

Early Childhood Psycho-trauma and Psychological Immunity among Children with Nocturnal Enuresis

¹Saida El Sayed Hassan Ibrahim El-Azzab*, ²Sahar Elsayed Gaber Behilak, & ³Abeer Taha Ahmed

1- Assistant Professor of Psychiatric Mental Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt.

2- Assistant Professor of Psychiatric Mental Health Nursing, Faculty of Nursing, Mansoura University, Egypt.

3- Lecturer of Psychiatric Mental Health Nursing, Faculty of Nursing, Cairo University, Egypt.

* **The Corresponding author:** Saida E. I. El-Azzab, Email: saida.ibrahim@nursing.bsu.edu.eg; Orcid ID: 0000-0002-8615-8591, Phone No:01119942093

Abstract

Background: Nocturnal enuresis is a frequent urologic pediatric disorder. Early childhood stressors and their psychological immunity may play a crucial role in the etiology of nocturnal enuresis. **Aim:** To study relationships between early childhood psycho-trauma and psychological immunity among children with nocturnal enuresis. **Design:** Descriptive correlational design with quantitative methodology was used. **Sample:** A purposive sampling technique of two hundred and sixty children with nocturnal enuresis. **Settings:** This study was carried out in the outpatient clinics of two hospitals; Psychiatry and Addiction Prevention Hospital-Cairo University Hospitals (Children's and Adolescents Clinic) and Preventive Medicine Hospital in Abo El-Rish hospital (Nocturnal Enuresis and Psychiatric Clinic). **Tools:** Personal and clinical data sheet, Childhood Trauma History Questionnaire-Short Form and Psychological Immunity Scale were utilized. **Results:** The majority of sample had low level of psychological immunity scores (85.4 and 82.3%) respectively in adaptive confrontation and self-regulation dimensions. As the majority of sample experienced moderate levels of emotional abuse and neglect (100% and 72.3%) respectively, (76.2%) had moderate levels of physical abuse, while 23.8% were suffering high levels of physical abuse score. As that, there were significant negative relationship between all dimensions of psychological immunity and three dimensions of early childhood trauma as emotional, physical and sexual abuse (P-value = 0.004, 0.002 and 0.0001 respectively). **Conclusion:** There were moderate and high levels of early childhood trauma history among the children with nocturnal enuresis while there were low levels of psychological immunity among those children. There was a significant negative correlation between the total score of early childhood trauma history and psychological immunity. **Recommendations:** A nursing intervention program for children with nocturnal enuresis to enhance their psychological immunity and reduce early child maltreatment levels.

Keywords: Psycho-trauma, Psychological Immunity, and Nocturnal Enuresis.

Introduction:

Nocturnal enuresis (NE) is a recurrent urinary tract disease in children. Both ICD-10 and DSM-IV define enuresis as involuntary or even intentional wetting and urine loss during sleep at least twice per week over the age of 5 years in children, teenagers, or adults for at least 3 months after organic reasons have been ruled out, which is more common in boys than girls, with a 3 to 1 ratio (Naiwen & Laurence, 2022). Primary enuresis happens in children who has not been dry for at least 6 months, although secondary enuresis occurs following at least 6 months of nocturnal dryness (Thurber, 2017). Furthermore, the enuresis is categorized as mono-symptomatic or non-mono-symptomatic with the latter associated with incontinence during the day or other lower urinary tract symptoms such as urgency. Additionally, the enuresis episodes are considered common condition if they happen 4 or more times a week (Dossche, Walle & van-Herzele, 2016).

Nocturnal enuresis is a harm disorder; it has serious consequences and is stressful for both

children and their families. Children are frequently punished and predisposed to physical and emotional abuse. Several children have low self-esteem, are isolated, and perform poorly in education (Austin, Bauer & Bower, 2016). Also, 20 to 30% of children with enuresis are subjected to at least one behavioral, psychological, or psychiatric disorder, which is twice the rate of the general population. Autism spectrum disorder, attention deficit, hyperactivity disorder, oppositional defiant disorder, sleep disturbance, and mood disorders are the most common comorbidities (van-Herzele et al., 2015). Enuresis and bedwetting can be produced by psychological and emotional disturbance produced by upsetting events or distractions in the child's normal routine, such as moving to a new home, parental separation or divorce, registering in a new school, the death of a loved one, or emotional, sexual or physical abuse (Nevéus, 2017).

Early childhood trauma, was identified as sexual or physical abuse, neglect, emotional abuse, maltreatment or threat of harm which has been a well-documented as a possible risk factor for

psychosis developing a severe mental disorder and enlarged the change rate to psychosis and increases the likelihood of a specific mixture of anxiety, affective and psychotic symptoms that it forces the boundaries of traditional diagnostic of schizophrenia and mood disorders by two to four times (**Joinson et al. 2015**).

Early childhood trauma is an example of child maltreatment that is dangerous to the environment for relational reasons of high hazards for maladjustment within community, biological, and psychological issues of development from infant to old age (**Hagborg, Torbjörn & Arne, 2022**). Early childhood maltreatment has long been related to deregulation of the psychological immune system in adulthood. Psychological immunity indicates a psychological defense system protects the psyche like the real immune system is protecting the body (**Essa, 2020**). The major goal of this system is to assist individuals to cope with stress. The system of psychological immune was defined as “a multidimensional and integrated unit of personal resilience resources and adaptive dimensions that deliver immunity against impairment and stress”, have manage, control the conditions and effectively utilize coping approaches (**Oláh, 2019**). Furthermore, a child with psychological immunity can adjust easily to new difficult situations and use approximately all of the sources accessible in a stressful event. The psychological immune system incorporates the many qualities of personality coping into an integrative approach established on positive psychology concepts that emphasize in abilities and strengths instead of inner weaknesses and the personality faults (**Lincoln et al., 2015**). Psychosocial aspects play a role in primary enuresis since there is no increased rate of risk factors and psychological disorders, whereas children with secondary enuresis suffer from greater rates of behavioral and emotional disturbances as well as traumatic life experiences preceding the deterioration. The most common age for relapse is the age of school entry (**Matsumoto, 2015**).

Early childhood stressors might play a crucial role in etiology of bedwetting, with increased incidence of wetting bed up to ten age (**Joinso et al. 2016**). Emphasizing the strong connotation between stressful life situations in the initial four years of child's life and the common and persistent bedwetting, this study aimed to study the relationship between bed wetting in Egyptian children and their exposure to psychological trauma early in their life in addition to determining the psychological immunity of those children in the form of adaptive resources as containment, adaptive confrontation and self-

regulation that children use against stressors to promote healthy psychological development.

Significance of the study:

Worldwide the prevalence of nocturnal enuresis is 6 - 10% at age 7, reducing to 2% at 15 years, and 0.5 - 2 % in adults (**Harari, 2013**). Nocturnal enuresis is a common health issue between Egyptian children aged from 6 - 12 (**Kamal & Mahrous, 2018**). In Egypt the global prevalence was 18% in Upper Egypt, but it was 15.4% in Damietta Governorate (**Hamed, Yousf & Hussei, 2017**), likewise 15.7% in Banha Governorate and 14.7% in Menoufia Governorate (**Shaheen et al., 2021**). In regard, global the world, about 23% of adults retrospectively state physical abuse, 16% physical neglect, and 36% emotional abuse, but 18% of females and 8% of males indicated sexual abuse in their childhood (**WHO, 2020**). In Sweden, results from recent studies on teenage people suggested that 13% retrospectively state physical abuse, 8-13% documented emotional abuse and 14% of girls and 3-5% of boys documented sexual abuse (**Hagborg, Berglund & Fahlke, 2018; and Jernbro & Jansson, 2017**).

Maltreated children are more likely than their non-maltreated peers to have problems with academic performance, peer relationships, and romantic relationships. Delinquency and substance abuse have been noticed to be more common among abused adolescents (**Hagborg, Torbjörn & Arne, 2022**).

Moreover enuresis' etiology is not totally recognized. This circumstance perhaps has a different factor etiology. Also, in Cairo there is no researches for incidence and comorbidities between psychiatric disorders and nocturnal enuresis. Applying the varieties of management modalities simultaneously were required to reduce the wetting bed behavior. Such modalities may involve individual counseling, and the enuresis alarm positive reinforcement (**Mohammed, Saleh & Al Zoheiry, 2014**).

The impact of nocturnal enuresis on the mental health and psychological immunity for children is inadequately recognized. Little is known to produce opportunity of therapies concentrated on the causative factors of the problem and caring for the children and their families, an understanding better of those interrelationships is required. Psychiatric mental health nursing professionals might be in an exclusive location to evaluate the relationship between the children and their families earlier to disease, that it could be supportive in the diagnosis and management of nocturnal enuresis, mental health nursing professionals may enhance the

improvement of psychological immunity of those children and provide knowledge about the healthy ways of coping with stressors, and acquire adaptive skills to apply in stressful events. The role of psychiatric nurse present on the three level of prevention of children with nocturnal enuresis.

Psychiatric nurses should have access to preventive measures and their effects not only in outpatient psychiatric clinics but also in schools, universities, health facilities and services wherever they can access them. They can develop prevention and management strategies based on evidence from future studies involving nursing university students and health team members, as well as contribute to raising awareness about the behavioral and maladaptive impact of child maltreatment and its complications on the following age stages.

Aim of the study:

The aim was to study relationships between early childhood psycho-trauma and psychological immunity among children with nocturnal enuresis.

Research questions:

- 1- What are the levels of early childhood psycho-trauma and psychological immunity among children with nocturnal enuresis?
- 2- Is there relationship between early childhood psycho-trauma and psychological immunity among children with nocturnal enuresis?
- 3- What are the type of relationships between early childhood psycho-trauma, psychological immunity and their dimensions among children with nocturnal enuresis?

Subjects and Methods:

Research design:

Descriptive correlational design with quantitative methodology was applied in the present study to study the early childhood psycho-trauma and psychological immunity among children with nocturnal enuresis. The quantitative technique guides this study through filling out the selected tools of this study by inquiring answers of children and their caregivers.

Setting:

The present study was carried out in two settings: Psychiatry and Addiction Prevention Hospital, Cairo University Hospitals (Children's and Adolescents' Clinic). It served a large group of people. It involved three inpatient departments. The capacity of each department is 30 patients and 10

psychiatric clinic. The study was also done in preventive medicine hospital at Abo El-Rish hospital (Nocturnal Enuresis Clinic and Psychiatric Clinic). It works one day a week with about 20 children per day.

Sample:

Purposive sampling was used in this study, 260 children with nocturnal enuresis were recruited from out-patients' clinics of the previous mentioned settings through period of 4 months, children accessible at the time of data gathering and meet the inclusion criteria were included. **Inclusion criteria:** Both genders, age above 10 years old to can understand and answer the questions of the tools; and diagnosed with nocturnal enuresis. **Exclusion criteria:** children with memory disorders, mental retardation, cognitive disorders or children with autism.

Tools for data collection:

Tool I: Personal and clinical data sheet: It was developed by researchers, as well it measured personal data for the children and their caregivers and clinical data for children. It consisted of 15 items divided into personal data such as age, gender, academic achievements, ordinal position and current marital status of parents, as well clinical data such as medical diagnosis, and chronicity of disease.

Tool II: Childhood Trauma History Questionnaire–Short Form (CTQ-SF); It was developed by **Bernstein and Fink (1998)**. It involved 28 items, which it was used to determine childhood abuse, it consists of five sub-domains of five elements each, i.e., Emotional Abuse (EA) in items 1-5, Physical Abuse (PA) in items from 6-10, Sexual Abuse (SA) in items from 11-15, Emotional Neglect (EN) in items from 16-20 and Physical Neglect (PN) in items from 21-25. Three items are constructed to measure Minimization/Denial (M/D) in items 26-28. All 28 items are designed as phrases opening with the statement 'When I was growing up. Children respond to each item on a scale from 1 ("Never") to 5 ("Always"), which indicates the frequency with which they had these experiences. Ratings of statements, such as 'I had the perfect childhood' with the highest possible score, are unrealistic and therefore subjective. Positive scores on M/D may therefore be challenging and it has been mentioned in such cases to understand clinical appraisal on abuse scales with caution. The total scores of the scale =140. Responses are converted into a maltreatment severity subtype: "Minimal" (score < 70 or 50%), "Moderate" (score 70-105 or 50 -75%), or "Severe" (score ≥105 or ≥75%), all subscales can therefore vary between 25 and 140.

The original content validity of the scale was carried out by Witt et al., (2022) and four week test-retest reliability was high ($r=0.87$) and internal consistency was good (Cronbach's $\alpha=0.88$).

Tool III: Psychological Immunity scale: It was developed by (Al-sharif, 2016). It was utilized to measure the mental resistance and coping capacity of the individual. It contains 37 items divided into three sub-domains which are (1) containment, (2) adaptive confrontation, and (3) self-regulation. Items are easy statements that the participants needed to reply on a 5-point scale as the following (5) completely describe me, (4) describe me too much, (3) describe me to some extent, (2) describe me too little, (1) doesn't describe me at all. All items represent the positive aspects of psychological immunity except items no. (6, 12, 37, 34, 32) have negative meaning of psychological immunity so the scoring system will be reversed in these items. The total scores of the scale = 185. Responses are converted into psychological immunity subtype: "Minimal" (score < 92 or 50%), "Moderate" (score 92-138 or 50 -75%), or "Severe" (score ≥ 138 or $\geq 75\%$), all subscales can therefore vary between 37 and 185. The scale was applied in Egyptian culture and determined internal consistency was good "Cronbach's $\alpha = 0.89$ " by Al-sharif (2016).

Content Validity:

Researchers investigated the tool content validity prior beginning the data gathering. Tool of "Childhood Trauma History Questionnaire Short Form was translated into Arabic and was verified their content. Translation and then back translation procedures have been completed for the measurement by a panel of five bilingual experts; three professors in psychiatric mental health nursing, and two expert in the Arabic language, to evaluate the items' comprehensiveness, relevancy and the suitable changes were done accordingly. In addition, the time needed to achieve the data sheet was determined.

Reliability:

Reliability was established by utilizing Cronbach's alpha coefficient test which showed consistent of the items in relatively. The internal consistency of Childhood Trauma History Questionnaire Short Form and Psychological Immunity scale was 0.88 and 0.93 respectively which these rates are highly acceptable as well as acceptable levels of criterion/concurrent validity.

Pilot Study:

A pilot study was conducted at the beginning of this study. It involved twenty six children (or 10% percent) of the studied sample to explore the clarity

and practicability of tools for information gathering. No modification of the tools was carried and validated another time to assess its feasibility and clarity. Children in the pilot study were included in the main study sample because no changes to the tools were required.

Procedure:

An approval of the Research Ethics Committee of the Faculty of Nursing, Cairo University was attained to conduct the present study. Written permission will also be obtained from the head of the two hospitals. An Agreement of the Research Ethics Committee of the Faculty of Medicine, Cairo University was reached to hold the present study and validate the tools. The objective of the study was clarified to children and their caregivers and requested to read the written informed consent to be signed it before data collection. All the questions and queries were discussed and sorted out before actual data collection. The study was carried out in 4 months from November 2021 to Feb. 2022. The researchers interviewed the children and their caregivers two days per week. The interview lasts for about 20 - 30 minutes with each child in the outpatient clinics' reception in the previously mentioned hospitals. Inquiries were questioned and answers were documented by the researchers.

Ethical Consideration:

An approval of the Research Ethics Committee was achieved to carry out this study. Written consent was also gained from the head of the hospitals. All children were knowledgeable about the purpose and benefits of this study. All participants were informed that their sharing was voluntary, and the information gathered was utilized only for the goal of the study. An informed written consent form was signed by each children 'care givers before data collection. Measures were taken to ensure privacy and anonymity through information gathering and tools coding.

Statistical Analysis:

Data were analyzed utilizing the Statistical Package for Social Science (SPSS) version 22. Numerical data were expressed as mean and SD. Quantitative data will be expressed as frequency and percentage. Relations between different numerical variables were tested using Pearson correlation t-test. Probability (p-value) less than 0.05 was considered significant and less than 0.001 was considered highly significant and r regression test was used to test the type of relationship among variables (negative or positive).

Results:

Table (1): Displays that, more than half (53.5%) of children's age were 10 - 15 years while (53.5%) were above 15 years and (59.6%) were male. Regarding responsible caregiver of child more than half of children (62.3%) were cared by a mother, concerning educational levels of mothers (23.1%), (24.6%), (16.2%) of mothers were educated as primary or high school or university education respectively. Results reveals that (55.4%) of children were the first child in ordinal position in family.

Table (2): Shows that more than one-half of the sample (62.3%) were diagnosed with primary enuresis without congenital anomalies of urinary system in (66.2%). Regarding chronicity of the disease, (44.2%) of children suffered nocturnal enuresis for less than a year, while (40.8%) of children have for more than year to 3 years. The study shows that (36.9 %) of sample have weak academic achievement while (34.2%) of children hardly accepted. More than two thirds of sample have weak and no social relations with others (35.4%) and (36.5%) respectively.

Table (3): Shows that mean percent (59.88%) of studied sample suffering early childhood trauma history while the mean percent (39.51%) of the studied sample having psychological immunity.

Figure (1): Reveals that majority of the sample experienced moderate levels of emotional abuse and neglect scores (100 and 72.3%) respectively. As well, (76.2%) with moderate levels of physical abuse scores, while (23.8%) had high levels of physical abuse score.

Figure (2): Illustrates that the majority of studied sample was (85.4 and 82.3%) respectively with low level of psychological immunity scores in

adaptive confrontation and self-regulation dimensions. While (25%) only with moderate level of psychological immunity scores in containment dimension.

Table (4): Reveals that there were significant negative relationship between the all dimensions of psychological immunity and three dimensions of early childhood trauma (emotional, physical and sexual abuse dimensions) ($r = -0.18$, $r = -0.19$ and $r = -0.26$ respectively) and (P-value = 0.004, 0.002 and 0.0001 respectively). Moreover, there was a significant negative relationship between the total score of childhood trauma and psychological immunity at (P-value = 0.0001 and $r = -0.27$). Moreover, there were significant negative relationship between the three dimensions of psychological immunity and total score of childhood trauma history as containment, adaptive confrontation and self-regulation dimensions ($r = -0.2$, $r = -0.22$ and $r = -0.38$ respectively) and (P value = 0.0001, 0.0001 and 0.0001 respectively).

Table (5): Shows that there were significant negative relationships between total scores of early childhood trauma history and congenital anomalies, academic achievement, ordinal position and social relationships of children in studied sample ($r = -0.47$, -0.17 , -0.21 and -0.56 respectively) (P-value = 0.0001, 0.006, 0.0001 and 0.0001 respectively). Moreover, the study result shows that there were significant positive relationships between total scores of psychological immunity and age and chronicity of disease ($r = 0.25$ and 0.14 respectively) (P-value = 0.0001 and 0.02 respectively) and significant negative relationships between total scores of psychological immunity and family size and social relationships of children in studied sample ($r = -0.19$ and -0.26 respectively) (P-value = 0,001 and 0.0001 respectively).

Table (1): Frequency Distribution of Personal and Clinical Data of Studied Sample (n=260).

Personal Characteristics	No.	%
Age/years		
10-15	139	53.5
>15	121	46.5
Gender		
Male	155	59.6
Female	105	40.4
Responsible care giver		
Father	63	24.2
Mother	162	62.3
Other	35	13.5
Education of father		
Illiterate	17	6.5
Read and write	81	31.2
Primary education	53	20.4
High education	63	24.2
Bachelor's degree	46	17.7
Education of mother		
Illiterate	17	6.5
Read and write	77	29.6
Primary education	60	23.1
High education	64	24.6
Bachelor's degree	42	16.2
Marital status of parents		
Married	173	66.5
Divorced	58	22.3
Widow	7	2.7
Separated	22	8.5
Family size (Numbers of Sons)		
1-3	114	43.8
>3	146	56.2
Ordinal position of child in family		
First child	144	55.4
Middle child	22	8.5
Youngest child	74	28.5
Only child	20	7.7

Table (2): Frequency Distribution of Clinical Characteristics of Studied Sample (n=260).

Clinical Characteristics	No.	%
Medical diagnosis		
Primary enuresis	110	62.3
Secondary enuresis	150	47.7
Congenital anomalies of urinary system		
Yes	88	33.8
No	172	66.2
Chronicity of disease		
<1	115	44.2
1 -3	106	40.8
>3	39	15.0
Academic achievement		
Weak	96	36.9
Accepted	89	34.2
Good	58	22.3
Very good	12	4.6
Excellent	5	1.9
Social relations of child		
Good	73	28.1
Weak	92	35.4
No relations	95	36.5

Table (3): Frequency Distribution of Childhood Trauma History and Psychological Immunity Dimensions of Studied Sample (n=260).

Childhood trauma history dimensions	Mean	SD	Mean percent %
Emotional abuse	14.89	0.85	59.55
Physical abuse	17.22	1.42	68.89
Sexual abuse	16.92	2.15	67.69
Emotional neglect	15.59	2.71	62.37
Physical neglect	19.21	2.93	48.02
Total childhood trauma history	83.83	5.82	59.88
Psychological immunity dimensions			
Containment	17.49	4.02	43.73
Adaptive confrontation	31.71	9.94	37.30
Self-regulation	23.90	6.11	39.83
Total psychological immunity	73.10	19.72	39.51

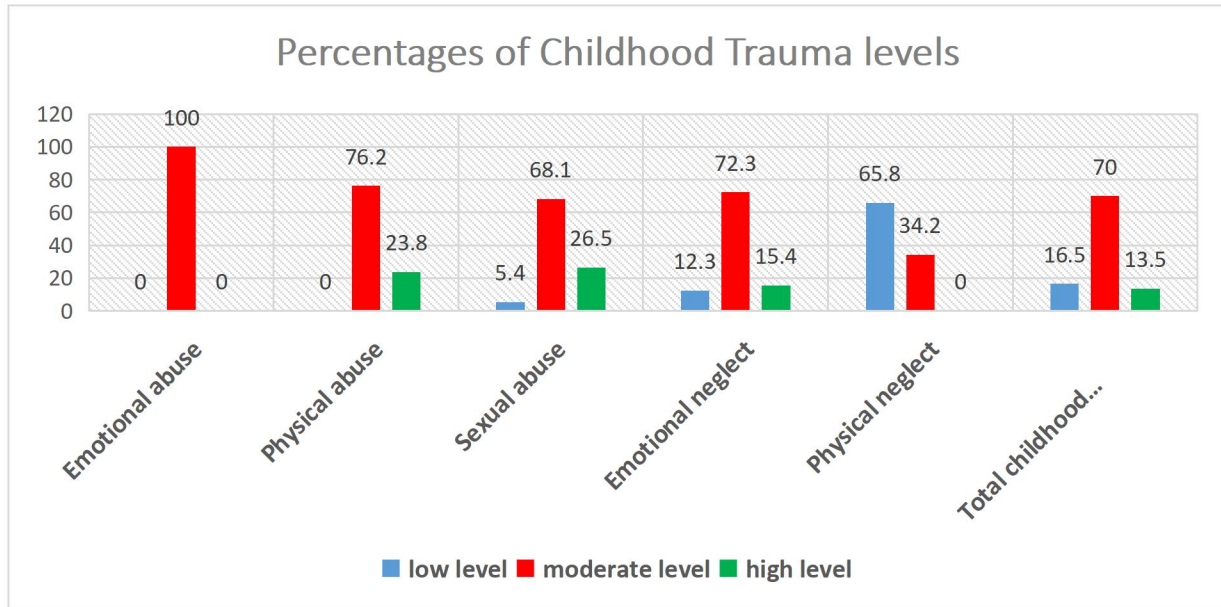


Figure 1: Levels of Childhood Trauma History among Studied Sample (n=260).

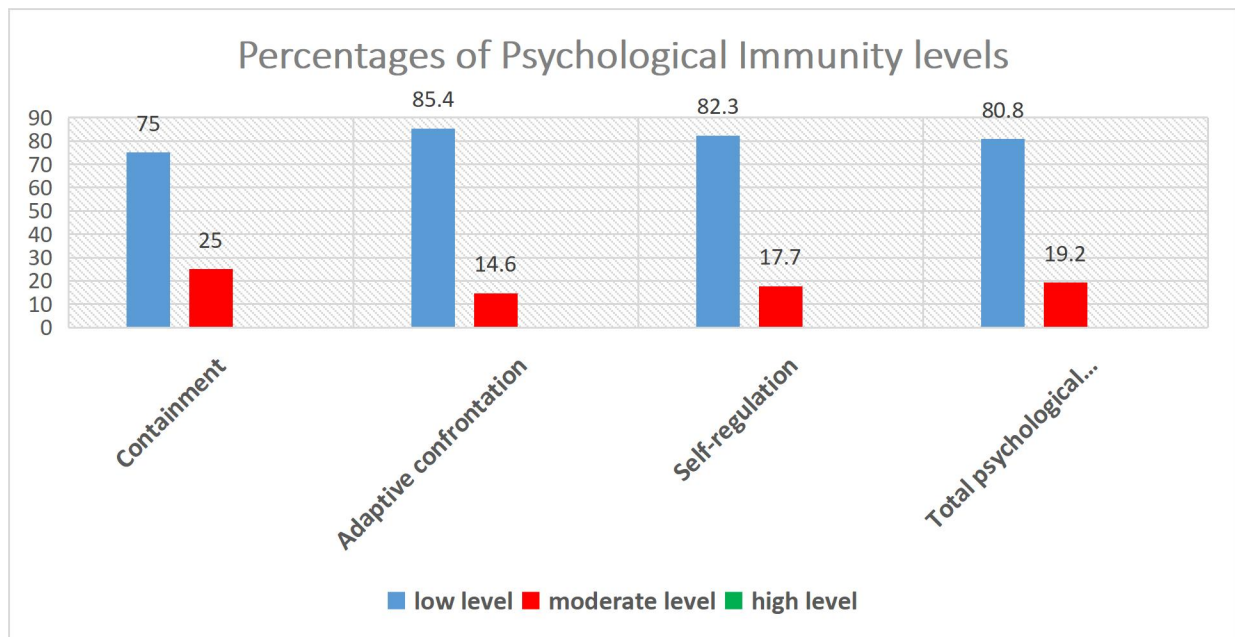


Figure 2: Levels of Psychological Immunity among Studied Sample (n=260).

Table (4): Correlations between Childhood Trauma History and Psychological Immunity Dimensions in Studied Sample (n=260).

Psychological Immunity /Childhood Trauma History Dimensions	Containment		Adaptive confrontation		Self-regulation		Total psychological immunity	
	R	p	r	p	r	p	r	p
Emotional abuse	-0.17	0.006**	-0.07	0.22	-0.34	0.0001**	-0.18	0.004**
Physical abuse	-0.11	0.06	-0.21	0.0001**	-0.18	0.002**	-0.19	0.002**
Sexual abuse	-0.19	0.001**	-0.2	0.001**	-0.39	0.0001**	-0.26	0.0001**
Emotional neglect	0.08	0.17	0.07	0.23	0.09	0.13	0.08	0.18
Physical neglect	0.88	0.0001**	0.86	0.0001**	0.94	0.0001**	0.90	0.0001**
Total childhood trauma history	-0.2	0.0001**	-0.22	0.0001**	-0.38	0.0001**	-0.27	0.0001**

*significant at p-value <0.05

** highly significant at p-value <0.01

Table (5): Correlations between Personal and Clinical Characteristics, Total Scores of Childhood Trauma History and Psychological Immunity Dimensions of Studied Sample (n=260).

Personal and Clinical Characteristics	Childhood Trauma History		Psychological Immunity	
	r	p	r	p
Medical diagnosis	0.02	0.1	0.1	0.4
Congenital anomalies of urinary system	-0.47	0.0001**	0.08	0.15
Chronicity of disease	0.13	0.02*	0.14	0.02*
Age/years	0.19	0.002**	0.25	0.0001**
Gender	0.08	0.15	0.03	0.5
Academic achievement	-0.17	0.006**	-0.03	0.63
Responsible care giver	0.05	0.37	0.04	0.49
Education of father	0.06	0.26	0.07	0.27
Education of mother	0.06	0.26	0.08	0.19
Marital status of parents	0.02	0.6	0.01	0.76
Family size	-0.004	0.95	-0.19	0.001**
Ordinal position of child in family	-0.21	0.0001**	-0.11	0.06
Social relationships of child	-0.56	0.0001**	-0.26	0.0001**

*significant at p-value <0.05

** highly significant at p-value <0.01

Discussion:

The present study was aimed to study the relationships between nearly childhood psycho-trauma and psychological immunity among children with nocturnal enuresis. This study's outcome showed that the majority of sample suffering moderate levels scores of emotional & physical abuse, emotional neglect and about one third of children the study have high levels of physical abuse (figure 1). The results might be affected with the Egyptian culture in parenting of child and using punishment strategies in learning and training as well as the stressful life among majority of Egyptian families which turned to projection of stressors on their children and provoking maltreatment forms. The outcomes of the current study agreed with **Kamal and Mahrous (2018)** stated that the experience to early traumatic situations has been initiated to be related with an enlarged risk of wetting bed in a small control case study of seven year-olds, a study of small longitudinal of children surveyed up to age from 6 to 16 year olds.

Moreover, the early prospective cohort study of **Mohammed et al. (2014)** who has assessed the impacts of traumatic experiences on risk of consequent wetting bed and noticed that children who have being subjected to "disturbing" experiences (e.g., accidents, breakdown of family, moving house, and separation from mother) in the initial 4 years of life had an enlarged incidence of bedwetting up to age 15 years and suggested that children experienced four or more upsetting events had twice the risk of developing bedwetting than those who did not experience to such events. Additionally, the recently an Egyptian research conducted in Sharkia governorate by **Ahmed et al. (2022)** estimated that the incidence of primary school aged children from 6 - 12 years old as nearly one-tenth suffered nocturnal enuresis.

The outcome of the current study showed that more than one-half of the studied children's age were 10 - 15 years and the rest above 15 years (table 1) which agreed with findings of **Ahmed et al. (2022)** and **Kamal and Mahrous (2018)**. Regarding the medical diagnosis the results showed that more than half of children were diagnosed as primary enuresis (table 2) such outcomes were on line with another Egyptian study that conducted in Menoufia and stated that the incidence of primary enuresis in children was indicated to be more frequent than that of secondary enuresis **Al-Kot and Deeb (2012)** and study of **Mohammed et al. (2014)** who reported the incidence rate of primary nocturnal enuresis represented the majority of cases, while secondary nocturnal enuresis represented less than one-fifth of them.

The results showed that about two thirds of studied sample have weak academic achievement or just accepted. More than two thirds of sample have weak and no social relations with others (table 2). This might be a result of night awakening, which preceded concentration and education difficulties. The results congruent with the study of **Huang, Wei and Sharma (2020)**; and **Sarici, Telli and Ozgur (2016)** presented that measuring social functioning as part of life quality among children with nocturnal enuresis in primary school, presented that four-fifth of children never or almost never had trouble getting along with other kids. Moreover, **Owino, Aloka and Odongo (2019)** noticed that children with nocturnal enuresis may be ridiculed and hated by peers and have low self-esteem, which could affect their capacity to communicate and obstruct their improvement in their psychological and toilet training progress. Nocturnal enuresis enforces a long-term responsibility on families, which may produce the caregivers to have adverse attitudes regarding their children. Children with nocturnal enuresis had weak school performance.

The present results revealed that almost all of the studied children have low degree of psychological immunity scores in adaptive confrontation and self-regulation dimensions (figure 2). The findings are consistent with **Ahmed et al. (2022)** showed that children with enuresis were frequently having psychological and emotional concerns. Fear being noticed by others is usually associated with emotional suffering for children and their caregivers. Nearly one-third of the sample often feel upset, hurt, fear, scared, and feel sad while one-quarter of them often feel angry. More than one-fifth of the children stated that they occasionally had difficulty sleeping.

The results are agreement with **Üçer and Gümüş (2014)** reported that the children's life quality (emotional domains) with enuresis was considerably badly behaved than that of those without enuresis in control group. The enuresis group was statistically significantly lower than the scores in the control group. They considered the depressed feeling in children with nocturnal enuresis associated to the control group, as well showed that the children with nocturnal enuresis were gloomier than healthy children. In addition to, the study of **Stickley, Santini and Koyanagi (2017)** reported that with severe urinary incontinence in females, the risks for depression disorders were four-fifth greater vs. two-fifth higher with mild to moderate levels for urinary incontinence. Anxiety symptoms were raised as one-half of women and men. The results consistent with **Lee, Rhee and Choi (2021)** and **Kuoch et al. (2019)** found that the urinary incontinence was serious

enough to produce impaired task, the anxiety rate was raised four-fold.

In contrast, the current study results disagreed with **Yousefichaijan et al. (2015)** reported that in the control groups, there was not a significant change between the enuresis in psychological and emotional attributes and it was revealed that most children with mono-symptomatic primary nocturnal enuresis had no aggressive behavior towards others. **Dursun et al. (2014)** noticed that there was no deterioration in the self-esteem of control group who had nocturnal enuresis who also disagree with the present study result.

Conclusion:

Based on the present study findings, the study concluded that there were moderate and high levels of early childhood trauma history among the children with nocturnal enuresis. Furthermore, there were low levels of psychological immunity for those children. Also, there was a significant negative relationship between the total score of childhood trauma and psychological immunity. There were significant negative relationships between the three dimensions of psychological immunity and total score of childhood trauma history "containment, adaptive confrontation and self-regulation dimensions". Additionally, there was a significant negative correlation between the most dimensions of early childhood trauma history as emotional, physical and sexual abuse and psychological immunity.

Recommendations:

Concerning the findings of the present study, the following recommendations were suggested:

- Provide culturally appropriate psycho-educational programs for families of children with longer-term nocturnal regarding dealing their children with useful technical curative strategies.
- The psychiatric nursing staff should implement a nursing intervention program in all governorates of Egypt for children with nocturnal enuresis to improve their psychological immunity, child and family relationship, and reduce child maltreatment and abuse levels.
- There is a need for the development and implementation of a special training program for children with nocturnal enuresis disorder and their caregivers to deal with stressful experiences in daily life.
- Development of educational curriculum to nursing students for studying the child and family

psychiatric relationship focusing on early childhood trauma and psychological immunity of children and mothers in the Egyptian cultures.

- Further research to achieve more generalizability of the results, it is suggested to duplicate the present study on the larger sample size that is representative in the different governorates of Egypt.

Limitation of the study:

This study had a limitation, the study did not investigate the early childhood trauma as families were perceived. Moreover, childhood trauma was assessed retrospectively, and may have been subject to recall bias especially, it was conducted with presence of their caregivers. the sample size was relatively small, and the findings of the study cannot be generalized, and larger independent study samples are needed.

Acknowledgments:

We prompt our sincere obligation to the directors of the Psychiatry and Addiction Prevention Hospital- Cairo University Hospitals (Children's Clinic) and Preventive Medicine Hospital in Abo El-Rish hospital (Nocturnal Enuresis Clinic and Psychiatric children Clinic), the contributing outpatient nursing staff, children and their caregivers for their time, support, and cooperation.

Declaration of conflicting interests:

The authors have declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding:

The authors did not receive any financial support for the research, authorship, and/or publication of this article.

References:

- Ahmed, S., El-Sayed, S., Morsy, R. & Said, H. (2022). Effect of nocturnal enuresis on quality of life of primary school children in Sharkia governorate. *Neuroquantology*, 20 (6), 4512 – 4524. Available at: <https://doi.org/14704/nq.2022.20.6.NQ22445>,
- Al-Kot, M. & Deeb, M. (2012). Nocturnal enuresis among school children in Menoufia Governorate: A hidden problem. *J Am Science*, 8 (1), 328 - 334.
- Al-Sharif, A. (2016). The effectiveness of counseling program to support psychological immune system, according to personality characteristics Self-determined, to reduce the feeling of alienation among students in Palestinian universities. Ph.D.

- Thesis, Faculty of Education, Mansoura University.
- Austin, P., Bauer, S. & Bower, W. (2016). The standardization of terminology of lower urinary tract function in children and adolescents, update report from the standardization committee of the International Children's Continence Society. *Neurourol Urodyn*, (35), 471. Available at: <https://www.uptodate.com/contents/nocturnal-enuresis-in-children-management>
- Bernstein, D. & Fink, L. (1998). Childhood trauma questionnaire. A retrospective self-report. Manual. San Antonio, TX: The Psychological Corporation. Harcourt Brace & Company. Available at: <https://www.scirp.org>.
- Dossche, L., Walle, J. & van-Herzeele, C. (2016). The pathophysiology of mono-symptomatic nocturnal enuresis with special emphasis on the circadian rhythm of renal physiology. *Europe Journal Pediatric*, 175 (6), 747 - 754.
- Dursun, F., Malkoc, E., Okcelik, S., Cirakoglu, A. & Ates, F. (2014). The effect of nocturnal enuresis in adults on sexual satisfaction and self-esteem. *Urology*, 3 (1182), 2 - 4. Available at: <https://doi.org/10.4172/2167-0250.1000118>.
- Essa, E. (2020). Modeling the relationships among psychological immunity, mindfulness and flourishing of university students. *International Journal of Education*, 13, 37 - 43. Available at: <https://doi.org/10.17509/ije.v13i1.24488>.
- Hagborg, J., Berglund, K. & Fahlke, C. (2018). Evidence for a relationship between child maltreatment and absenteeism among high-school students in Sweden. *Child Abuse & Neglect*, (75), 41- 49. Available at: <https://doi.org/10.1016/j.chiabu.2017.08.027>.
- Hagborg, J., Torbjörn, K. & Arne, G. (2022). The childhood trauma questionnaire-short form (CTQ-SF) used with adolescents' methodological report from clinical and community samples. *Journal of Child & Adolescent Trauma*, (15), 1199 – 1213.
- Hamed, A., Yousf, F. & Hussein, M. (2017). Prevalence of nocturnal enuresis and related risk factors in school-age children in Egypt: An epidemiological study. *World journal of urology*, (35), 459 - 465.
- Harari, M. (2013). Nocturnal enuresis. *Journal of pediatrics and child health*, (49), 264 - 271.
- Huang, H., Wei, J. & Sharma, S. (2020). Prevalence and risk factors of nocturnal enuresis among children ages 5-12 years in Xi'an, China: A cross-sectional study. *BMC Pediatrics*, 20, 1 - 8.
- Jernbro, J., & Jansson, S. (2017). Violence against children: A national survey. Stockholm, Sweden: Children's Welfare Foundation Sweden. Available at: <https://www.A-national-survey-Violence-against-children-2016.pdf>.
- Joinso, C., Sullivan, S., Gontard, A., & Heaven, J. (2016). Stressful events in early childhood and developmental trajectories of bedwetting at school age. *J. pediatric psychology*, 41 (9), 1002-1010.
- Joinson, C., Sullivan, S., Von Gontard, A. & Heron, J. (2015). Early childhood psychological factors and risk for bedwetting at school age in a UK cohort. *Journal of Europe Child Adolescent Psychiatry*, (25), 519 - 528. Available at: <https://doi.org/10.1007/s00787-015-0756-7>.
- Kamal, N. & Mahrous, C. (2018). The epidemiology and factors associated with nocturnal enuresis among primary school children in Minia City, Egypt. *The Egyptian Journal of Community medicine*, 37 (1), 63 - 71.
- Kuoch, K., Connell, H., Austin, D. & Knowles, S., (2019). Urinary and fecal incontinence: Psychological factors and management recommendations. *New Zealand Medical Journal*. Available at: <https://journal.nzma.org.nz/journal-articles/urinary-and-faecal-incontinence-psychological-factors-and-management-recommendations>.
- Lee, H., Rhee Y. & Choi, K. (2021). Urinary incontinence and the association with depression, stress, and self-esteem in older Korean women. *Scientific Reports*. Available at: <https://doi.org/10.1038/s41598-021-88740-4>.
- Lincoln, T., Köther, U., Hartmann, M., Kempkensteffen, J. & Moritz S. (2015). Responses to stress in patients with psychotic disorders compared to persons with varying levels of vulnerability to psychosis, persons with depression and healthy controls. *J Behav Ther Exp Psychiatry*, 47, 92 - 101. Available at: <https://doi.org/10.1016/j.jbtep.2014.11.011>.
- Matsumoto, D. (2015). *The Cambridge dictionary of psychology*. (1st ed.), Cambridge University Press.
- Mohammed, A., Saleh, A. & Al Zoheiry, I. (2014). Frequency of bedwetting among primary school children in Benha city, Egypt: Ain Shams University, *The Egyptian Journal of Medical Human Genetics*, 15, 287- 293. Available at: <http://dx.doi.org/10.1016/j.ejmhg.2014.01.005>.
- Naiwen, D. & Laurence, S. (2022). Nocturnal enuresis in children, management, up-to-date magazine. Available at: <https://www.uptodate.com/contents/nocturnal-enuresis-in-children-management>.
- Nevéus, T. (2017). Pathogenesis of enuresis: Towards a new understanding. *International J. Urol. Mar.*, 24 (3), 174 - 182.

- Oláh, A. (2019), Positivity is an up-to-date predictor of well-functioning instead of a eudemon. *Asian, Journal of Social Psychology*, (22), 143 - 145. Available at: <https://doi.org/10.1111/ajsp.12362>.
- Owino J, Aloka P. & Odongo P. (2019). Psychological experiences of students who have nocturnal enuresis with their peers in boarding secondary schools in Kenya. *International Journal of Brain and Cognitive Sciences*, 8(2), 32 - 39. Available at: <https://doi.org/10.5923/j.ijbcs.20190802.03>.
- Sarici, H., Telli, O. & Ozgur, B. (2016). Prevalence of nocturnal enuresis and its influence on quality of life in school-aged children. *Journal of Pediatric Urology*, 12 (3), 159.
- Shaheen, D., El-Masry, R., Hammad, A. & Montasser, N. (2021). Nocturnal enuresis and its effect on quality of life among Egyptian children. *Ann Pediatric*, 4, 1048.
- Stickley, A., Santini, Z. & Koyanagi, A. (2017). Urinary incontinence, mental health, and loneliness among community-dwelling older adults in Ireland. *BMC Urology*. Available at <https://doi.org/10.1186/s12894-017-0214-6>.
- Thurber, S. (2017). Childhood enuresis: Current diagnostic formulations, salient findings, and effective treatment modalities. *Arch Psychiatric Nursing*, 31 (3), 319 - 323.
- Üçer, O. & Gümüş, B. (2014): Quantifying subjective assessment of sleep quality, quality of life and depressed mood in children with enuresis. *World Journal of Urology*, 32 (1), 239 - 243.
- van-Herzele, C., De Bruyne, P., De Bruyne, E. & Walle, J. (2015). Challenging factors for enuresis treatment: Psychological problems and non-adherence. *J Pediatric Urol.*, 11 (6), 308 - 313.
- Witt, A., Yusuf, O., Cedric, S., Elmar, B., Heide, G. & Jörg, M. (2022). Validation and standardization of the childhood trauma screener (CTS) in the general population. *Child and Adolescent Psychiatry and Mental Health*, 16 (1). Available at: <https://doi.org/10.1186/s13034-022-00506-6>.
- WHO (2020). Child maltreatment: Info graphics. World Health Organization, Geneva Retrieved. Available at: https://www.who.int/violence_injury_prevention/violence/child/Child_maltreatment_info_graphic_EN.pdf.
- Yousefichaijan, P., Salehi, B., Rafiei, M., Ghadimi, N., Taherahmadi, H., Hashemi, S. & Naziri, M. (2015). Emotional disorders in children with mono-symptomatic primary nocturnal enuresis. *J Ped Nephrol*, 3, 22 - 25. Available at: <https://journals.sbmu.ac.ir/jpn/article/view/7402>.