

Self-concept and psychiatric comorbidity in a sample of Egyptian adolescents with secondary nocturnal enuresis

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Objective

Enuresis is a common problem in children and adolescents that can be troubling for them and their families. The potential effect of enuresis on the synthesis of identity and self-concept in children and adolescents is still poorly understood. This study aimed to evaluate the probable impact of secondary nocturnal enuresis on the self-concept of Egyptian adolescents.

Participants and methods

Forty patients aged 10–18 years with a diagnosis of secondary enuresis and 40 control children of the same age range were recruited. A validated Arabic version of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID) in addition to the Child Behavior Check List (CBCL) and an Arabic-translated and validated version of the Piers-Harris Children's Self-Concept Scale were applied to evaluate the sample.

Results

After statistical adjustment for differences in intelligence quotient and socioeconomic status, youth with enuresis showed lower school, social, and total competence scores on CBCL but higher scores in all CBCL problem parameters. Adolescents with enuresis scored lower than control adolescents in all six subscales of the Piers-Harris Children's Self-Concept Scale in addition to the total score. Linear regression was used to adjust the results for significant differences between the two groups regarding intelligence quotient, socioeconomic status, CBCL school competence, CBCL total problems, and diagnosis of attention-deficit hyperactivity disorder and conduct disorder according to the MINI-KID interview. Differences in three subscales – behavior, intellect, and physical appearance – in addition to the total score were still significant after adjustment. Comparison between youth with nocturnal enuresis versus those with combined-type enuresis yielded no significant differences.

Conclusion

Older children and adolescents with enuresis suffer from high internalizing and externalizing problems, and low competence levels. They also suffer from low self-esteem that is most probably the result of enuresis itself and not due to low competence levels or behavioral problems. Further research is needed to determine the effect of treatment on the self-concept of these children.

Keywords:

adolescents, concept, enuresis, self

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Introduction

Enuresis is a common problem in children and adolescents that can be troubling for them and their families (Goin, 1998). It is defined as a clinically significant repeated voiding of urine into bedclothes whether involuntary or intentional in a child of at least 5 years (American Psychiatric Association, 2013). Enuresis is classified as nocturnal, diurnal, and combined types (American Psychiatric Association, 2013). The nocturnal-only subtype of enuresis, sometimes referred to as monosymptomatic enuresis, is the most common subtype (American Psychiatric Association, 2013). The International Children's Continence Society classifies enuresis on the basis of the commencement period (primary or secondary) (Austin *et al.*, 2014, 2015). Secondary enuresis means a relapse to enuresis after a

dry period of at least 6 months (Fritz *et al.*, 2004). The most common time for the onset of secondary enuresis is between the ages of 5 and 8 years, but it may occur at any time (Von Gontard *et al.*, 2011a, 2011b; American Psychiatric Association, 2013).

The prevalence of enuresis is 5–10% among 5-year-olds, 7–10% among 8-year-olds, 3–5% among 10-year-olds, and around 1% among individuals 15 years or older. After the age of 5 years, the rate of spontaneous remission is 5–10% per year (Jarvelin, 1999; American

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Psychiatric Association, 2013). The prevalence in boys was reported to be significantly greater than that in girls (6.21 vs. 2.51% in 8–11-year-olds) (Shreeram *et al.*, 2009). Prevalence of nocturnal enuresis (NE) in Egyptian children (6–12-year-olds) was estimated to range between 10.4 (Ahlam Ismail and Abdel-moneim, 2013) and 15.7% (Ashraf *et al.*, 2014). Another Egyptian sample with a wider age range (6–18-year-olds) showed a prevalence of 11.5% for primary and 3.2% for secondary enuresis (Mohammad Alkot, 2012).

During the first half of the 20th century, the Freudian explanation of enuresis as a symptom of neurosis or personality disorder was widely accepted until research dealing with genetic predisposition and other organic reasons for enuresis began to appear (Gerard, 1939; Hallgren, 1956; Mellon and McGrath, 2000). However, this literature has had conflicting conclusions about whether or enuresis is a symptom of an underlying alteration in mental health or a benign self-limited variation in behavioral functioning (Shaffer, 1973; Longstaffe *et al.*, 2000). NE may cause stress and emotional problems in the affected person and in his or her family. It can also develop secondary to stress in patients and families (Chang *et al.*, 2002).

The rates of comorbid mental disorders were estimated to range from 20 to 30% in NE and from 30 to 40% in daytime urinary incontinence (Von Gontard *et al.*, 2014). Although some earlier reports denote that secondary enuresis is more commonly associated with psychiatric comorbidity (Jarvelin *et al.*, 1990; Von Gontard *et al.*, 2011a, 2011b; Austin *et al.*, 2015), DSM-5 stated no significant differences in the prevalence of comorbid mental disorders between primary and secondary enuresis (American Psychiatric Association, 2013). In a British population-based study of 8242 children aged 7½ years, those with enuresis also suffered from attention-deficit hyperactivity disorder (ADHD) (17.6%), oppositional defiant disorder (ODD) (8.8%), conduct disorders (CDs) (8.5%), specific phobia (14.1%), generalized anxiety (10.5%), depression (14.2%), separation anxiety (8.0%), and social anxiety (Joinson *et al.*, 2007). ADHD was especially associated with enuresis (odds ratio 2.88) (Shreeram *et al.*, 2009).

Erikson viewed the elementary school years as critical for the development of self-confidence (Erikson, 1950). In later stages of adolescence, youth need to overcome the crisis of identity confusion and build a reintegrated sense of self (Bee, 1992). Although the terms self-concept and self-esteem are often used interchangeably, they represent different but overlapping and related constructs. Self-concept refers to a child's perceptions of competence or adequacy in

academic and nonacademic (e.g. social, behavioral, and athletic) domains (Crain, 2011). Self-esteem is a broad concept referring to a global 'internal assessment' or evaluation of oneself (Kernis, 2003; La Guardia, 2003).

The potential effect of enuresis on the synthesis of identity and self-concept in children and adolescents is still poorly understood. In an uncontrolled study, Collier and colleagues showed that enuresis affected the self-esteem of 114 children, especially males, those having primary enuresis, and those with greater frequency of wetting. However, age and extent of wetting were not significantly related to self-concept measures (Collier *et al.*, 2002). Hagglof *et al.* (1998) also showed that incontinent children had lower self-esteem when compared with controls and showed that successful therapy improved the self-esteem. Using Child Behavior Check List (CBCL) and Piers-Harris Children's Self-Concept Scale, Longstaffe *et al.* (2000) indicated that self-concept improved after treatment of NE in 182 Canadian children.

Differences in culture, lifestyle, and social interactions as well as parental expectations make it inappropriate to extrapolate data from Western studies to other communities. Few previous studies were conducted in Egypt (Amin *et al.*, 2011; Alkot, 2012). Those studies used only CBCL to evaluate the psychological and behavioral profile of enuretic children and did not use a specific tool to evaluate self-concept. The current study aimed to evaluate the probable impact of secondary NE on the self-concept of Egyptian adolescents.

Participants and methods

This paper is the published version of the thesis titled 'Psychosocial profile of late childhood & adolescence with nocturnal enuresis', which was submitted by the last author to the Faculty of Medicine, Tanta University, in partial fulfillment of a Master's degree in neuropsychiatry. The cross-sectional case-control study was carried out during an interval starting from April 2014 to October 2015. Participants were recruited from those presenting to the child and adolescent outpatient clinics of Tanta Psychiatry and Neurology Center and Neuropsychiatry Department in Tanta University Hospital. Forty patients aged 10–18 years with a diagnosis of enuresis according to DSM-5 were recruited. Only adolescents who previously attained at least 6 months of complete remission (secondary enuresis) were included. Control children of the same age range were recruited among those coming to the neurology clinic for minor neurological complaints (e.g. back pain, peripheral neuritis, etc.) with no complaint of enuresis.

Children were excluded if they suffered from mental retardation [intelligence quotient (IQ)<70], schizophrenia, schizoaffective disorder, or significant neurological conditions that affected their collaboration with the study. Control children were also excluded if they revealed any Axis-1 disorder on the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID) interview and if they had a first-degree relative with enuresis. The study was approved by the Research Ethical Committee of the Faculty of Medicine, Tanta University, in April 2014. All patients and controls gave their informed consent before the start of the study.

All participants were subjected to full psychiatric history and mental status examination, in addition to physical and neurological examination. The Fahmy and El-Sherbini scale (Fahmy, 1983) was used to collect demographic and socioeconomic data on patient and control families. The Arabic translation of the Stanford-Binet IQ fourth edition (Thorndike *et al.*, 1986; Melika, 1998) was used to assess the IQ of the children to determine the general level of intelligence and to exclude mental retardation in both patients and controls. A validated Arabic version of the MINI-KID (Sheehan *et al.*, 2010; Ghanem, 1998) was administered to confirm the diagnosis of enuresis and detect comorbid psychiatric diagnoses in participating adolescents. The CBCL was filled by parents for their offspring to detect levels of competence and internalizing and externalizing problematic behavior in the offspring (El Defrawy *et al.*, 1995; Achenbach and Dumenci, 2001). An Arabic-translated and validated version of the Piers-Harris Children's Self-Concept Scale (Piers and Harris, 1964; Musa, 2004) was used to evaluate the way the children and adolescents feel about themselves. The scale, which consists of 80 'Yes or No' statements, provides six subscales: behavior, intellectual and school status, physical appearance and attributes, anxiety, popularity, and happiness and satisfaction.

Results

Of the total sample of adolescents with enuresis ($n = 40$), 57.5% ($n = 23$) were boys and 42.5% ($n = 17$) were girls. Control adolescents ($n = 40$) included 52.5% ($n = 21$) boys and 47.5% ($n = 19$) girls. The age of the adolescents in both groups ranged from 10 to 18 years with a mean of 12.5 and SD of ± 2.5 years in the enuretic group and a mean of 13.7 and SD of 2.9 in the control group. Regarding control children ($n = 15$), 11 (73.3%) were boys and four (26.7%) were girls. Both groups were matched regarding age and sex ($P \geq 0.05$). However, the enuretic group showed significantly lower socioeconomic status (SES) and IQ ($P = 0.003$

and 0.001, respectively) (Table 1 and Fig. 1). Among adolescents with enuresis, 67.5% ($n = 27$) fulfilled the criteria of NE, whereas combined type of enuresis (both diurnal and nocturnal) was manifest in 32.5% ($n = 13$) of the total sample of enuretic adolescents.

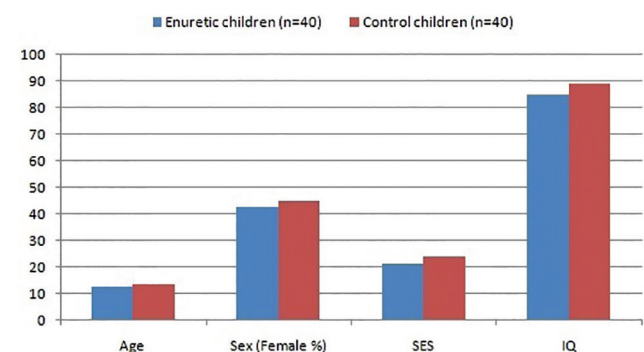
Adolescents with enuresis showed lower school, social, and total competence scores on CBCL in addition to the 'participation in activities' score ($P \leq 0.05$). However, differences in social competence and participation lost their significance after statistical adjustment for differences in IQ and SES. Differences in school and total competence were still significant after adjustment ($P = 0.001$ and 0.03, respectively) (Table 2 and Fig. 2). With the exception of thought problems that lost its significance after adjustment, adolescents with enuresis scored higher than the control adolescents in all CBCL problem parameters even after statistical adjustment for IQ and SES. These parameters include internalizing problems such as anxiety symptoms, depressive symptoms, psychosomatic symptoms, and social symptoms in addition to externalizing symptoms such as rule breaking behavior and aggressive behavior. All parameters showed highly significant differences between the two groups ($P \leq 0.001$) except depressive and psychosomatic symptoms, which showed less but still significant differences ($P \leq 0.05$) (Table 3 and Fig. 3).

Table 1 Comparison between children with enuresis and control children regarding demographic data and intelligence quotient

Variables	Children with enuresis ($n = 40$)	Control children ($n = 40$)	Statistics	<i>P</i> -value
Age	12.5 \pm 2.5	13.7 \pm 2.9	$t = 1.9$	0.07
Sex (female %)	42.5	45.0	$\chi^2 = 0.05$	0.8
SES	21.5 \pm 4.2	24.2 \pm 3.6	$t = 3.1$	0.003
IQ	84.9 \pm 6.1	89.3 \pm 4.4	$t = 3.6$	0.001

IQ, intelligence quotient; SES, socioeconomic status according to the Fahmy and El-Sherbini scale; *P*-value less than 0.05 is considered statistically significant (shown in bold).

Figure 1



Comparison between children with enuresis and control children regarding demographic data and intelligence quotient (IQ).

Table 2 Differences between children with enuresis and control children regarding Child Behavior Check List competence parameters

CBCL subscale	Children with enuresis (n = 40)	Control children (n = 40)	Statistics	P-value	Adjusted P-value*
Participation in activities	25.1 ± 4.3	27.9 ± 5.1	t = 2.6	0.01	0.4
Social competence	33.1 ± 6.4	38.1 ± 6.6	t = 3.5	0.001	0.08
School competence	41.6 ± 7.7	47.9 ± 6.6	t = 3.9	≤0.001	0.001
Total competence	24.0 ± 5.1	29.1 ± 6.5	t = 3.9	≤0.001	0.03

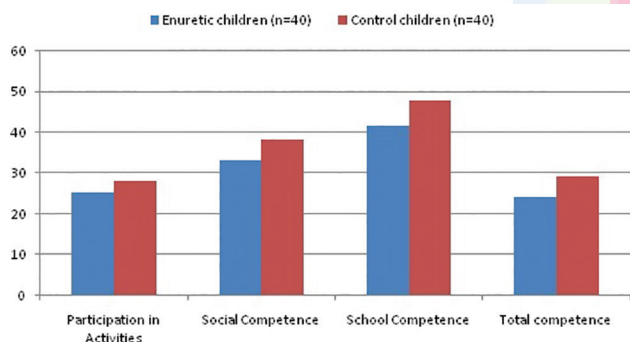
CBCL, Child Behavior Check List; IQ, intelligence quotient; SES, socioeconomic status; *P-values were adjusted for the significant differences in IQ and SES; P-value less than 0.05 is considered statistically significant (shown in bold).

Table 3 Differences between children with enuresis and control children regarding Child Behavior Check List problem parameters

CBCL subscale	Children with enuresis (n = 40)	Control children (n = 40)	Statistics	P-value	Adjusted P-value*
Anxiety symptoms	57.2 ± 7.9	51.7 ± 2.8	t = 4.1	≤0.001	≤0.001
Depressive symptoms	59.1 ± 11.1	53.8 ± 4.6	t = 2.8	0.007	0.01
Psychosomatic symptoms	54.9 ± 7.8	51.6 ± 3.4	t = 2.5	0.02	0.03
Social problems	60.9 ± 7.8	52.7 ± 3.7	t = 6.0	≤0.001	≤0.001
Thought problems	54.4 ± 7.9	51.1 ± 3.5	t = 2.4	0.02	0.06
Symptoms of inattention	58.0 ± 7.7	52.5 ± 2.9	t = 4.3	≤0.001	0.001
Rule breaking behavior	60.8 ± 11.0	52.3 ± 4.3	t = 4.5	≤0.001	≤0.001
Aggressive behaviors	62.1 ± 11.3	52.7 ± 4.6	t = 4.9	≤0.001	≤0.001
Internalizing problems	54.9 ± 10.8	45.5 ± 8.4	t = 4.4	≤0.001	≤0.001
Externalizing problems	59.8 ± 13.5	46.7 ± 8.9	t = 5.1	≤0.001	≤0.001
Total problems	59.7 ± 9.7	44.1 ± 9.3	t = 7.3	≤0.001	≤0.001

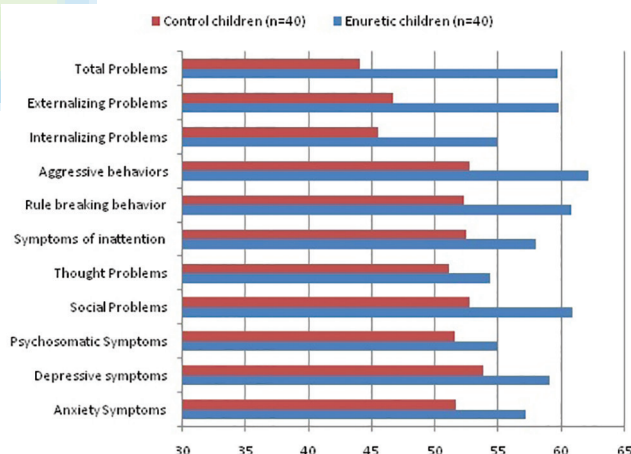
CBCL, Child Behavior Check List; IQ, intelligence quotient; SES, socioeconomic status; *P-values were adjusted for the significant differences regarding IQ and SES; P-value less than 0.05 is considered statistically significant (shown in bold).

Figure 2



Differences between children with enuresis and control children regarding Child Behavior Check List (CBCL) competence parameters.

Figure 3



Differences between children with enuresis and control children regarding Child Behavior Check List (CBCL) problem parameters.

When CBCL DSM-oriented scales were explored, the above-mentioned differences in symptom scales were found to translate into corresponding psychiatric disorders. Internalizing problems manifested themselves in the form of affective disorders, anxiety disorders, and post-traumatic stress disorders. In contrast, externalizing disorders manifested in the form of ADHD and CD. All P-values were significant (≤0.05) after adjustment for differences in IQ and SES except those regarding somatic and sluggish tempo conditions, which lost significance after adjustment (Table 4 and Fig. 4). However, when actual diagnoses

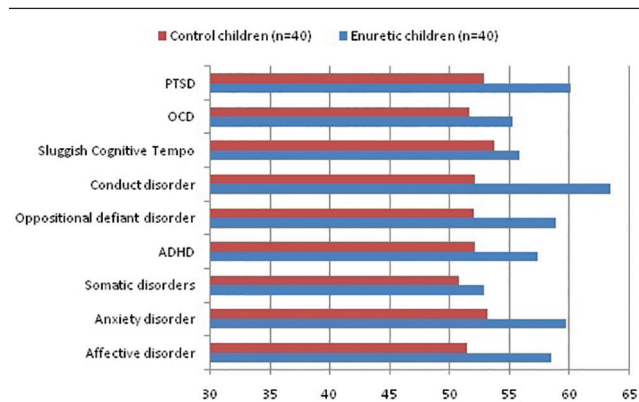
were explored using the MINI-KID interview, only ADHD (20%) and CD (17.5%) showed significantly higher ratios in enuretic versus control adolescents (Table 5).

Adolescents with enuresis scored lower than control adolescents in all six subscales of the Piers-Harris Children's Self-Concept Scale, in addition to the total score. Linear regression was used to adjust the

results for significant differences between the two groups regarding IQ, SES, CBCL school competence, CBCL total problems, and diagnosis of ADHD and CD according to the MINI interview. Differences in three subscales – namely, anxiety, popularity, and happiness – lost their significance after adjustment; that is, differences in those three subscales might be explained by one or more of the factors included in

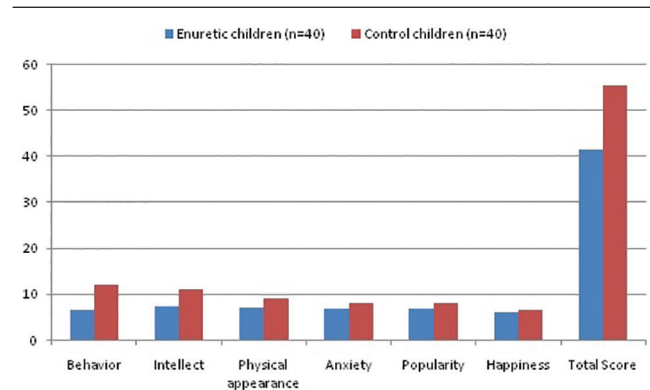
the regression model rather than by enuresis itself. Differences in the other three subscales – behavior, intellect, and physical appearance – in addition to the total score were still significant after adjustment (Table 6 and Fig. 5). Comparison between youth with NE versus those with combined-type enuresis yielded no significant differences between the two subgroups (data not shown).

Figure 4



Differences between children with enuresis and control children regarding Child Behavior Check List (CBCL) DSM-oriented disorders.

Figure 5



Differences between children with enuresis and control children on the basis of the Piers-Harris Children's Self-Concept Scale.

Table 4 Differences between children with enuresis and control children regarding Child Behavior Check List DSM-oriented disorders

CBCL subscale	Children with enuresis (n = 40)	Control children (n = 40)	Statistics	P-value	Adjusted P-value*
Affective disorder	58.5 ± 9.7	51.5 ± 2.9	t = 4.3	≤0.001	≤0.001
Anxiety disorder	59.7 ± 7.6	53.2 ± 4.1	t = 4.8	≤0.001	≤0.001
Somatic disorders	52.9 ± 6.6	50.8 ± 2.6	t = 1.9	0.06	0.09
ADHD	57.3 ± 8.1	52.1 ± 2.6	t = 3.9	≤0.001	0.002
Oppositional defiant disorder	58.9 ± 8.2	52.0 ± 3.2	t = 5.0	≤0.001	≤0.001
Conduct disorder	63.4 ± 14.4	52.1 ± 4.8	t = 4.7	≤0.001	≤0.001
Sluggish cognitive tempo	55.8 ± 7.1	53.7 ± 4.7	t = 1.6	0.1	0.1
Obsessive compulsive disorder	55.3 ± 8.1	51.6 ± 2.9	t = 2.7	0.01	0.005
Post-traumatic stress disorder	60.1 ± 8.2	52.9 ± 3.6	t = 5.1	≤0.001	≤0.001

ADHD, attention-deficit hyperactivity disorder; CBCL, Child Behavior Check List; IQ, intelligence quotient; SES, socioeconomic status; *P-values were adjusted for the significant differences regarding IQ and SES; P-value less than 0.05 is considered statistically significant (shown in bold).

Table 5 Differences between children with enuresis and control children regarding psychiatric diagnoses

Diagnosis	Children with enuresis (n = 40) (%)	Control children (n = 40) (%)	Statistics	P-value	Adjusted P-value*
Major depressive disorder	10	0	FET	0.1	—
Bipolar disorder	5	0	FET	0.5	—
Generalized anxiety disorder	5	0	FET	0.5	—
Separation anxiety	2.5	0	FET	1	—
OCD	2.5	0	FET	1	—
PTSD	2.5	0	FET	1	—
ADHD	20	0	FET	0.005	0.02
Oppositional defiant disorder	12.5	0	FET	0.06	—
Conduct disorder	17.5	0	FET	0.01	0.02

NB: Psychiatric diagnoses that did not exist in either of the two groups are not mentioned in the table; ADHD, attention-deficit hyperactivity disorder; IQ, intelligence quotient; SES, socioeconomic status; *P-values were adjusted for the significant differences in IQ and SES; P-value less than 0.05 is considered statistically significant (shown in bold).

Table 6 Differences between children with enuresis and control children as per the Piers-Harris Children's Self-Concept Scale

Scale	Children with enuresis (n = 40)	Control children (n = 40)	Statistics	P-value	Adjusted P-value*
Behavior	6.4 ± 2.7	11.9 ± 2.4	t = 9.5	≤0.001	≤0.001
Intellect	7.3 ± 2.6	10.9 ± 2.6	t = 6.2	≤0.001	0.005
Physical appearance	7.1 ± 2.5	9.1 ± 1.7	t = 4.1	≤0.001	0.02
Anxiety	6.8 ± 1.9	8.0 ± 1.7	t = 3.1	0.003	0.4
Popularity	6.7 ± 2.2	7.9 ± 1.9	t = 2.7	0.009	0.6
Happiness	5.9 ± 1.9	6.6 ± 1.4	t = 1.9	0.06	0.4
Total score	41.5 ± 10.3	55.5 ± 10.3	t = 6.1	≤0.001	0.02

ADHD, attention-deficit hyperactivity disorder; CBCL, Child Behavior Check List; CD, conduct disorder; IQ, intelligence quotient; MINI, Mini International Neuropsychiatric Interview; SES, socioeconomic status; *P-values were adjusted for IQ, SES, CBCL school competence, CBCL total problems, diagnosis of ADHD and CD according to MINI interview; P-value less than 0.05 is considered statistically significant (shown in bold).

Discussion

We report higher internalizing and externalizing behavioral problems, in addition to lower levels of scholastic and total competence, in adolescents with secondary enuresis in comparison with healthy youth. Externalizing problems, which took the form of high comorbidity rates of ADHD and CDs, were more prominent than the internalizing ones. We also report a tendency to negative self-concept in adolescents with secondary enuresis in comparison with healthy youth independently from differences in IQ, SES, comorbid disorders, and CBCL parameters between the two groups. These differences manifested themselves in enuretic youth regardless of whether they had 'nocturnal only' or 'combined-type' enuresis.

Our study adds to the literature that repeatedly reports low levels of competence and high levels of internalizing and externalizing problems in youth with functional enuresis (Chang *et al.*, 2002; Joinson *et al.*, 2007; Rocha *et al.*, 2008; Von Gontard *et al.*, 2011a, 2011b, 2014). Most of these studies used the CBCL to evaluate the behavioral problems, just as our study. However, the current study added a structured interview (the MINI) to confirm the comorbid diagnoses in the studied group, an approach that adds up to the value of this study. When compared with the previous Egyptian study on the topic (Amin *et al.*, 2011; Alkot, 2012), our study has the advantages of having recruited a control group, using a structured interview, and examining the self-concept of youth but has the limitation of a smaller sample size. Our study also did not explore the sex differences between enuretic youth as one of these studies did (Amin *et al.*, 2011).

The studies that specifically explored self-esteem in youth with enuresis are relatively few (Longstaffe *et al.*, 2000; Theunis *et al.*, 2002; Ertan *et al.*, 2009; Kanaheswari *et al.*, 2012; Koca *et al.*, 2014; Elbahnasawy 2015). Two of those studies (Longstaffe *et al.*, 2000; Koca *et al.*, 2014) used the Piers-Harris Children's Self-Concept Scale, the same tool used in the current study, to evaluate the self-concept of youth with enuresis before and

after a period of treatment. The cited study reported a significant improvement in the children's self-concept with treatment using desmopressin (DDAVP). The other studies reported low self-esteem in youth with enuresis using other psychometric tools, such as the 'I Think I Am' questionnaire, and in various nonwestern populations, such as Turkish (Ertan *et al.*, 2009) and Malaysian (Kanaheswari *et al.*, 2012) populations. Most studies confirmed the fact that older youth are more affected by negative self-concept resulting from enuresis. Furthermore, the Turkish sample showed a progressive deterioration of sleep esteem as youth became older. The only previous Egyptian study that specifically explored the self-concept of youth with enuresis reported that three-quarters of those youth had negative self-concept (Elbahnasawy, 2015). However, this study included no control group and used no well-known or validated psychometric tools.

Most of the previous studies reported lower levels of competence and higher levels of behavioral problems along with low levels of self-esteem in youth with enuresis. Low self-esteem might be the result of low competence and high internalizing and externalizing behavioral problems rather than enuresis itself. None of the previous studies explored the differential impact of enuresis and other parameters of competence and behavioral problems on the self-esteem of those youth, a unique approach that adds up to the value of the current study. In addition, none of the previous studies exclusively recruited youth with secondary enuresis and none of them compared the self-esteem of youth with only NE with that of youth with combined-type enuresis.

Finally, it is important to highlight the limitations of this study. First, the small size of the sample might limit the generalization of the results on Egyptian youth or youth with enuresis in general. This small number might specifically decrease the validity of the comparison between nocturnal and combined types within the group of youth with enuresis. Second, the information collected in this study was obtained only from parent

reports; no teacher reports were obtained as most of the families were interviewed on only one occasion. Thus, inaccurate reporting due to parents' underestimation or overestimation of symptoms might have been occurred. Furthermore, other confounding factors, such as family conflicts, parenting styles, and medications received by children, were not taken into account.

Conclusion

Older children and adolescents with enuresis suffer from high internalizing and externalizing problems and low competence levels. They also suffer from low self-esteem that is most probably the result of enuresis itself and not due to low competence levels or behavioral problems. More effort needs to be exerted for the early identification and management of psychological morbidity in children with depressed parents. Special consideration should be given to children who seek therapy, and where possible treatment should be offered before the child reaches the age of 9. Further research is needed to determine the effect of treatment on the self-concept of these youth.

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Conflicts of interest

There are no conflicts of interest.

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24 Egyptian Journal of Psychiatry

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