



Lived experiences by families and children with urinary and intestinal symptoms: systematic review of mixed methods

Experiências vividas por famílias e crianças com sintomas urinários e intestinais: revisão sistemática de métodos mistos

Experiencias vividas por familias y niños con síntomas urinarios e intestinales: revisión sistemática de métodos mixtos

Cristiane Feitosa Salviano¹

Priscilla Lemos Gomes¹

Gisele Martins¹

ABSTRACT

Objective: To map and describe the occurrence of urinary and intestinal symptoms during childhood and to investigate the impact of such symptoms on the experiences of children and their families. **Method:** Systematic review of mixed methods, performed in the electronic databases MEDLINE/PUBMED, CINAHL, LILACS, PSYCINFO and EMBASE in July 2019, which generated 3,020 references. After removal of duplicates, 2,521 titles and abstracts were screened with time filter, and application of inclusion criteria. Among these, 31 articles were read in full and evaluated as for methodological quality by the Mixed Methods Appraisal Tool, resulting in 15 articles as the final sample. **Results:** The following results were found: feeling of inferiority, aggressiveness, guilt and shame. The review also showed the negative impact of urinary and/or intestinal symptoms in the social context of children and their families, especially in the school environment. **Conclusion and Implications for practice:** This systematic review of mixed methods highlights the importance of addressing children's emotional and social impacts, especially events in the school environment. It is necessary to subsidize the health professional in assisting families and children with urinary and/or intestinal symptoms, in order to provide expanded care, valuing the biopsychosocial needs of the child-family dyad.

Keywords: Systematic review; Lower Urinary Tract Symptoms; Constipation; Child Health.

RESUMO

Objetivo: Mapear e descrever a ocorrência de sintomas urinários e intestinais durante a infância e investigar o impacto de tais sintomas nas experiências vividas por crianças e suas famílias. **Método:** Revisão sistemática de métodos mistos realizada nas bases eletrônicas MEDLINE/PUBMED, CINAHL, LILACS, PSYCINFO e EMBASE em julho de 2019, as quais geraram 3.020 referências. Após remoção das duplicatas, 2.521 títulos e resumos foram triados com filtro de tempo, e aplicado critérios de inclusão. Desses, 31 artigos foram lidos na íntegra e avaliados quanto à qualidade metodológica pelo *Mixed Methods Appraisal Tool*, resultando em 15 artigos como amostra final. **Resultados:** Foram encontrados: sentimento de inferioridade, agressividade, culpa e vergonha. A revisão evidenciou, ainda, o impacto negativo dos sintomas urinários e/ou intestinais no contexto social da criança e de sua família, em especial, no ambiente escolar. **Conclusão e implicações para a prática:** Essa revisão sistemática de métodos mistos evidencia a importância de trabalhar os impactos emocionais e sociais da criança, em especial os eventos no ambiente escolar. Se faz necessário subsidiar o profissional de saúde na assistência às famílias e crianças com sintomas urinários e/ou intestinais, no sentido de prover um cuidado ampliado, valorizando as necessidades biopsicoemocionais da diáde criança-família.

Palavras-chave: Revisão sistemática; Sintomas do Trato Urinário Inferior; Constipação; Saúde da Criança.

RESUMEN

Objetivo: Mapear y describir la ocurrencia de síntomas urinarios e intestinales durante la infancia e investigar su impacto en las experiencias de los niños y sus familias. **Método:** Revisión sistemática de métodos mixtos, realizada en las bases de datos electrónicas MEDLINE/PUBMED, CINAHL, LILACS, PSYCINFO, EMBASE en julio de 2019, las cuales generaron 3,020 referencias. Después de eliminar los duplicados, se seleccionaron 2.521 títulos y resúmenes con filtro de tiempo, y se aplicaron criterios de inclusión. De esos, 31 artículos fueron totalmente leídos y evaluados en cuanto a la calidad metodológica por *Mixed Methods Appraisal Tool*, resultando en 15 artículos como muestra final. **Resultados:** Fueron encontrados: sentimiento de inferioridad, agresividad, culpa y vergüenza. También se notó el impacto negativo de los síntomas urinarios y/o intestinales en el contexto social de los niños y sus familias, especialmente en el escolar. **Conclusión e implicaciones para la práctica:** Esta revisión sistemática resalta la importancia de abordar los impactos emocionales y sociales de los niños, especialmente en la escuela. Se necesita subsidiar el profesional de salud en la atención a las familias y niños con síntomas urinarios y/o intestinales, a fin de proporcionar un cuidado ampliado, valorando las necesidades biopsicosociales de la diada niño-familia.

Palabras clave: Revisión sistemática; Síntomas del Tracto Urinario Inferior; estreñimiento; Salud del Niño.

1. Universidade de Brasília, Faculdade de Ciências da Saúde, Brasília, DF, Brasil
CORRESPONDING AUTHOR
Cristiane Feitosa Salviano
E-mail: crisenf.salviano@gmail.com

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INTRODUCTION

The clinical diagnosis of lower intestinal and urinary tract symptoms is carried out by means of anamnesis, physical examination and complementary tests (uroflowmetry, ultrasound of the kidneys and urinary tract, type 1 urine examination).^{1,2} Additionally, we recommend the application of elimination diaries, as well as validated scales for detecting and measuring urinary symptoms (e.g. Dysfunctional Voiding Score System³), in addition to visual scales such as the Bristol stool scale to identify fecal appearance and consistency.^{1,4} The collection of this clinical history based on the physical assessment and report of the child and his/her family uses, in this way, objective and subjective data.

The combination of (objective and subjective) data allows an expanded perception of the patient's clinical condition. The experience of symptoms is, therefore, understood when the professional is able to seize aspects other than just the symptoms and conditions described in diagnostic standards. Thus, personal backgrounds, emotions triggered, discomforts, consequences in daily life are examples of elements that constitute the theoretical framework described by Lenz et al.⁵ on the experience of unpleasant symptoms.

Given the above, the need to conduct a broader search for these other objective and subjective elements is justified for a more multifaceted understanding of the occurrence and experience of urinary and intestinal symptoms in childhood, in order to support the health professional in caring for children affected by these symptoms. The expanded knowledge of these other factors associated with the occurrence of urinary and intestinal symptoms during childhood can expand the perception of the health professional, enhancing their assessment, in order to seize the experience of the child and the family, approaching dimensions that are not only biological.⁶ In this way, the professional is able to provide individualized care focused on the symptoms and problems that cause the most discomfort to the child. Consequently, acceptance and adherence to the therapeutic plan based on goals set together with the child and family can be more easily implemented and achieved, such as urotherapy interventions.^{1,7}

Thus, this study aimed to map and describe the occurrence of urinary and intestinal symptoms during childhood and to investigate the impact of such symptoms on the experiences lived by children and their families.

METHOD

The present study is a systematic review of mixed methods, which is defined as a type of literature review whose objective is to identify, select, evaluate and synthesize quantitative, qualitative and mixed methods studies. Thus, such a review offers a synthesis of the knowledge produced, facilitating the professionals' decision-making process, based on evidence.⁸

This type of review follows seven steps:⁸ 1) to delimit the guiding question of the review (or qualitative and quantitative questions); 2) to define the inclusion and exclusion criteria; 3) to conduct an extensive literature search; 4) to identify potential

studies through title and abstract evaluation; 5) to select articles based on the full text; 6) to evaluate the quality of the included studies; 7) to synthesize the included studies.

In view of the first stage of this review, we have the following guiding question: What are the signs, symptoms and problems related to bladder and intestinal dysfunction in childhood, reported or experienced/lived by children and parents/guardians?

The search was conducted in July 2019, in the electronic databases Medical Analysis and Retrieval System Online (MEDLINE/PubMed), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Latin American and Caribbean Health Sciences Literature (LILACS), American Psychological Association (PsycINFO) and Excerpta Medica dataBASE (EMBASE). The search strategy used descriptors obtained from Medical Subject Headings (MeSH), whose combination was mediated by the Boolean OR and AND, as shown in Figure 1.

The inclusion criteria for the sample were: children and adolescents aged 6 to 18 years old (age group delimited based on the concept of BID, which points to the occurrence of symptoms in children over 5 years old);¹ address the perception and/or experiences lived by families as well as by children about the symptoms of BID; studies with qualitative, quantitative and mixed methods design; articles published in Portuguese, English and Spanish; published in the last 10 years (2009 to 2019). While the following exclusion criteria were adopted: studies carried out with children and/or parents and families of children with neurological problems or with cognitive/developmental changes.

The search in the databases generated 3020 references. The selection of the studies was conducted by exporting the results of searches in the electronic databases to the reference manager EndNote version X8. With the program, 499 duplicates and 1,205 with regard to temporality (last 10 years) were removed, resulting in 1,316 results for the evaluation of the other inclusion criteria through the reading of titles and abstracts, this was carried out with the participation of two independent reviewers. After assessing eligibility, 31 articles showed potential for inclusion in the final sample and, among these, 15 were chosen for the final sample after the full reading (Figure 2).

The evaluation of the methodological quality of the articles included was performed using the MMAT (Mixed Methods Appraisal Tool - Version 2011). Such an instrument was proposed by Pluye & Hong,⁹ and the MMAT aims to allow the simultaneous evaluation of studies that use different methodologies such as qualitative, quantitative and mixed method.⁸ The tool is composed of a set of 20 quality criteria distributed in five methodological types (qualitative, quantitative studies – randomized clinical, non-randomized quantitative, descriptive quantitative, mixed studies). Depending on the type of study, the respective criteria were evaluated, with four criteria distributed for each methodological type. The final score of the evaluation was obtained from the percentage of conformity of each study in the criteria determined by the tool, studies that obtained a percentage of 0% would be excluded from the sample.

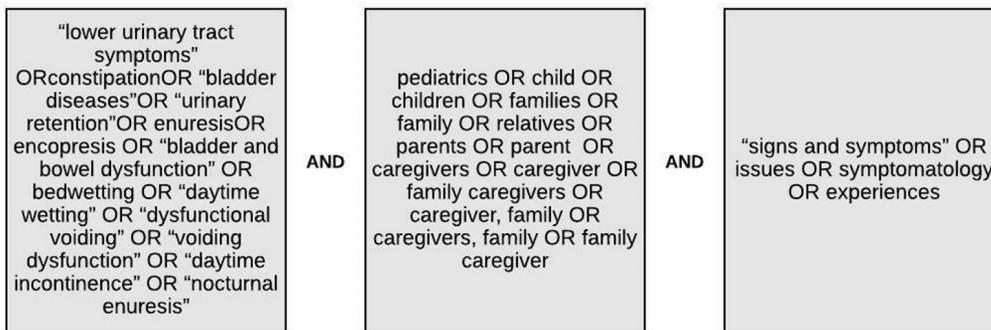


Figure 1. Search strategy through the combination of descriptors. Brasília/DF, Brazil, 2019.

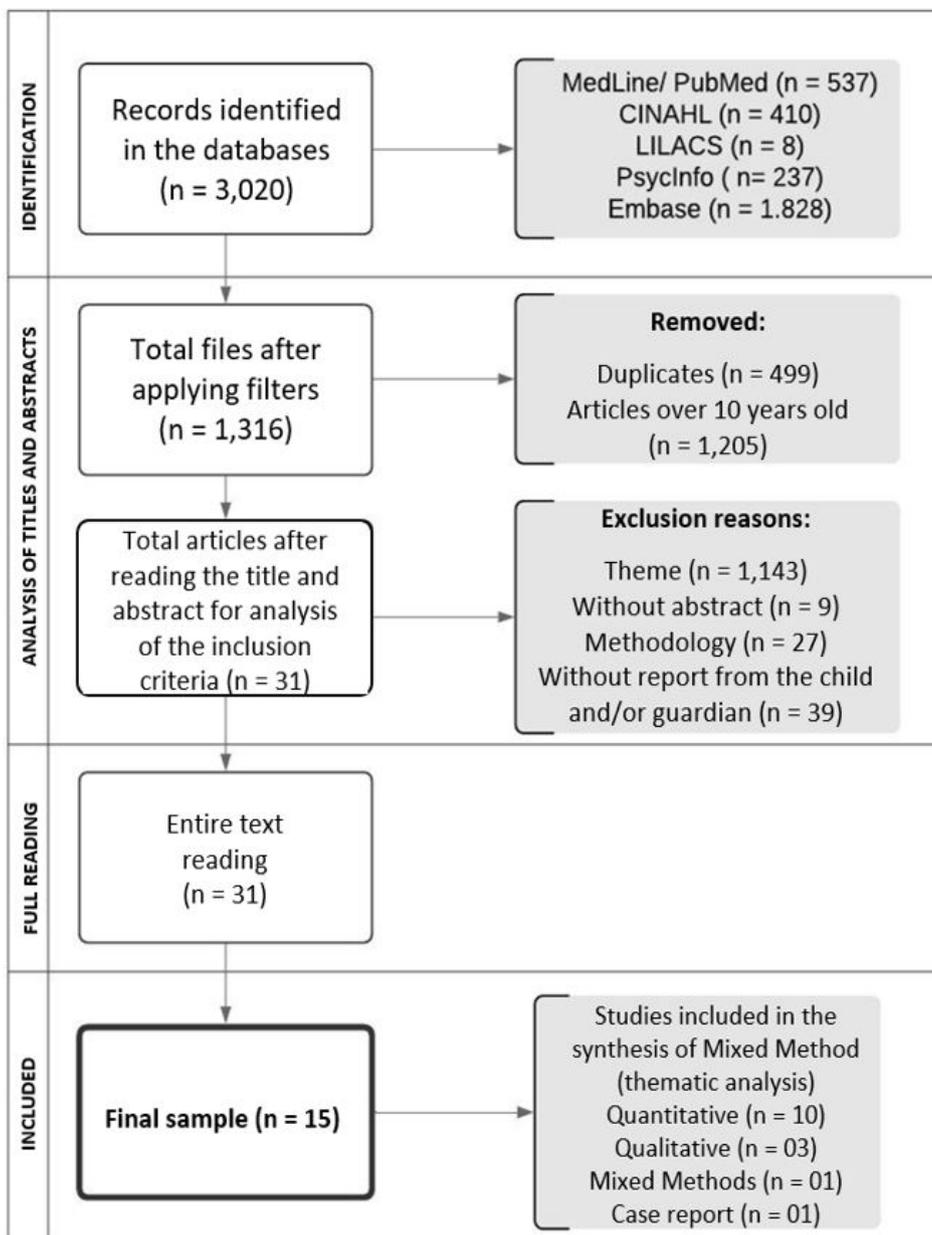


Figure 2. Flowchart of the search in the databases, adaptation according to the recommendations PRISMA⁹ & ENTREQ.¹⁰ Brasília/DF, Brazil, 2019.

Data extraction and synthesis was performed using a synthesis matrix, described in an Excel spreadsheet. Data were collected such as: year of publication, article title, authors, study design, sample characteristics, data collection method, main results, signs, symptoms and problems related/reported in the study. Part of these data are represented in Chart 1.¹¹⁻²⁵

This synthesis matrix allowed both quantitative and qualitative data to be analyzed independently (quantitative and qualitative facets) and, afterwards, were integrated and synthesized in a combined way.²⁶ For this, PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis)⁹ and ENTREQ¹⁰

(Standards for reporting qualitative research: a synthesis of recommendations) were adopted in a combined and adapted way to ensure that all aspects of the mixed methods review were evaluated.

The compiled data were then analyzed by means of thematic analysis described by Braun & Clarke,²⁷ being organized and presented in thematic categories obtained from the following analysis steps: 1) familiarization of the data (results of the studies that composed the sample and related to the research question); 2) generation of initial codes; 3) search for themes; 4) themes review; 5) definition and title of the themes; 6) production of the report.

Chart 1. Final sample of articles. Brasília/DF, Brazil, 2019.

Study	Authors	Year	Title	Study design	MMAT evaluation
S1	Kaugars et al. ¹¹	2010	Families' perspectives on the effect of constipation and fecal incontinence on quality of life	Mixed Method	92%
S2	Stein et al. ¹²	2010	An 8-year-old boy with treatment-resistant encopresis	Case report	25%
S3	Rajindrajith et al. ¹³	2013	Quality of life and somatic symptoms in children with constipation: a school-based study	Control case	100%
S4	Dehghani et al. ¹⁴	2013	Urinary tract infection and enuresis in children with chronic functional constipation	Cross-sectional study	75%
S5	Cederblad et al. ¹⁵	2014	"Nobody asked us if we needed help": Swedish parents experiences of enuresis	Qualitative	100%
S6	Dehghani et al. ¹⁶	2015	Clinical manifestations among children with chronic functional constipation	Cross-sectional study	75%
S7	Al-Zaben & Sehlo ¹⁷	2015	Punishment for bedwetting is associated with child depression and reduced quality of life	Control case	100%
S8	Tai et al. ¹⁸	2015	Parents have different perceptions of bed-wetting than children from six to 15 years of age	Control case	75%
S9	Akyüz et al. ¹⁹	2016	Evaluation of behavioral problems in patients with monosymptomatic nocturnal enuresis: a prospective controlled trial	Control case	75%
S10	Joinson et al. ²⁰	2016	Early childhood psychological factors and risk for bedwetting at school age in a UK cohort	Prospective cohort	100%
S11	Olaru et al. ²¹	2016	Chronic Functional Constipation and Encopresis in Children in Relationship with the Psychosocial Environment	Prospective cohort	75%
S12	Sarici et al. ²²	2016	Prevalence of nocturnal enuresis and its influence on quality of life in school-aged children	Cross-sectional study	100%
S13	Grzeda et al. ²³	2017	Effects of urinary incontinence on psychosocial outcomes in adolescence	Prospective cohort	100%
S14	Jönson Ring et al. ²⁴	2017	Nocturnal enuresis impaired children's quality of life and friendships	Cross-sectional study	75%
S15	Saarikoski et al. ²⁵	2018	Voiding school as a treatment of daytime incontinence or enuresis: Children's experiences of the intervention	Qualitative	100%

RESULTS

The final sample of this review was comprised of 15 articles described below in Chart 1. The thematic analysis of its main results allowed the organization in three main thematic categories: "Signs and symptoms associated with urinary and intestinal conditions", "Psychosocial and emotional impact of urinary and intestinal symptoms in childhood" and "The child's relation with urinary and intestinal symptoms and the school".

Signs and symptoms associated with urinary and intestinal conditions

In general, the children and adolescents investigated in these studies had isolated urinary or intestinal symptoms. The studies were also restricted to the investigation of the following symptoms: daytime and nighttime urinary incontinence, functional intestinal constipation (FIC) and fecal incontinence (encopresis). Therefore, there was a gap in relation to the other urinary symptoms (for example, increased urinary frequency, containment maneuvers, urinary retention, among others) and the concomitance of urinary and intestinal symptoms.

Although the main urinary and intestinal signs and symptoms are well defined in the normative document of the International Children's Continence Society (ICCS) nomenclature, some studies of this review pointed out other clinical manifestations that had a significant impact on the child.

In study S6,¹⁶ children with FIC, in addition to the symptoms described in the Rome criteria for diagnosing FIC, also had anorexia (38.3%), abdominal pain (58.1%), perianal erythema (13.1%), bright red bleeding in feces (8.1%) and anal fissure (7.2%). Additionally, the S3¹³ study, when evaluating Quality of Life (QL), identified a statistically significant correlation between abdominal pain and lower scores on the *Pediatric Quality of Life Inventory scale*.

When investigating urinary and intestinal symptoms in the pediatric population, the professional should investigate other complications such as Urinary Tract Infections (UTI), for example. The S4¹⁴ study evaluated the frequency of UTI and nocturnal enuresis in children with FIC and identified the concomitant occurrence of pyuria (8.3%), hematuria (4.2%), among other symptoms already described by the ICCS.

Psychosocial and emotional impact of urinary and intestinal symptoms in childhood

The results of this systematic review of mixed methods demonstrated that the psychosocial and emotional dimension was significantly affected by the occurrence of urinary and intestinal symptoms. The feelings reported by the children and their families, in general, were negative, as shown in the S11²¹ study, where children with FIC presented affective deprivation (52.63%), anxiety (38.59%), difficulty in social adjustment (22, 81%), shyness (21.05%) and low tolerance to frustration (19.29%).

Chart 2 shows a compilation of the main feelings/emotions described by the studies that make up the final sample of this systematic review of mixed methods.

Night enuresis and daytime urinary incontinence were described by children as an embarrassing problem, which they need to hide at all costs. This finding shows how urinary symptoms limit social life and impact children's self-image and self-esteem, as found in studies S8,¹⁸ S13,²³ S14²⁴ and S15.²⁵

Additionally, study S13²³ identifies depressive symptoms in 6.8% of children with daytime urinary incontinence and nocturnal enuresis, being more common in girls (8.7%) than in boys (4.9%). It was found that girls feel a greater impact in terms of self-image, whereas boys have a worse perception of school and more relationship problems amongst peers. In addition, according to the S5¹⁵ study, as children grow older, urinary symptoms begin to be seen as a burden and levels of parental intolerance increase, as well as a higher incidence of complications from urinary and intestinal symptoms not properly managed, such as hospitalizations, antibiotic therapies and pain crises.

In contrast to these negative perceptions, S1¹¹ found that 75% of children aged 7 to 13 years did not see FIC as a problem or felt little bothered by this symptom. The children participating in this S1¹¹ study mentioned emotions such as: calmness, happiness, nervousness and worry, the first being the most prevalent. Still in the child's perception, the study points out that 37.5% were bothered by the enema procedure, 62.5% were concerned with school performance and 85.5% considered that fecal accidents had an unpleasant odor.

The S1¹¹ study also pointed out the family's perception of the child's FIC, reporting feelings/emotions such as nervousness, sadness and concern. Of the total families studied, 37.5% reported being bothered by the lack of improvement in the child's condition, 85.7% with the odor from the losses and 50% considered the treatment as something traumatic, since the child's crying was recurrent when performing invasive procedures such as enema. Another reported impact concerns the financial dimension, families signaled an increase in the cost of extra clothes and laundry due to the child's fecal losses.

The family also reported negative psychosocial implications caused by the urinary symptom, as demonstrated in study S5.¹⁵ According to reports by parents of children with bedwetting, having a child in this condition can be stressful and embarrassing. Although parents tried not to blame their child, parental intolerance increased as urinary symptoms persisted and in the parents' perception, enuresis was perceived as something socially stigmatizing and disabling.

Another factor related to the maintenance of urinary and intestinal symptoms is parental punishment. Study S7¹⁷ evaluated the relationship between parental punishment in the face of episodes of enuresis and its correlation with depression, considering the parents' perception. It was evidenced that when presenting episodes of urinary loss during the night, the children were punished and, consequently, presented significantly greater and more severe depressive symptoms when compared to children who did not suffer punishment. Also in this study, 33.8% of children suffered punishment from their parents, the most common being the verbal punitive measure associated with physical injury (31.8%). These

Chart 2. Summary of the main feelings/emotions described by the studies included in the systematic review of mixed methods. Brasília/DF, Brazil, 2019.

Graphic representation	Feeling / Emotion	Study Result	Respondent's Perspective
	<p>Nervousness^{S1} Fear^{S1}</p>	<p>Nervousness and fear appeared in 75% of the reports of children with FIC, when the issue was related to visits to the doctor.</p>	<p>Child and Family^{S1}</p>
	<p>Concern^{S2, S1}</p>	<p>In study S1, 62.5% of children reported concern about school performance. Parents reported concern about the child's condition and showed more tolerant and protective behavior towards the child. In study S2, the child lived an experience of separation from the mother during the process of not using diapers anymore, which may have contributed to the onset of encopresis. According to the report of the professionals who assisted the case, the child showed concern about fecal losses and retentive behavior.</p>	<p>Family^{S1} Child^{S1} Professionals^{S2}</p>
	<p>Shame^{S5} / Shyness^{S11, S15}</p>	<p>In study S5, the family perceived the child's shame and also felt ashamed, reported fear of the community knowing and gossiping about the child's condition. In study S15, parents felt that they should protect the child from embarrassing situations. Thus, they avoided talking about the urinary symptom in front of strangers to preserve the child's privacy. They were also concerned about the child's future in relation to self-esteem.</p>	<p>Family^{S5} Child^{S11, S15}</p>
	<p>Anxiety^{S11}</p>	<p>Children with encopresis had anxiety (38.59%) and episodes of encopresis influenced the number of absences from school.</p>	<p>Child^{S11}</p>
	<p>Depressive Symptoms^{S7, S13}</p>	<p>In study S7, it was evidenced that 33.8% of the children studied suffered punishment from their parents as a result of enuresis and that the greater the frequency of enuresis episodes, the longer the punishment time, which resulted in an impact on quality of life and increased depressive symptoms. In study S13, 6.8% of adolescents had depressive symptoms and a negative impact on self-image.</p>	<p>Family^{S7}</p>

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children, when compared to those who did not suffer punishment, had worse school performance, increased episodes of enuresis and negative impact on quality of life.

The relation of children and adolescents with urinary and intestinal symptoms and the school

The school was rated as a socially hostile and stressful space for children and adolescents with urinary and intestinal symptoms. The teenager is afraid that his urinary problem will be discovered by colleagues and become the target of bullying. Thus, the child hides his/her problem from his/her peers and fears the occurrence of urinary losses during the school period, as described in study S15.²⁵

The relationship between peers at school was also permeated by victimization. A study carried out with parents of adolescents with urinary incontinence in the United Kingdom (S13) showed that about 17.8% went through these situations.²³ Data from study S14²⁴ with Swedish children also showed that, when comparing the sexes, boys reported a greater impact than girls did and, the older, this repercussion was also greater.

Another aspect brought up by the review was regarding the school performance of the child/adolescent. The S11²¹ study, a prospective cohort of 57 fecal incontinent patients aged 6 to 15 years, identified situations of school dropout, failure of the school year and numerous school absences. Such data are similar to the findings of poor school performance in children with nocturnal enuresis from study S12,²² justifying the concern of parents with regard to the impact on school performance of children with FIC and encopresis, described by study S11.²¹ In addition to these factors, it was identified in study S7¹⁷ that children who suffer punishment due to episodes of nocturnal urinary loss had worse school performance when compared to children who do not suffer such penalties.

In short, the school has been the target of a bad perception on the part of children and adolescents with urinary and intestinal symptoms and, in certain cases, this perception also applies to teachers (S13).²³ The S8¹⁸ study using the Teenage Self-Concept Scale was able to identify that children with enuresis had lower school self-concept, and this index was worse in children older than 11 years.

DISCUSSION

This review of mixed methods brought a quantitative and qualitative synthesis of how children and their families perceive and deal with urinary and intestinal symptoms, as well as their experiences. However, there was a predominance of quantitative studies (11 surveys), a fact that made it impossible to collect extensive subjective data related to the theme. The studies were able to discuss the psychosocial aspects through validated instruments, such as those that measure QL.^{11,13} Thus, there is a gap in the literature of studies that further explore the subject's report (children and their families) with regard to the experience of urinary and intestinal symptoms.

The symptoms most frequently described in the studies were daytime urinary incontinence, nocturnal enuresis, FIC and non-concomitant and isolated encopresis. Thus pointing to a lack of studies that discuss the other symptoms of the lower urinary tract, such as an increase/decrease in urinary frequency, containment maneuvers, urinary urgency,¹ as well as their association with intestinal symptoms.

On the other hand, another symptom little discussed in the documents of international societies was addressed. Abdominal pain in children with FIC was associated with a lower QL index,¹⁶ which is a symptom that modifies the child's experience with FIC. This data was corroborated by other studies described in the literature, among them a study carried out with school children without a specific disease²⁸ and another study that investigated children with Crohn's disease.²⁹ In both cases, pain had a negative impact on the various dimensions that make up the concept of QL.

Regarding the psychosocial and emotional repercussions in children with urinary and/or intestinal symptoms, the literature has shown that pediatric patients are particularly prone to develop emotional disorders.³⁰ Urinary and/or intestinal symptoms can negatively influence aspects of the child's routine, especially those inherent to the family and school context. Thus, it is necessary to monitor the psychosocial effects during the child's interdisciplinary monitoring.³¹

In view of the feelings experienced as a result of urinary and/or intestinal symptoms, the results found in this systematic review are in accordance with that demonstrated in the literature, which states that self-esteem lowers, insecurity, anxiety and isolation are perceived. They are also the same symptoms and emotions reported by children who experience BID and that this negative experience results in an impact on the quality of life of the child and his family.^{30,32}

Considering the perspective of family members, it was evidenced that the experience with the child's urinary and/or intestinal symptoms generated feelings such as nervousness, fear, shame, stress and worry. This finding corroborates what was mentioned in the study by Mota et al.,³³ where the author points out that the family reports a feeling of concern regarding their child's urinary symptom. In this review, the feeling of anxiety was experienced by the child, but Tanriverdi et al.³⁴ demonstrated that parents also experience anxiety in the face of the child's urinary symptom.

The use of punishment by guardians as a resource to correct children with urinary symptoms was also identified in this systematic review. This finding was similarly mentioned in the study by Sapi et al.³⁵ that assessed violence against children with enuresis. The long-term impact of this type of violence towards the child is unclear, however, it is up to the health professional to identify these cases, demystify and discourage this type of conduct by caregivers/family.

In contrast to what has been pointed out in other studies, some children do not perceive urinary symptoms as a problem. Such an aspect could explain the cases in which the child does not feel motivated by changes proposed by the health professional

in the urotherapy programs,³⁶ considering that for her the urinary symptoms are not a complaint and/or problem, but actually of those responsible.

Among the contributing factors to the onset and continuing of problems related to elimination are traumatic and stressful events, such as the separation of the mother and child during the process of not using diapers anymore, as described in study S2.¹² This study described the case of an 8-year-old child with a long history of encopresis and enuresis. It is worth noting that families who do not follow sphincter training and who are unaware of the child's bladder and intestinal elimination habits contribute to the development of elimination problems.¹²

The literature has already pointed out some difficulties that the child may encounter in the school environment, such as the inadequate bathroom infrastructure and the non-permission to use the toilet during classes.^{37,38} In addition, the child may suffer from the fear of discharges in this environment. A Brazilian study with schoolchildren showed that 20% of respondents (n = 17) stated that they had had previous experience of urinary loss at school,³⁷ thus, this is a relatively common event in the school environment and may be related to the difficulties mentioned above.

The sample studies also pointed out that children with these symptoms have shown low school performance, fear related to bullying and, in general, a bad relationship with their peers.^{21,22} Elements that make life experience even more difficult for the child and should be points of evaluation by the health professional.

Thus, the constant assessment of this social environment is essential, and can be performed with the help of validated quality of life instruments that already envision the school as a fundamental space for the compression of the social axis of the child, as was done, for example, under a study in Sri Lanka (S3) with children with FIC.¹³ Therefore, it is up to the health team to work in network with the school in order to minimize such psychosocial implications, clarify doubts from the school community and promote a healthy environment for the child affected by urinary and/or intestinal symptoms.

CONCLUSION AND IMPLICATIONS FOR PRACTICE

With this systematic review of mixed methods, it was possible to partially achieve the objective outlined due to the methodological profile of the sample studies and the investigated symptoms. Thus, the mapping of the occurrence of urinary and intestinal symptoms was limited to the symptoms of daytime incontinence, nocturnal enuresis, FIC and encopresis. In addition, the experiences lived by the children and their families were equally restricted, considering that only two qualitative studies and one of mixed method were part of the sample. That said, it is necessary to carry out future research that investigates the other urinary and intestinal symptoms and in a perspective that favors the report of the child and his/her family.

From the data obtained in the review, it is identified that the child with these symptoms has impact on the emotional and

social dimensions. Feelings of nervousness, anxiety, depressive symptoms, shame, low tolerance to frustration; as well as problems with body image and difficulty in relationships with colleagues and others have been described. The school, within the social dimension, was identified as the environment most impacted by urinary and/or intestinal symptoms. In it, the child, in several cases, presents low school performance, fear related to bullying and in general a bad relationship with his colleagues.

In summary, this review suggests the need for future research to improve the understanding of the psychosocial experiences of urinary and intestinal symptoms in children/adolescents and their families throughout their lives. In addition to awakening health and education professionals to pay special attention to the experience of these symptoms in children and their families. Thus, a possible strategy is to enable moments of dialogue and verbalization of these problems by children and their families, in order to mitigate the impacts brought by them.

AUTHORS' CONTRIBUTIONS

Conception and design of the study. Data extraction, analysis and interpretation. Discussion of results. Writing and critical review of the manuscript. Approval of the final version of the article. Responsibility for all aspects of the content and the integrity of the published article: Cristiane Feitosa Salviano. Data extraction. Discussion of results. Writing and critical review of the manuscript. Approval of the final version of the article. Responsibility for all aspects of the content and the integrity of the published article: Priscilla Lemos Gomes. Conception and design of the study. Interpretation of data. Discussion of results. Writing and critical review of the manuscript. Approval of the final version of the article. Responsibility for all aspects of the content and the integrity of the published article: Gisele Martins.

ASSOCIATED EDITOR

Aline Cristiane Okido

REFERENCES

1. Austin PF, Bauer SB, Bower W, Chase J, Franco I, Hoebcke P et al. 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*. 2016;35(4):471-81. <http://dx.doi.org/10.1002/nau.22751>. PMID:25772695.
2. Van Summeren J, Holtman GA, van Ommeren SC, Kollen BJ, Dekker JH, Berger MY. Bladder symptoms in children with functional constipation: a systematic review. *J Pediatr Gastroenterol Nutr*. 2018;67(5):552-60. <http://dx.doi.org/10.1097/MPG.0000000000002138>. PMID:30212423.
3. Farhat W, Bägli DJ, Capolicchio G, O'Reilly S, Merguerian PA, Khoury A et al. The dysfunctional voiding scoring system: quantitative standardization of dysfunctional voiding symptoms in children. *J Urol*. 2000;164(3):1011-5. [http://dx.doi.org/10.1016/S0022-5347\(05\)67239-4](http://dx.doi.org/10.1016/S0022-5347(05)67239-4). PMID:10958730.
4. Santos JD, Lopes RI, Koyle MA. Bladder and bowel dysfunction in children: an update on the diagnosis and treatment of a common, but underdiagnosed pediatric problem. *Can Urol Assoc J*. 2017;11(1-2):S64-72. <http://dx.doi.org/10.5489/cuaj.4411>. PMID:28265323.

5. Lenz E, Pugh LC, Milligan RA, Gift A, Suppe F. The middle-range theory of unpleasant symptoms: an update. *ANS Adv Nurs Sci.* 1997;19(3):14-27. <http://dx.doi.org/10.1097/00012272-199703000-00003>. PMID:9055027.
6. Martins G, Minuk J, Varghese A, Dave S, Williams K, Farhat WA. Non-biological determinants of paediatric bladder bowel dysfunction: a pilot study. *J Pediatr Urol.* 2016;12(2):109.e1. <http://dx.doi.org/10.1016/j.jpuro.2015.09.006>. PMID:26586295.
7. Assis GM, Silva CPC, Martins G. Urotherapy in the treatment of children and adolescents with bladder and bowel dysfunction: a systematic review. *J Pediatr.* 2019;95(6):628-41. <http://dx.doi.org/10.1016/j.jpmed.2019.02.007>.
8. Pluye P, Hong QN. Combining the power of stories and the power of numbers: mixed methods research and mixed studies reviews. *Annu Rev Public Health.* 2014;35(1):29-45. <http://dx.doi.org/10.1146/annurev-publhealth-032013-182440>. PMID:24188053.
9. Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gotzsche PC, Ioannidis JPA et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *J Clin Epidemiol.* 2009;62(10):e1-34. <http://dx.doi.org/10.1016/j.jclinepi.2009.06.006>. PMID:19631507.
10. Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol.* 2012;12(1):181. <http://dx.doi.org/10.1186/1471-2288-12-181>. PMID:23185978.
11. Kaugars AS, Silverman A, Kinservik M, Heinze S, Reinemann L, Sander M et al. Families' perspectives on the effect of constipation and fecal incontinence on quality of life. *J Pediatr Gastroenterol Nutr.* 2010;51(6):747-52. <http://dx.doi.org/10.1097/MPG.0b013e3181de0651>. PMID:20706148.
12. Stein MT, Benninga MA, Felt BT. An 8-year-old boy with treatment-resistant encopresis. *J Dev Behav Pediatr.* 2010;31(6):513-5. <http://dx.doi.org/10.1097/DBP.0b013e3181e5a464>. PMID:20611039.
13. Rajindrajith S, Devanarayana NM, Weerasooriya L, Hathagoda W, Benninga MA. Quality of life and somatic symptoms in children with constipation: a school-based study. *J Pediatr.* 2013;163(4):1069-72.e1. <http://dx.doi.org/10.1016/j.jpeds.2013.05.012>. PMID:23800401.
14. Dehghani SM, Basiratnia M, Matin M, Hamidpour L, Haghghat M, Imanieh MH. Urinary tract infection and enuresis in children with chronic functional constipation. *Iran J Kidney Dis.* 2013;7(5):363-6. PMID:24072148.
15. Cederblad M, Neveus T, Ahman A, Österlund Efraimsson E, Sarkadi A. "Nobody asked us if we needed help": Swedish parents experiences of enuresis. *J Pediatr Urol.* 2014;10(1):74-9. <http://dx.doi.org/10.1016/j.jpuro.2013.06.006>. PMID:23849996.
16. Dehghani SM, Kulouee N, Honar N, Imanieh MH, Haghghat M, Javaherizadeh H. Clinical manifestations among children with chronic functional constipation. *Middle East J Dig Dis.* 2015;7(1):31-5. <http://dx.doi.org/10.15171/mejdd.2017.87>. PMID:25628851.
17. Al-Zaben FN, Sehlo MG. Punishment for bedwetting is associated with child depression and reduced quality of life. *Child Abuse Negl.* 2015;43:22-9. <http://dx.doi.org/10.1016/j.chiabu.2014.11.007>. PMID:25435105.
18. Tai TT, Tai BT, Chang YJ, Huang KH. Parents have different perceptions of bed-wetting than children from six to 15 years of age. *Acta Paediatr.* 2015;104(10):e466-72. <http://dx.doi.org/10.1111/apa.13101>. PMID:26119996.
19. Akyüz M, Koca O, Karaman B, Özcan ZY, Öztürk Mİ, Kutluhan MA et al. Evaluation of behavioral problems in patients with monosymptomatic nocturnal enuresis: a prospective controlled trial. *Turk J Med Sci.* 2016;46(3):807-11. <http://dx.doi.org/10.3906/sag-1502-90>. PMID:27513260.
20. Joinson C, Sullivan S, von Gontard A, Heron J. Early childhood psychological factors and risk for bedwetting at school age in a UK cohort. *Eur Child Adolesc Psychiatry.* 2016;25(5):519-28. <http://dx.doi.org/10.1007/s00787-015-0756-7>. PMID:26294078.
21. Olaru C, Diaconescu S, Trandafir L, Gimiga N, Olaru RA, Stefanescu G et al. Chronic functional constipation and encopresis in children in relationship with the psychosocial environment. *Gastroenterol Res Pract.* 2016;2016:7828576. <http://dx.doi.org/10.1155/2016/7828576>. PMID:27990158.
22. Sarici H, Telli O, Ozgur BC, Demirbas A, Ozgur S, Karagoz MA. Prevalence of nocturnal enuresis and its influence on quality of life in school-aged children. *J Pediatr Urol.* 2016;12(3):159.e1-6. <http://dx.doi.org/10.1016/j.jpuro.2015.11.011>. PMID:26778419.
23. Grzeda M, Heron J, von Gontard A, Joinson C. Effects of urinary incontinence on psychosocial outcomes in adolescence. *Eur Child Adolesc Psychiatry.* 2017;26(6):649-58. <http://dx.doi.org/10.1007/s00787-016-0928-0>. PMID:27943057.
24. Jönson Ring I, Nevéus T, Markström A, Arnrup K, Bazargani F. Nocturnal enuresis impaired children's quality of life and friendships. *Acta Paediatr.* 2017;106(5):806-11. PMID:28199734.
25. Saarikoski A, Koppeli R, Salanterä S, Taskinen S, Axelin A. Voiding school as a treatment of daytime incontinence or enuresis: children's experiences of the intervention. *J Pediatr Urol.* 2018;14(1):56.e1-7. <http://dx.doi.org/10.1016/j.jpuro.2017.09.009>. PMID:29037865.
26. Heyvaert M, Maes B, Onghena P. Mixed methods research synthesis: definition, framework, and potential. *Qual Quant.* 2013;47(2):659-76. <http://dx.doi.org/10.1007/s1135-011-9538-6>.
27. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77-101. <http://dx.doi.org/10.1191/1478088706qp063oa>.
28. Haraldstad K, Christophersen KA, Helseth S. Health-related quality of life and pain in children and adolescents: a school survey. *BMC Pediatr.* 2017;17(1):174. <http://dx.doi.org/10.1186/s12887-017-0927-4>. PMID:28738818.
29. Claar RL, van Tilburg MAL, Abdullah B, Langer S, Sherif D, Whitehead WE et al. Psychological distress and quality of life in pediatric crohn disease: impact of pain and disease state. *J Pediatr Gastroenterol Nutr.* 2017;65(4):420-4. <http://dx.doi.org/10.1097/MPG.0000000000001549>. PMID:28945206.
30. Azevedo RVM, Oliveira EA, Vasconcelos MMA, Castro BAC, Pereira FR, Duarte NFV et al. Impact of an interdisciplinary approach in children and adolescents with lower urinary tract dysfunction (LUTD). *J Bras Nefrol.* 2014;36(4):451-9. <http://dx.doi.org/10.5935/0101-2800.20140065>. PMID:25517273.
31. Veloso LA, Mello MJ, Ribeiro No JP, Barbosa LN, Silva EJ. Quality of life, cognitive level and school performance in children with functional lower urinary tract dysfunction. *J Bras Nefrol.* 2016;38(2):234-44. <http://dx.doi.org/10.5935/0101-2800.20160033>. PMID:27438979.
32. Vasconcelos TB, Cavalcante LIC. Avaliação das atividades de vida diária em crianças: uma revisão da literatura. *Rev Ter Ocup Univ Sao Paulo.* 2013;24(3):267-72. <http://dx.doi.org/10.11606/issn.2238-6149.v24i3p267-272>.
33. Mota DM, Barros AJD, Matijasevich A, Santos IS. Prevalence of enuresis and urinary symptoms at age 7 years in the 2004 birth cohort from Pelotas, Brazil. *J Pediatr.* 2015 Jan/Feb;91(1):52-8. <http://dx.doi.org/10.1016/j.jpmed.2014.04.011>. PMID:25193596.
34. Tanrıverdi MH, Palancı Y, Yılmaz A, Penbegül N, Bez Y, Dağgüllü M. Effects of enuresis nocturna on parents of affected children: casecontrol study. *Pediatr Int.* 2014;56(2):254-7. <http://dx.doi.org/10.1111/ped.12242>. PMID:24467519.
35. Sapi MC, Vasconcelos JS, Silva FG, Damião R, Silva EA. Assessment of domestic violence against children and adolescents with enuresis. *J Pediatr.* 2009;85(5):433-7. PMID:19830354.
36. Souza BML, Salviano CF, Martins G. Prática avançada de enfermagem em uropediatria: relato de experiência no Distrito Federal. *Rev Bras Enferm.* 2018 Feb;71(1):223-7. <http://dx.doi.org/10.1590/0034-7167-2016-0654>. PMID:29324966.
37. Salviano CF, Martins G. Contexto escolar e hábitos miccionais: estudo transversal com escolares do Distrito Federal. *Cienc Cuid Saude.* 2016 Apr/Jun;15(2):235-41. <http://dx.doi.org/10.4025/ciencucidsaude.v15i2.28173>.
38. Souza BML, Salviano CF, Martins G. Contexto escolar e sintomas de trato urinário inferior: revisão integrativa da literatura. *Cogitare Enferm.* 2015 Jan/Mar;20(1):198-206. <http://dx.doi.org/10.5380/ce.v20i1.37477>.