups. There was no significant difference in the overall knowledge among the 4 religious believers.*

**Key words:** Enuresis, Residents of Accra, Causes of enuresis, Children with enuresis

### **1. Introduction**

Enuresis or bedwetting is a common and global pediatric public health problem and may indicate an underlying problem. Enuresis is characterized by involuntary or intentional voiding of urine, by day and/or night, that is abnormal in relation to the person's mental age; and is not as a result of a lack of bladder control due to neurological disorder or to epileptic attacks or to structural abnormality of the urinary tract (Al-Ghamdy, Qureshi, & Abdelgadir, 2000). This condition may therefore be a behavioural problem that has been identified in all cultures and could lead to psychosocial problems such as social maladjustment and embarrassment, shame, guilt, stigma, frustrations as well as emotional distress for both children and parents. The prevalence of enuresis has been found to be generally higher in boys than girls (Foxman, Valdez & Brook, 1986, Shelov et al., 1980) with the global prevalence of enuresis reported to be 15-20% at 5-12 years of age (Pavithra, 2013). Researchers contend that although enuresis is the involuntary or intentional discharge of urine after the age of bladder control, which is between 3-7 years of age (e.g. Al-Ghamdy et al., 2000), enuresis should not be diagnosed in a child under the age of 5 years or with a mental age less than 4 years (El-Defrawi, Sobhy, El-Tony, Wilson & Atef, 1994, WHO, 1992). Enuresis has been classified into primary and secondary ones with primary enuresis being an abnormal extension of the infantile incontinence present from birth while secondary one may have arisen following a period of acquired bladder control which should range from a minimum of 2 months to one year or more before an individual can be diagnosed as having secondary enuresis. The condition has also been classified into nocturnal, diurnal or both.

Despite its global prevalence, enuresis remains incompletely understood. Studies have explored the etiology, prevalence and treatment options of enuresis (e.g. Foxman et al, 1986; Shelov et al., 1980). A fairly unexplored area however is the level of knowledge of its etiology among the general population especially with regards to demographic characteristics. The present study therefore examined the level of knowledge of the causes of enuresis among the general population in Accra, Ghana with regards to demographic characteristics such as age, gender, religion and status (either patient or relative).

## 2. Objectives of the study

This study is guided by the following objectives:

- To find out the differences in the knowledge on the causes of enuresis with regards to age groups
- To explore the differences in the knowledge on the causes of enuresis with regards to gender
- To examine the differences in the knowledge on the causes of enuresis with regards to the status of the respondents
- To find out the differences in the knowledge on the causes of enuresis with regards to religious believers.

## 3. Hypotheses

The following hypotheses are tested:

1. There will be a significant difference in the reported levels of knowledge among the different age groups of the respondents.
  - There will be a significant difference in the reported levels of knowledge on causes of enuresis among male and female respondents.
  - There will be a significant difference in the reported levels of knowledge on causes of enuresis with regards to the status of the respondents.
  - There will be a significant difference in the levels of knowledge among the various religious believers of the respondents.

## 4. Relevance of the Study

Since enuresis is a frustrating and distressing condition to both child and parent, knowledge of its causes is relevant to its management and effective counseling. The findings of the present study will thus help us understand better whether or not parents and patients are well informed about the condition and hence their attitude toward it. This will be useful in counseling since it will help counselors tackle misconceptions, negative attitudes and worries. An indication of inadequate knowledge could also lead counselors and others to resort to more education aimed at enhancing knowledge of the condition.

## 5. Review of Related Literature

Few studies have been conducted on enuresis in western countries. The studies of Barbour, Borland, Boyd, Miller & Oppe (1963); Foxman, Valdez, & Brook (1986) and Shelov et al. (1981) are examples in this regard. Studies on the condition have also been conducted in developing countries. Examples of these studies are that of El-Defrawi, Sobhy, El-Tony, Wilson & Atef (1994); Ng and Wong (2004) and Pavithra (2013). The study of Pavithra (2013) was conducted in Bangalore to assess the knowledge and attitude of mothers regarding enuresis and its management among school children. Using a self constructed structured questionnaire, the researcher surveyed 100 mothers of school children from Kumbalagodu village, Bangalore. The researcher assessed knowledge in aspects of enuresis such as the concept of enuresis, prevalence and classification, causes and risk factors, clinical manifestation, management and prevention as well as overall knowledge. Results indicated that the highest mean percentage of knowledge score (60%) was in clinical manifestation followed by management and prevention of enuresis (50.63), causes and risk factors (44.2), concept of enuresis (43.8) and prevalence and classification (40). The overall mean percentage of knowledge score was 48.31.

To find the knowledge level, the researcher categorized the respondents into three groups; those scoring below 50% were considered as having inadequate knowledge, respondents who scored between 50-75% had moderate knowledge and those who scored above 75% had adequate knowledge. The findings indicate that 55% of the mothers had inadequate knowledge, 42% had moderate knowledge and 10% had adequate knowledge regarding enuresis. In general, the results indicate that mothers had inadequate knowledge of enuresis. No significant association was found between knowledge and attitude with demographic variables such as age, marital status, education and occupation among others. The findings however indicate that there was a positive correlation between knowledge and attitude of mothers regarding enuresis.

Ng and Wong (2004) also examined patient attitudes and parental perceptions of primary nocturnal enuresis (PNE) among 105 Chinese children aged between 7 and 15 years with severe primary enuresis in nine public hospitals in Hong Kong. Both patients and their parents were interviewed by the attending doctor or nurse based on structured questionnaires. Their findings among others showed that parents were worried that PNE was abnormal and indicated kidney or bladder diseases (51%), psychological or behavioral problems (25%), neurological abnormalities (4%) or some unknown pathological causes (2%). Results also revealed that eighty three percent (83%) of parents of children without a positive family history of PNE thought that PNE was abnormal. Eighty percent (80%) of parents who had more than one child with PNE also believed that PNE was abnormal. Seventy seven percent (77%) of parents who had PNE themselves also shared the belief that it was abnormal. With regards to levels of education, parents who had university education (100%), secondary education (80%), primary education (80%) and no formal education (100%) shared the view that enuresis is abnormal. In addition, majority of parents felt troublesome (71%), angry (19%) and ashamed (11%) of their children. Ng and Wong also reported that majority of children (patients) were embarrassed about the condition to the extent that 89.5% of them would avoid talking about enuresis to other people, and 18% would pretend that bedwetting had not occurred. It was also found that about 25.7% avoided sleeping outside and this affected their social lives. The above findings indicate the magnitude of the problem from the perspective of both parents and children.

A few studies have highlighted the perception of causes of enuresis. For example, Shelov et al. (1981) study on the contrast of attitudes of parents and physicians on enuresis revealed that both parents and physicians agreed that enuresis is a developmental or maturational problem of bladder control. Both also considered anatomical and physical problems as minor factors in the cause of enuresis. Parents were more likely than physicians to think that emotional problems are important causes. Parents were also less likely to accept small bladder as a key etiologic factor.

## 6. Methodology

This study was done on enuresis patients and their relatives in Accra. The sample size was 70 respondents who were chosen through a convenience sampling. It took them fifteen minutes to answer the questions and they were collected back. In view of this the response rate was (96) %.

## 7. Research Design

The researchers used the cross-sectional survey to gather data since it is the most appropriate technique in assessing the knowledge of causes of enuresis among the respondents.

## 8. Instrument

A self constructed survey questionnaire was used for the study. The questionnaires consist of two main sections. Section A consisted of items on demographic data such as age, gender and religion. Section B consisted of items on perceived causes of enuresis. These were subdivided into physical causes (e.g. urinary tract infection of the child), spiritual causes (e.g. curses from the gods as a punishment), psychological causes (e.g. the child having nightmares) and behavioural causes (e.g. the child drinking plenty of water). Response categorise range from strongly agree = 1 to strongly disagree = 5 with 1 representing low level of knowledge and 5 representing a lot of knowledge. The instrument was found to have very high psychometric properties. For example the overall scale has a Cronbach alpha of .981 while for the subscales, Cronbach alphas were .771, .873, .745 and .731 for physical, spiritual, psychological and behavioural causes respectively.

## 9. Results

Details of the analysis of the results of the study are presented below based on the hypotheses of the study.

## 10. Hypothesis testing

The first hypothesis stated that there will be a significant difference in the reported levels of knowledge among the different age groups of the respondents. This hypothesis seeks to find out if there is a difference in the reported level of knowledge among the three categories of ages in the respondents. A one- way ANOVA was used to test this hypothesis. A summary of the statistical analysis can be seen below in Table 1.

VARIABLE	<8yrs n(=11)		9-14yrs (n=14)		15yrs+ (n=45)		df	F	Sig	$\eta^2$
	M	SD	M	SD	M	SD				
APHCB	3.17	0.76	2.59	0.43	2.39	0.70	2,69	6.000	.004	.152
ASCB	4.08	0.98	3.05	1.00	3.74	1.00	2,69	3.705	.030	.100
APSCB	3.05	1.10	2.99	0.60	2.86	0.73	2,69	.358	.700	
ABCB	2.88	0.70	2.73	0.60	2.28	0.76	2,69	4.267	.018	.113
TK	3.30	0.68	2.83	0.51	2.82	0.62	2,69	2.839	.066	

Table 1: Analysis of Variance and Effect Sizes among Various Ages of the Respondents.

Note: Average knowledge checklist scaled 1-5, with 1 representing the absence of knowledge and 5 representing a lot of knowledge by the respondents.

Key:

APHCB= Average physical causes

ASCB= Average spiritual causes

APSCB= Average psychological causes

ABCB= Average Behavioral causes

TK= Total knowledge

As indicated in Table 1, there were significant differences on the reported levels of knowledge among the age groups on physical, spiritual and behavioural causes (APHCB, ASCB and ABCB). Those for psychological causes (APSCB) and total knowledge (TK) did not show any significant differences. The Scheffe post hoc test indicates that respondents who are < 8years ( $M=3.2$ ,  $SD=0.76$ ) had the highest score followed by ages 9-14yrs and 15yrs+ on the physical causes (APHCB). On the spiritual causes (ASCB), it was found that those aged < 8yrs had the highest ( $M=4.04$ ,  $SD=1.10$ ) followed by those in 15yrs+ ( $M=3.74$ ,  $SD=1.00$ ). Those in 9-14yrs ( $M=3.05$ ,  $SD=1.00$ ) had the least score. On behavioural causes (ABCB), there was no significant difference between ages < 8yrs ( $M=2.88$ ,  $SD=0.70$ ) and 9-14yrs ( $M=2.73$ ,  $SD=0.60$ ) which had the highest score. This was followed by age

15yrs+ ( $M=2.28, SD=.76$ ). The effect sizes were .152, .100 and .113 for Physical causes, spiritual causes and behavioral causes respectively.

The second hypothesis stated that there will be a significant difference in the reported levels of knowledge on causes of enuresis among male and female respondents. This hypothesis is concerned with whether the reported levels of knowledge on the causes of enuresis would vary among the respondents with regards to gender. The Independent Sample  $t$ - Test was used to compare the differences in the mean levels of gender. The results are shown below in Table 2.

VARIABLE	Male (n=34)		Female (n=36)		t	df	Sig
	M	SD	M	SD			
APHCB	2.48	.60	2.63	.80	-.866	68	.390
ASCB	2.63	.81	3.66	1.00	-.021	68	.983
APSCB	2.82	.78	3.00	.76	-.991	68	.325
ABCB	2.42	.74	2.50	.79	-.466	68	.643
TK	2.84	.58	2.95	.66	-.703	68	.485

*Table 2: Reported Knowledge of Enuresis of Respondents by Gender*  
*Note: Average knowledge checklist scaled 1-5, with 1 representing the absence of knowledge and 5 representing a lot of knowledge by the respondents*

The findings shown in Table 2 above reveal that male respondents ( $M=2.84, SD=.58$ ) reported similar levels of knowledge [ $t(68) = -.703, p = .485$ , two-tailed] as compared to female ones ( $M=2.95, SD=.66$ ). There were also no significant differences of knowledge of enuresis among the respondents on the 4 categories of causes of the condition with regards to gender.

The third hypothesis to be tested stated that there will be a significant difference in the reported levels of knowledge on causes of enuresis with regards to the status of the respondents. This hypothesis is concerned with whether the reported levels of knowledge on the causes of enuresis would vary among the respondents with regards to their status. The Independent Sample  $t$ - Test was used to compare the differences in the mean levels of the knowledge. The results are shown below in Table 3 with effect sizes.

VARIABLE	Patient (n=26)		Relative (n=44)		t	df	Sig	$\eta^2$
	M	SD	M	SD				
APHCB	2.78	.66	2.42	.72	2.07	68	.042	.008
ASCB	3.52	1.07	3.74	1.02	-.865	68	.390	
APSCB	3.04	.78	2.83	.76	1.072	68	.287	
ABCB	2.80	.70	2.26	.73	2.99	68	.004	
TK	3.03	.64	2.82	.61	1.423	68	.159	

*Table 3: Reported Knowledge of Enuresis of Respondents by Status*  
*Note: Average knowledge checklist scaled 1-5, with 1 representing the absence of knowledge and 5 representing a lot of knowledge by the respondents*

The findings shown in Table 3 above reveal that the patients demonstrated more knowledge in two main causes of enuresis than their relatives. The causes are physical (APHCB) and behavioral (ABCB). In the case of physical causes (APHCB) the patients scored ( $M = 2.78, SD = .66$ ) as compared to the relatives who scored ( $M=2.42, SD=.72$ ) [ $t(68) = 2.07, p = .042, \eta^2 = .008$ ]. For behavioral causes (ABCB), the patients ( $M = 2.80, SD = .70$ ) also reported significantly higher knowledge  $t(68) = 1.423, p = .004, \eta^2 = .008$  as compared to the relatives ( $M=2.26, SD=.73$ ). The estimated effect size was very negligible (.008). There were also no significant differences of knowledge of enuresis among the respondents on the other categories of causes of the condition. The total reported level of knowledge of the condition was also found not significant.

The final hypothesis of this study stated that there will be a significant difference in the levels of knowledge among the various religious believers of the respondents. This hypothesis is concerned with the differences of reported levels of knowledge of causes of enuresis among the 4 religious believers of the respondents. Using the MANOVA to test this hypothesis, it was found that there is a statistical difference in the reported levels of knowledge among the various religions on only spiritual causes,  $F(3,69) = 6.043, p = .001, \eta^2 = .125$ . There was no significant difference in the overall knowledge among the 4 religious believers. The details of the statistics are shown in Table 4.

VARIABLE	No Rel.		Christian		Muslim		Trad. Religion			F	df	Sig	$\eta^2$
	M	SD	M	SD	M	SD	M	SD					
APHCB	2.83	.53	2.51	.76	2.69	.469	2.42	.202	.394	3,69	.758		
ASCB	2.44	1.03	3.89	.926	2.90	.787	2.75	1.901	6.04	3,69	.001	.215	
APSCB	2.62	1.08	2.94	.77	2.94	.503	2.90	1.27	.256	3,69	.857		
ABCB	2.84	.939	2.41	.783	2.45	.395	2.85	.636	.650	3,69	.585		
TK	2.68	.559	2.94	.641	2.75	.483	2.73	1.005	.456	3,69	.714		

Table 4: MANOVA Results Among Various Religious Believers' Knowledge on the Causes of Enuresis

Note: Average knowledge checklist scaled 1-5, with 1 representing the absence of knowledge and 5 representing a lot of knowledge by the respondents

The Scheffe comparisons results above demonstrate that the reported knowledge on the causes of enuresis was highest among the Christian respondents ( $M=3.89$ ,  $SD=.93$ ). Both the Muslims ( $M=2.9$ ,  $SD=.79$ ) and the non religious believers ( $M=2.44$ ,  $SD=1.03$ ) came second. The effect size is .215. There were no significant statistical differences in the reported levels of knowledge in the various causes with regards to religious beliefs of the respondents.

## 11. Discussion

Enuresis is a unique chronic condition compared to other chronic illnesses. Individuals with enuresis therefore have to cope with the complex demands of a chronic illness as well as dealing with the social stigma, frustration and embarrassment. Researchers are therefore interested in assessing knowledge and attitudes surrounding the condition since public understanding of enuresis could lead to achieving better control and management of it. The present study therefore sought to examine the level of knowledge on the causes of enuresis with regards to the demographic characteristics of respondents. The demographic characteristics examined include age, gender, religion and status (patients or relatives). Based on these objectives four hypotheses were tested.

The first objective was to find out the differences in the knowledge on the causes of enuresis with regards to age groups. The results indicate that there were significant differences on levels of knowledge among the age groups on physical, spiritual and behavioral causes. Those for psychological and total knowledge did not show any significant differences. The Scheffe post hoc test indicates that respondents who are < 8 years had the highest score followed by ages 9-14 yrs and 15 yrs+ on the physical causes. On the spiritual causes, those aged < 8 yrs had the highest mean score followed by those aged 15 yrs+. Those in the age range of 9-14 yrs had the least score. On behavioral causes, there was no significant difference between ages < 8 yrs and 9-14 yrs which had the highest score. This was followed by age 15 yrs+. The effect sizes were .152, .100 and .113 for Physical, spiritual and behavioral causes respectively. Because the present study is among the first to be conducted on the knowledge of causes of enuresis, there is little empirical evidence to compare the present study's results with. In the review of the literature, the researchers did not come across similar studies. The result of the present study will therefore serve as baseline information for future studies on the subject. Unlike Pavithra (2013) study which did not categorized knowledge of causes of enuresis, the present study categorized them into physical, spiritual, psychological and behavioral causes. However the findings of the present study is consistent with that of Pavithra (2013) study in the sense that they both reported that with regards to overall knowledge of causes of enuresis, there was no significant age difference.

The second objective sought to find out the differences in the level of knowledge with regards to gender. The findings reveal that there were no significant differences in the knowledge of the causes of enuresis among male and female respondents. The two groups reported similar levels of knowledge. There were also no significant differences of knowledge of enuresis among the respondents on the 4 categories of causes of the condition with regards to gender. Here again, the findings of the present study is one of the first to assess knowledge of the causes of enuresis with regards to gender. It will therefore serve as baseline information for future studies. However, one could argue that both males and females generally seek information in similar ways hence it is not surprising that there is no significant difference in the levels of knowledge of the causes of enuresis among them.

The third objective was to examine the differences in the level of knowledge on the causes of enuresis with regards to the status of the respondents. Status here refers to whether respondents are patients or relatives. The results indicate that the patients demonstrated significantly more knowledge in two main causes of enuresis than their relatives. The causes are physical and behavioral. The estimated effect size in both cases was however very negligible (.008). There were also no significant differences of knowledge of enuresis among the respondents on the other categories of causes of the condition. The total level of the knowledge of the condition was also not significant. It could be argued that patients were more knowledgeable in the physical and behavioral causes of the condition than their relatives because since they were sufferers, they had first hand information of the manifestations of the condition compared to their relatives. This finding is partly in line with the finding of Pavithra (2013) who found that the highest percentage score (60%) in knowledge of enuresis was in the clinical manifestations of the condition.

The final objective of the study was to find out the differences in the knowledge on the causes of enuresis with regards to religious believes. Results indicate that there is a significant difference in the levels of knowledge among the various religions on only spiritual causes,  $F(3,69) = 6.043$ ,  $p = .001$ ,  $\eta^2 = .125$ . The reported knowledge on the spiritual causes of enuresis was highest among the Christian respondents. Both the Muslims and the non religious believers came second. The effect size is .215. However there was no significant difference in knowledge on the other causes. Overall knowledge was also not significant with regards to the various religions. It is not surprising that there was a significant difference in knowledge on the spiritual causes of enuresis since spirituality or spiritual believes may be what distinguishes the various religious believers. The spiritual causes may be closely linked to the religious believes. The other causes are more likely to be equally known by respondents regardless of one's religion.

## 12. Recommendations

One notable finding of this study is that overall knowledge of causes of enuresis did not significantly differ with regards to all the demographic characteristics examined in this study. Some differences were only observed in some of the sub scales of knowledge of causes of enuresis. Based on these findings, the researchers recommend that further studies need to be conducted on the subject using other samples. The sample sizes also need to be increased since the present study's sample was not very large enough and is also limited to a section of Accra. The present study's findings therefore serve as baseline information for future studies.

## 13. Conclusion

This study was one of the first in Ghana aimed at finding out the differences in knowledge of the causes of enuresis among respondents in Accra with regards to their demographic characteristics such as age, gender, religion and status. The results indicate that there was no significant difference in overall knowledge of enuresis among the various ages of the respondents. The various ages however differed significantly in knowledge with regards to physical, spiritual and behavioural causes of enuresis. There were no significant differences of overall knowledge of enuresis among male and female respondents. There were also no significant differences of knowledge of enuresis among the respondents on the 4 categories of causes of the condition with regards to gender. In relation to status, patients also demonstrated more knowledge in two main causes (physical and behavioral) of enuresis than their relatives. Overall knowledge of the condition was not significant with regards to status (patients and relatives). Lastly, there was a statistically significant difference in the reported levels of knowledge among the various religions on only spiritual causes, with Christians reporting the highest, followed by both Muslims and non religious groups. There was no significant difference in the overall knowledge among the 4 religious believers. Based on these findings, recommendations were made for future researchers.

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