



Punishment for bedwetting is associated with child depression and reduced quality of life

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ABSTRACT

This study assessed the relationship between parental punishment and depression as well as quality of life in children with primary monosymptomatic nocturnal enuresis (PMNE). A consecutive sample of 65 children (7–13 years) with PMNE and 40 healthy children, selected as controls (Group III), were included in the study. The children with PMNE were further sub-classified into two groups: Group I, which included children who received parental punishment for enuresis and Group II, which comprised children who were not punished for bedwetting. Depression and health-related quality of life (HRQL) were assessed among the three groups. The number of wet nights per week was significantly increased in Group I compared with Group II ($P < .001$). In addition, the severity of depressive symptoms increased in Group I as compared to the other two groups ($P < .001$). Similarly, the psychosocial HRQL lower in Group compared to the control group (Group III) ($P < .001$). Prior parental discipline, including corporal punishment ($B = 0.55$, $P = .008$), as well as the frequency ($B = 0.73$, $P < .001$) and duration of punishment ($B = 0.33$, $P = .02$) were strong predictors of increased depressive symptom severity. It was also found that prior punishment ($B = -0.42$, $P = .01$) and the frequency ($B = -0.62$, $P < .001$) and duration of punishment ($B = -0.34$, $P = .02$) were strong predictors for poor psychosocial HRQL. Overall, parental punishment has a poor outcome in children with PMNE.

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Introduction

Nocturnal enuresis is one of the most prevalent problems that affects about 15% of children aged 5 years, with approximately 15% of children spontaneously achieving night-time bladder control annually (Ramakrishnan, 2008). Nocturnal enuresis is three times more common than day-time wetting (Bower, Moore, Shepherd, & Adams, 1996; Stein, Mendelsohn, Obermeyer, Amromin, & Benca, 2001), and it occurs three times more often in boys (Miller, 1993). It is classified as primary (nocturnal bladder incontinence in a child who has never achieved urinary control for at least six months and is older than five years) or secondary (night-time dryness is achieved for at least six months) (Ramakrishnan, 2008).

According to the International Children's Continence Society (Neveus et al., 2006), primary monosymptomatic nocturnal enuresis (PMNE) is defined as intermittent urine leakage at night during sleep in children who are at least 5 years old and who have not achieved dryness for at least six months without concomitant diurnal incontinence, any other lower urinary tract symptoms, and a history of bladder dysfunction. PMNE is the most common type of nocturnal enuresis, accounting

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for about 85% of all cases (Hallgren, 1957). Treatment is typically medical, behavioral (dry bed training with or without an alarm) or a combination of both. Treatment may span several months (De Paepe et al., 2002), and it requires long-term compliance.

Epidemiologic studies reported that 20–30% of children with nocturnal enuresis have behavioral problems, which are 2–4 times higher than in non-wetting children. More so, the rate of behavioral problems in children with nocturnal enuresis are comparable with the rate of psychosocial problems in other pediatric chronic illness groups (Hirasing, van Leerdam, Bolk-Bennink, & Bosch, 1997; Liu, Sun, Uchiyama, Li, & Okawa, 2000). Primary nocturnal enuresis has a negative impact on a child's emotional state, social relationships, self-esteem (Butler, 1998; Von Gontard et al., 1998), every day activities and the child's capabilities to leave home with friends and family (Morison, 2000). Enuretic children are known to be unhappy or depressed (Assiri, Al-Yousif, & Al-Mahmoud, 2007), always under stress in society because they are ashamed and try to cover the disorder (Warzak, 1993) and have impaired quality of life (Bower, 2008).

Enuresis has an impact on both children and their parents, as extra washing and cost, smell and the parents' attribution of the causes of bed wetting to controllable factors (particularly the child's behavior) cause feeling of annoyance and, consequently, punitive actions on the part of parents (Butler, Brwein, & Forsythe, 1986; Butler, Redfern, & Forsythe, 1993). Parents attempt several treatment methods to solve bedwetting, including threats and punishment, resulting in frequent punishment of children with enuresis (Ouedraogo, Kere, Ouedraogo, & Jesu, 1997). Up to one-third of parents have been found to punish their children for bedwetting (Butler et al., 1993). A punitive approach, may on the contrary increase the severity of the problem and have an adverse psychological effect on enuretic children.

To the best of our knowledge, no study has evaluated the impact of parental punishment on the psychological status of children with PMNE. The aim of this study was to assess the relationship between parental punishment and depression as well as the quality of life in children with PMNE.

Methods

Study Design and Participants

We performed a cross-sectional, case–control study between September 2013 and April 2014 on a consecutive sample of 65 children (7–13 years) with PMNE who attended the psychiatric outpatient clinics of King Abdulaziz University Hospital. A control group of 40 age- and gender-matched healthy children were selected from the family members of the cases with enuresis. The diagnosis of PMNE was made according to the classification of the International Children's Continence Society (Neuves et al., 2006). As defined by the Diagnostic and Statistical Manual for Mental Disorders (DSM IV) criteria (American Psychiatric Association, 1995), at least twice weekly episodes of urine incontinence for three consecutive months were necessary for the diagnosis of nocturnal enuresis.

The children with PMNE were previously examined by pediatric nephrologists and pediatric neurologists, and clinical investigations (including complete blood counts, blood urea, serum creatinine, serum glucose levels, serum thyroid-stimulating hormone level, urine analysis and culture, measurement of residual urine, as well as renal and bladder ultrasonography) were conducted to rule out lower urinary tract symptoms, bladder dysfunction, and neurogenic bladder. The results of these investigations were normal in all cases. The children had received several treatment trials with imipramine and desmopressin; however, the condition was refractory to treatment.

We assessed whether parents used punitive methods in their children with urinary incontinence by asking close-ended questions such as "Did you punish your child for bedwetting?" If the response was "Yes", further questions were asked as follows:

1. "What punishment method did you use?" This question had four response choices: (a) verbal only, for example, shouting or using aggressive words; (b) verbal and physical punishment without contact, for example, leaving the child wet for long, making the child stand up for long, locking up the child in his room for long periods, or forcing the child to take a cold shower after each incontinence episode; (c) verbal and punishment with physical harm, including spanking, beating, hitting the child's penis with the hand, or searing the child's hand or arm; and (d) a combination of (b) and (c).
2. "What was the frequency of punishment?" This question had two responses, "sometimes" and "frequent".
3. "What was the duration of punishment?" Three responses were allowed: (a) less than six months; (b) six months to one year; and (c) more than one year.

Based on the parents' response to the first question, the children with PMNE was further subdivided into two groups: Group I included children who received punishment and Group II included those who were not punished for enuresis (Fig. 1).

We assessed depression symptom severity and the health-related quality (HRQL) of in all three groups. The socio-demographic data of the participants were recorded. The severity of symptoms (assessed by the frequency of wet nights per week) was recorded for children with nocturnal enuresis. Poor academic performance was also assessed for all the children based on the grades obtained as follows: (1) A, excellent; (2) B, very good; (3) C, good; and (4) D, poor. These four categories were dichotomized into good (which included the first three categories) and poor (which included the last category). Socio-demographic characteristics, severity of enuresis, as well as the method, frequency and duration of punishment were used as independent predictors for depression and HRQL in children with nocturnal enuresis.

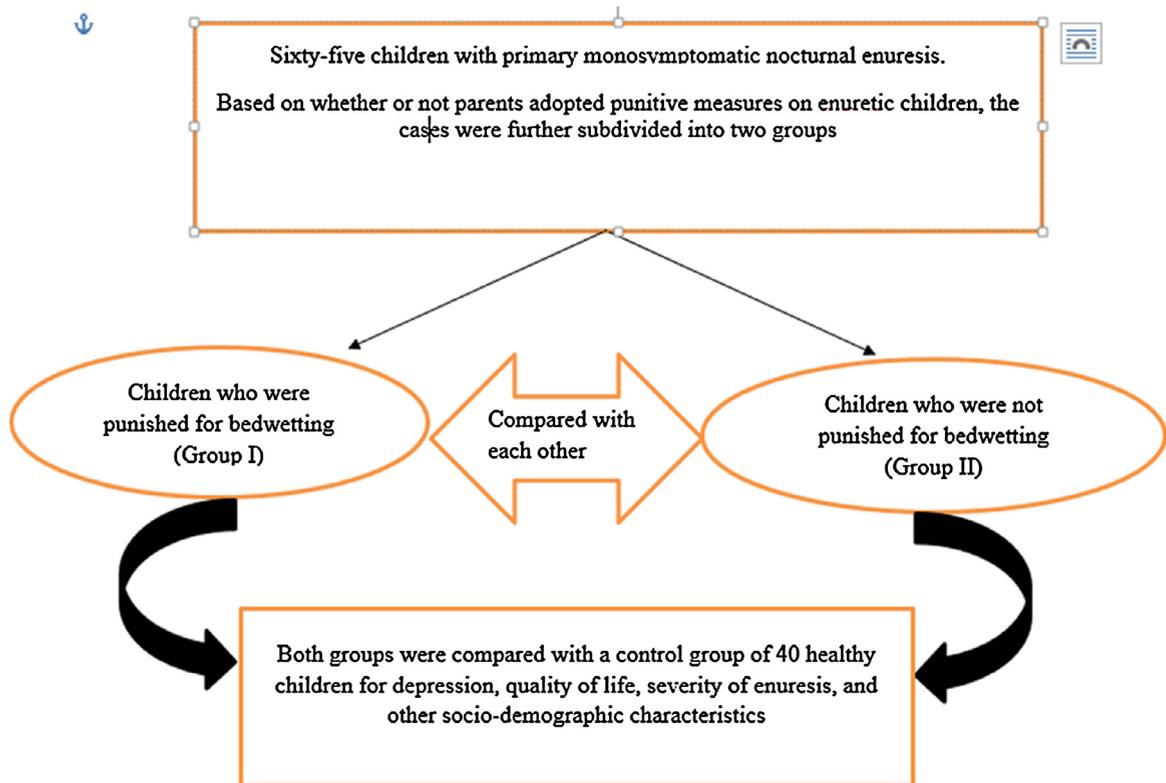


Fig. 1. Schema of the survey methodology.

Exclusion criteria: We excluded all children with developmental delay, mental retardation, pervasive developmental disorders (such as autism and Asperger's disorder), attention-deficit hyperactivity disorder (ADHD), psychotic disorders, and concomitant serious medical disorders.

The participants were interviewed in the presence of their parents. Parental consent was obtained prior to inclusion in the study. Ethical approval was obtained from the local ethics committee of King Abdulaziz University Hospital.

Measures

The Children's Depression Inventory (CDI) (Kovac, 1985) is a child self-report that assesses the symptoms of depression. It has a high internal consistency, test-retest reliability, and established validity (Twenge & Nolen-Hoeksema, 2002), with an α coefficient of 0.86. It is appropriate for children and adolescents aged 7–17 years. The CDI yields scores for five subscales: negative mood, interpersonal problems, ineffectiveness, anhedonia and negative self-esteem. The CDI is a 27-item instrument that consists of three forced-choice answers, namely 0 = absence of symptoms, 1 = moderate symptoms, 3 = severe symptoms. The CDI scores range from 0 to 54 with a higher score indicating increasing severity. In the clinical setting, 13 is recommended as a cut-off point for depressive states (Friedberg & Sinderman, 2011). We used this cut-off point in our study.

We used the Pediatric Quality of Life Inventory, version 4.0 generic core scales (Peds-QL 4.0) to assess the HRQL of our sample. The 23-item Peds-QL 4.0 generic core scales encompasses four subscales that measure: (1) physical functioning (eight items); (2) emotional functioning (five items); (3) social functioning (five items), and (4) school functioning (five items) (Varni, Seid, & Rode, 1999; Varni, Seid, & Kurtin, 2001). The physical health summary score (eight items) is the same as the physical functioning scale. To create the psychosocial health summary score (15 items), the mean is computed as the sum of the items divided by the number of items answered in the emotional, social and school functioning scales. The instrument takes approximately five minutes to complete (Varni et al., 2001). The items of Peds-QL 4.0 were scored on a 5-point Likert response scale (0 = never a problem; 1 = almost never a problem; 2 = sometimes a problem; 3 = often a problem; 4 = almost always a problem). Items were reverse-scored and linearly transformed to a 0–100 scale (0 = 100, 1 = 75, 2 = 50, 3 = 25, and 4 = 0) so that higher scores indicated a better HRQL. Scale scores were computed as the sum of the items divided by the number of items answered.

To ensure that participants understood and answered all the questions in the CDI and Peds-QL 4.0, the psychiatric team, with the aid of parents, interviewed all the children.

Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA), version 20. Descriptive data were analyzed using means, standard deviation and percentages. ANOVA was used to compare quantitative parameters. The Chi square, Mann–Whitney and Kruskal–Wallis tests were used to compare categorical parameters. Regression methods were used to develop predictive models. A *P* value <.05 was considered to indicate statistical significance.

Results

Participants

We enrolled 65 children with PMNE and 40 healthy age- and gender-matched controls. Group I comprised 22 children (33.8%). The following punitive measures were reported in these children: (a) verbal punishment only, 4 (18.2%); (b) verbal and physical punishment without contact, 5 (22.7%); (c) verbal and punishment with physical harm, 7 (31.8%); (d) a combination of (b) and (c), 6 (27.28%). Punishment was frequent in 14 children (63.6%) children and occasional in eight cases (36.4%). The duration of punishment was less than six months in five children (22.7%), between six months and one year in nine cases (40.9%), and more than one year in eight children (36.4%). Group II included 43 children.

Socio-demographic and Clinical Parameters

No statistically significant differences were found between the three groups regarding age, gender, nationality, education level, family monthly income, and family history of psychiatric disorder. When compared with the other two groups, we found a significantly higher proportion of children with poor academic performance in Group I. We also found a significant increase in the frequency of wet nights per week in Group I compared with Group II (Table 1).

Depressive Symptoms and Health-related Quality of Life

The severity of depressive symptoms was significantly higher in Group I compared to the other two groups (Table 2). Similarly, Group I had a significantly poorer HRQL in all domains (except for the physical domain) compared with the other two groups (Table 2). Further comparison revealed that children who received verbal and punishment with physical

Table 1

A comparison of the socio-demographic and clinical parameters between the groups.

Variable	Children who were punished for nocturnal enuresis (N = 22)		Children without punishment for nocturnal enuresis (N = 43)		Control group (N = 40)		P
	Mean ± SD		Mean ± SD		Mean ± SD		
Age	9.21 ± 1.54 (7–13)		9.85 ± 1.78 (7–13)		8.85 ± 1.69 (7–14)		.100
No. of wet nights/week	4.94 ± 1.02		3.60 ± 1.14		–		<.001
Variable	Children who were punished for nocturnal enuresis (N = 22)		Children without punishment for nocturnal enuresis (N = 43)		Control group (N = 40)		P
	N	%	N	%	N	%	
Gender							
Male	16	72.70%	32	74.40%	31	77.50%	.600
Female	6	27.30%	11	25.60%	9	22.50%	
Nationality							
Saudi	6	27.30%	12	27.90%	10	25%	.800
Non-Saudi	16	72.70%	31	72.10%	30	75%	
Education level							
Elementary school	21	95.45%	41	95.34%	38	95%	.900
Intermediate school	1	4.55%	2	4.66%	2	5%	
Academic performance							
Good	10	45.45%	27	62.80%	31	77.50%	.010
Poor	12	54.54%	16	37.20%	9	22.50%	
Family income per month							
<5,000 SR	10	45.45%	20	46.51%	18	43.3%	.900
>5,000 SR	12	54.54%	23	53.49%	22	33.3%	
Family history of psychiatric illness							
Yes (for depression)	1	4.55%	2	4.66%	1	2.50%	.600
No	20	95.45%	41	95.34%	39	97.50%	

Abbreviations: SD, standard deviation; SR, Saudi riyals.

Table 2

Group comparison of the health domains assessed by the Children's Depression Inventory and pediatric quality of life inventory version 4.0 generic core scales.

Variables	Children who were punished for nocturnal enuresis (N=22)	Children without punishment for nocturnal enuresis (N=43)	Control group (N=40)	P
	Mean ± SD	Mean ± SD	Mean ± SD	
CDI	14.89 ± 1.74	13.15 ± 1.39	7.95 ± 1.31	<.001
Physical	80.11 ± 1.65	80.45 ± 2.25	81.30 ± 1.94	.090
Emotional	65.14 ± 4.07	73.55 ± 3.37	81.50 ± 1.73	<.001
Social	65.60 ± 3.69	73.70 ± 4.07	82.70 ± 2.83	<.001
School	68.17 ± 5.01	75.45 ± 3.62	82.44 ± 2.01	<.001
Psychosocial health summary score	66.30 ± 3.74	74.23 ± 4.11	82.21 ± 2.66	<.001

Abbreviations: CDI, Children's Depression Inventory; SD, standard deviation.

Table 3

Comparison of domain mean scores based on the method, frequency, and duration of punishment for nocturnal enuresis (N=22).

	CDI	Physical	Emotional	Social	School	Psychosocial health summary
Way of punishment						
I – Verbal only (N=4)	13.07	81.01	71.33	70.17	76.17	72.17
II – Verbal and physical without contact (N=5)	14.33	80.33	66.67	67.66	70.33	68.33
III – Verbal and physical harm (N=7)	17.33	79.22	62.32	62.78	63.36	62.11
Combined II and III (N=6)	15.17	80.21	63.64	63.93	68.89	64.44
P-value ^a	.001	.1	.001	.002	.001	.001
Duration of punishment						
Less than 6 months (N=5)	13.96	80.73	69.27	69.01	73.64	70.45
6 months to 1 year (N=9)	14.33	80.02	64.25	64.83	68.75	65.33
More than 1 year (N=8)	16.36	79.67	63.21	63.22	62.58	62.80
P-value ^a	.002	.3	.001	.001	.001	.001
Frequency of punishment						
Sometimes (N=8)	14.38	81.03	71.33	70.17	76.18	70.19
Frequent (N=14)	17.33	79.02	63.86	64.66	66.52	63.10
P-value ^b	.001	.100	.001	.002	.001	.001

Abbreviations: CDI, Children's Depression Inventory; SD, standard deviation.

^a Based on Kruskal–Wallis test.

^b Based on Mann–Whitney U test.

harm showed a significant increase in the severity of depressive symptoms and had a significantly poorer HRQL (with the exception of the physical domain) compared with the following children: cases who received verbal punishment only, those who received verbal and physical punishment without contact, or children who received both verbal and physical punishment without contact or punishment with physical harm. We also found that children who were frequently punished for bedwetting as well as those who had been punished for longer periods (>1 year) showed a significant increase in the severity of depressive symptoms and had a significantly poorer HRQL (with the exception of the physical domain; [Table 3](#)).

Results of Regression Analysis

By multiple regression analysis, we found that verbal and punishment with physical harm, frequent punishment, and long duration of punishment (>1 year) were strong predictors for increased depressive symptoms severity and poor psychosocial HRQL. We also found that an increase in the frequency (severity) of nocturnal enuresis was a significant predictor for increased depressive symptom severity and poor psychosocial HRQL and ([Tables 4 and 5](#)).

Table 4

Multiple regression analysis predicting depressive symptoms severity in children with nocturnal enuresis (N=65).

Dependent variable	Model	Independent variables	B	T	P
Depressive symptoms severity (CDI-scores)	$R^2 = .68$ $P = .004$	Age	0.09	0.62	.500
		Gender	0.08	0.42	.600
		Poor academic performance	0.24	1.01	.200
		Severity of symptoms (number of wet nights/week)	0.34	2.21	.030
		Punishment with physical harm	0.55	2.81	.008
		Frequent punishment	0.73	4.04	<.001
		Long duration punishment	0.33	2.36	.020

Abbreviation: CDI, The Children's Depression Inventory.

Table 5
Multiple regression analysis predicting psychosocial quality of life in children with nocturnal enuresis (N = 65).

Dependent variable	Model	Independent variables	B	T	P
Psychosocial health summary scores	$R^2 = .58$ $P < .001$	Age	0.07	0.45	.600
		Gender	0.01	0.17	.800
		Poor academic performance	0.20	1.69	.090
		Severity of symptoms (number of wet nights/week)	−0.31	−2.28	.040
		Punishment with physical harm	−0.42	−2.99	.010
		Frequent punishment	−0.62	−4.29	<.001
		Long duration of punishment	−0.34	−2.39	.020

Discussion

To the best of our knowledge, this is the first study that has attempted to assess the relationship between parental punishment and depression as well as HRQL in children with PMNE. Urinary incontinence affects both the child and the family on several levels (Landgraf et al., 2004). It is often a source of shame and embarrassment for the affected child, and children who have experienced treatment failure have a lower self-esteem (Hagglof, Andren, Bergstrom, Marklund, & Wendelius, 1997). In the current study, children with PMNE showed a significant increase in the severity of depressive symptom and an impaired HRQL in all domains (except for the physical domain) when compared with healthy children. Similar findings have been reported in the literature, with several studies revealing impaired HRQL in children with different subtypes of urinary incontinence (Bower, 2008; Naitoh, Kawauchi, Soh, Kamoi, & Miki, 2012; Natale, Kuhn, Siemer, Stockle, & von Gontard, 2009). Deshpande, Craig, Smith, and Caldwell (2011) reported that children with urinary incontinence were most likely to report severe psychosocial impairment in the HRQL. Bachmann et al. (2009) reported that the HRQL of children and adolescents with urinary incontinence appeared to be comparable to that in pediatric patients with other chronic conditions, such as asthma or epilepsy. Ucer and Gumus (2014) reported that children with monosymptomatic nocturnal enuresis were unhappier, and their quality of life was significantly worse than that of healthy children. Karnicnik, Koren, Kos, and Varda (2012) found that over half (52.5%) of the children with primary nocturnal enuresis in their study were sometimes in a bad mood because of their bedwetting habits.

Contrary to our findings, Ertan et al. (2009) reported that there was no significant difference in the HRQL between enuretic children and their non-enuretic peers. However, the disparity between their results and those of the current study can be explained by the nature of the samples studied. While they included a higher proportion of enuretic females (31 out of 44), we included a higher proportion of enuretic males (48 out of 65). Besides, differences in the instruments used to assess HRQL may explain the discrepancies between our findings.

We demonstrated that children with PMNE had a poor academic performance compared to controls. Esposito, Carotenuto, and Roccella (2011) reported that children with primary nocturnal enuresis experienced learning problems more often than healthy children. Approximately 33.8% of the children in our study were punished for bedwetting. Similar results have been reported by other authors. Many studies reported that no less than 20–36% of parents had punished their children for wet nights (Ouedraogo et al., 1997; Haque et al., 1981; Hirasing & Creemers, 1994; Shelov et al., 1981). In contrast, other authors (Can, Topbas, Okten, & Kizil, 2004; Karaman, Koca, Kucuk, Ozturk, & Akyuz, 2013; Sapi, Vasconcelos, Silva, Damiao, & Silva, 2009) reported that a higher proportion (58.1–88.8%) of parents adopted punitive measures to resolve enuresis. Nevertheless, their studies included a wider age range (varying between 5–18, 5–17 and 6–18 years as against 7–13 years in our study). We believe that as enuretic children age, their parents become increasingly frustrated and consequently, the proportion of parents who adopt a punitive approach will increase. The most striking finding in this study was that children who were punished for nocturnal enuresis showed a significant increase in the severity of depressive symptom severity and had a significantly poorer HRQL in all domains (except for the physical domain). In addition, the severity of nocturnal enuresis was worse in children who were punished for bedwetting as compared with those who were not punished for enuresis. Further analysis showed worse depressive symptoms and poorer HRQL in children who received punishment with physical harm frequently and for long periods. In addition, we found that the punitive strategy as well as the frequency and duration of punishment were strong predictors for increased depressive symptom severity and poor HRQL. Increased severity of nocturnal enuresis was a significant predictor for increased depression and poor psychosocial HRQL. Deshpande et al. (2011) reported that the severity of the underlying bladder problem was expected to have a proportional adverse effect on quality of life in children with urinary incontinence. Thus, a punitive approach is an inappropriate way to manage enuresis, and punishment should be prevented. Rather, parents should be advised not to use punishment owing to the adverse effects of punishment on enuretic children. Parents should be reassured that the prevalence of nocturnal enuresis declines with increasing age as approximately 15% of enuretic children spontaneously achieve nighttime bladder control annually (Ramakrishnan, 2008). In addition, parents can be educated on the various treatment options that are available, and combination therapies can be proposed to treat enuretic children who are refractory to medical therapy. A combination of desmopressin and an enuresis alarm improves the response rate and reduces relapse (Bradbury & Meadow, 1995; Fai-Ngo Ng & Wong, 2005).

Limitations of the Study

The small sample size did not permit us make relevant comparisons (for example age- and gender-based comparisons). The cross-sectional design of this study prevents us from making causal conclusions. However, this is the first study that has attempted to assess the relationship between parental punishment and depression and HRQL in children with PMNE. We believe that our findings will as a basis for further investigation.

Conclusion

Taken together, our study demonstrates that parental punishment for urinary incontinence was associated with an increase in the severity of depressive symptoms severity and a poor psychosocial HRQL in children with PMNE. While parents might believe that a punitive approach will resolve nocturnal enuresis, they should be educated of the adverse effect of punishment on the child, which might include an increase in the frequency of incontinence episodes and consequently lead to increased depression and a poor psychosocial HRQL. Thus, parents should be advised to avoid punishing enuretic children.

Conflict of interest

The authors have no conflicts to disclose.

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