

## SCHOOL SETTING AND VOIDING HABITS: A CROSS-SECTIONAL STUDY AMONG SCHOOL-AGED CHILDREN FROM THE FEDERAL DISTRICT

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### ABSTRACT

This was a cross-sectional study conducted in 8 public and private schools of Riacho Fundo (Federal District), with children between 6 and 12 years old, that aimed to evaluate their frequency of going to the school restroom and permission to use it from the children's perspective, as well as to measure the rate of occurrence and impact of the experience of having had some once in a lifetime urinary leakage in the school setting. Data collection included interviews with key questions developed by the researchers. Data analysis included basic techniques of exploratory data analysis such as absolute and relative frequencies calculated using the Statistical Package for Social Sciences program. Out of 86 participating children, 73% (n = 63) reported going every day to the school restroom while those reporting not going pointed out reasons as they did not need to, lack of toilet paper, and lack of privacy or problems with the stalls' doors. Regarding permission to use the restroom, 66% (n = 57) stated being allowed to go whenever they needed. The experience of urinary incontinence at school was reported by 17 (20%) children and presented as a highly negative impact from their perspective.

**Keywords:** Micturition. School health. Pediatric nursing.

### INTRODUCTION

The children's development is a continuous and progressive process that takes place in different contexts (systems) and at a given time of their lives<sup>(1)</sup>. Among the microsystems that influence the child's development, the school is the locus directed to human development, both cognitive and social, and behavioral. Thus, the behaviors related to the use of toilets and voiding habits are also built under the influence of this environment.

The school provides interactions with other children, teachers, and staff; the child learns not only curriculum subjects but also coexistence and institutional rules. The School Health Program, in its official documents, also points out the role of the school as a promoter of healthy living habits<sup>(2)</sup>.

Lifestyle, in addition to being governed by culture, context, and time when the concept of child urinary elimination is referred, this "habit" also begins to be considered a physiological need, which can be modulated by social and cultural aspects, i.e., urinary elimination is seen as a habit/behavior, however, above all, as a

basic human need<sup>(3)</sup>.

Lower Urinary Tract Symptoms (LUTS) are characterized by the modification in the bladder's dynamics, whether in storing or emptying, or daytime urinary incontinence, which are symptoms characterized by urinary leakage during the day<sup>(4)</sup>. The problem has a significant emotional and social impact on children. A study with teachers about voiding habits at school showed that 63% of respondents stated that their students hide or avoid commenting on urinary or fecal leakages, which shows the negative impact that urinary leakage cause on children<sup>(5)</sup>.

These data also point to the significant psychosocial impact on the child's lifetime. The evaluation of the quality of life in children with urinary incontinence through the Pediatric Urinary Incontinence Quality of Life Score (PIN-Q)<sup>(6)</sup> showed that 70% of children reported moderate emotional impact, 7% reported severe impact, and only 12% reported a slight impact.

A conceptual model was developed to explain female behavior related to toilet use<sup>(7)</sup> to better understand toileting behaviors. Through this research, the authors reinforce the concept of multiple factors being involved in urinary continence, punctuating individual factors such

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as anatomical and physiological integrity and social factors that vary according to culture. This topic shows the perception of appropriate places and times to use the toilet, which is learned during toilet training and social experiences, the school setting, and environmental factors such as access to the toilet, privacy, security, and cleanliness.

Given the multiplicity of factors that modulate the decision to go to the toilet, international studies have sought to understand how this behavior has been displayed at school; the issue of permission to use the toilet<sup>(5,8)</sup>, physical and sanitary conditions offered by the school<sup>(9-11)</sup>, and knowledge/perception of teachers and school nurses about these habits and urinary dysfunctions in the childhood<sup>(5,9)</sup> were targeted in the investigation.

Considering the lack of studies that address these factors in the Brazilian reality, and bearing in mind that children "spend" almost 1/3 of their day within the school setting, or even more hours if they are full-time students, this study aims to evaluate the frequency of going to the toilet and permission to use it at school from the perspective of school children. A specific objective was to measure the rate of occurrence and impact of experiences of having had some once in a lifetime urinary leakage in the school context.

## METHODOLOGY

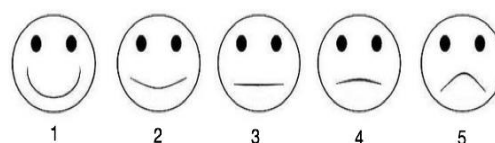
This was a cross-sectional study<sup>(12)</sup>, conducted in eight schools in Riacho Fundo (DF), an administrative region of the Federal District, from December of 2013 to May of 2014. The evaluation of voiding habits in the school setting was performed with 6 to 12 years old school children, and therefore, specifically attending elementary schools, both public and private, urban and rural schools.

The sample was randomly chosen by drawing out of Excel spreadsheets; children regularly enrolled in public and private schools, who agreed to participate, and whose parent or legal guardian signed a participation consent form were included. Children with obvious developmental and/or cognitive delay based on a clinical assessment by the researcher and recorded in the school database and children

diagnosed with congenital malformation of the urinary and/or gastrointestinal tract referred by parents and/or observed by the researcher were excluded.

The data collection was carried out through interviews in the school setting and at the time and place set by the school in order to not interfere with the school rules. The questions were prepared by the researchers and tested in a pilot study; no changes were necessary after the pilot study.

The key questions were: Do you go to the restroom at school? How often? What is the reason for you not going to the school restroom? Can you go to the restroom whenever you need at your school? Have you ever peed in your underwear at school? If so, check according to the scale of faces (impact scale with 5 faces from happy to sad), with 1 representing no impact, and 5 representing severe impact (Figure 1)



**Figure 1.** Scale used for the evaluation of the impact caused by episodes of urinary leakage at school. Brasília (DF), 2014.

Data were entered in a database built in an Excell spreadsheet. The statistical analysis included basic techniques of exploratory data analysis such as absolute and relative frequencies calculated through the Statistical Package for the Social Sciences (SPSS) version 20.0.

This study is part of a larger research titled "Symptoms of the Lower Urinary Tract in School Children in an Administrative Region of the Federal District: Study of Prevalence and Associated Factors", conducted at the Graduate Nursing Program of the University of Brasília and corresponding to a master's degree thesis presented by one the authors<sup>(13)</sup>. This study was approved by the Ethics Committee in Research from the Health Sciences College of the University of Brasília under the CEP/FS-UNB No. 459726 of 11/18/2013. In compliance with the Resolutions 466/2012 and 196/96, all participants were informed about the research objectives and signed an assent form in the case

of children while their legal guardian also agreed and signed the consent form (VICT).

## RESULTS AND DISCUSSION

A total of 86 children participated in the study distributed among eight schools. Of these, 50 (58%) were girls, and 36 (42%) were boys, at the mean age of eight years. The distribution among schools was proportional to the number of students enrolled in the institution. Thus, 17 (20%) were from private schools in the urban area, 27 (31%) from public schools in the rural area, and 42 (49%) from public schools the urban area.

There are some current initiatives aimed to optimize the school setting to promote healthy urinary habits such as the Education and Resources in Improving Childhood Continence (ERIC) in the UK. In one of its campaigns entitled 'The Right to Go', the school was presented as a privileged space for the promotion of urological health; the importance of lifestyle habits such as regularly going during the school time, and adequate fluid intake<sup>(14)</sup>.

In Brazil, an integrative review that investigated the health education activities carried out by the nursing pointed out that this theme has not been addressed at the national level, however, issues such as "prevention of smoking in adolescence, health education in traffic, prevention of childhood malnutrition" were part of the thematic agenda of Brazilian studies<sup>(15)</sup>.

The first topic investigated in this study was about going to the school restroom. Table 1 shows that 73% (n = 63) of children reported going every day to the school toilet, 12% (n = 10) only when they could no longer "hold" peeing or pooping, 10% (n = 9) said that they rarely go, and 5% (n = 4) never went. This high percentage of children who claim going daily to the school toilet represents positive data because the literature shows that not going to the restroom at school, i.e., postponing urination during the school period may result in negative consequences for the child such as increased risk for incontinence and constipation, with or without occurrence of Urinary Tract Infection<sup>(8)</sup>.

The following were among reasons for not going to the toilet at school: no need to go

during the school hours (17%, n = 15), lack of toilet paper (5%, n = 4), and lack of privacy or problem with the stalls' doors (1%, n = 1). Some hypotheses can be raised regarding the lack of will to go to the toilet at school. One relates to the bladder being conditioned to not being emptied during this period; this can be a behavior/habit learned by children during their development under the influence of environmental stimuli. This retentive behavior can sometimes be associated with a reduction in water intake during the period, which consequently would not fill the storage bladder, and therefore, there would not be a need to emptying it at school<sup>(8)</sup>.

Another possibility would be the experience of a traumatic event in the toilet. Researchers have shown that bullying in the restroom is reported frequently decreasing the safety and integrity in using it<sup>(8,11)</sup>. It is believed that this environment is permissive to this type of intimidation because most of the adult supervision is absent, which, therefore, requires more attention from teachers and school staff.

The other reasons cited by children participating in this study concerns the environmental aspect according to the conceptual model of toileting behaviors<sup>(7)</sup>. It is known that inadequate hygiene and sanitation, as well as the lack of safety presented to the child, can generate a delay in the decision to use the toilet. The school, as one of the microsystems of greatest impact on children development, has not always offered adequate sanitation; teachers and students agree that sometimes poor physical facilities and the presence of bad smell and dirtiness generate reluctance to use the toilet<sup>(5,9,11)</sup>.

Therefore, health education strategies promoted by nurses can encourage the autonomy of children and the whole school community<sup>(15)</sup> in the search for improvements in environmental health conditions where they spend much of their daytime.

Table 1 also shows that the children were asked about the permission to use the toilet during the school time; the majority (66%) stated that they could go to the toilet whenever they felt like at school, and the rest (34%) reported not having this permission when requested. The analysis of the pattern of children's responses

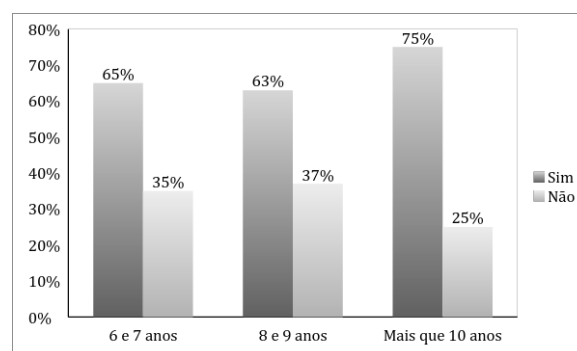
stating that they had no permission to use the toilet when requested showed that children between eight and nine years old showed the highest percentage of lack of permission (37% -  $n = 13$ ). With advancing age, in the case of children over 10 years old, the percentage of non-permission decreased to 25% ( $n = 5$ ) (Figure 2).

**Table 1.** Distribution of factors related to the school setting reported by the students. Brasília (DF), 2014.

Factors related to the school environment	N	%
<b>Frequency of toilet visits at school</b>		
Does not go	4	5
Goes everyday	63	73
Could no longer "hold" peeing or pooping	10	12
Rarely go	9	10
Subtotal	86	100
<b>Reasons for not going</b>		
No need	15	17
Lack of toilet paper	4	5
Lack of privacy or problems with stalls' doors	1	1
Subtotal	20	23
<b>Permission to use the toilet at any time</b>		
Yes	57	66
No	29	34
Subtotal	86	100

Overall, the data show that most children claimed to have permission to use the toilet whenever they required, which is also positive data because the fear of a denied permission or the need to wait to go to the toilet<sup>(16)</sup> in the needed moment also lead to urination and defecation retentive behavior. However, when different age groups were analyzed, it was possible to identify a difference between older (> 10 years old) and younger children (eight to nine years old); older children stated that they had permission at any time while the younger were aware that they did not always have such authorization.

Assumptions can be brought up to explain such a difference. One would be that the older children adapt to social rules imposed by the school/teacher better than the younger ones; therefore, they adjust their needs according to the times when they are allowed to go to the toilet. Another possibility could be explained in a physiological point of view, that is, it is known that older children have greater bladder capacity compared to the younger ones. Bladder capacity is understood as the amount of urine that can be stored without altering the bladder intravesical pressure<sup>(17)</sup>. Thus, older children tend to have longer intervals between urinations, which facilitate their social adequacy to the standards set by teachers<sup>(4,17-18)</sup>.



**Figure 2.** Permission to use the restroom during the school hours according to the children's ages. Brasília (DF), 2014.

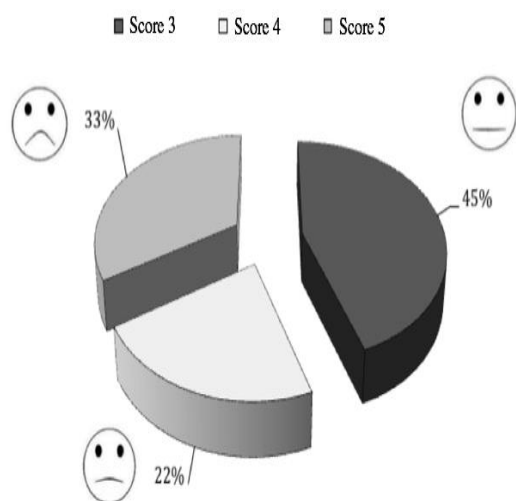
The issue of permission to use the toilet has also been discussed by other authors in the field of Pediatric Urology. According to a study developed in American schools<sup>(5)</sup>, only 40% of teachers allowed children to go to the toilet at any time, and 31% required the child to wait for the right moment to go; in some cases, the toileting rules were developed by teachers without sensitive care to the students' needs and are not clearly shared with students<sup>(8)</sup>.

Hence, considering these data, whether these children understood completely what "go to the toilet at any time" meant is questioned in this research because the obtained responses were far from what has already been pointed out in the literature. Perhaps the responses of children about permission were already subjected to the pre-established rules by teachers and not by their physiological needs.

It is important to clarify that the role of the school in the cognitive, social, and intellectual development of children requires the use of

certain rules, including those involving toilet use at appropriate places and moments. Condemning this practice is not the objective of this research; the aim is to draw attention to the rigidity with which the rules are employed. The evaluation of isolated cases is ideal, especially in children who already have installed clinical urinary conditions. The increased urinary frequency, for example, is a reported symptom that requires the child a great number of toilet visits, which in this situation, in particular, results in more than eight daily voids by the child<sup>(4)</sup>.

Another aspect investigated was the previous experience of urinary leakage in school; about 20% (n = 17) of participants reported having experienced this situation. The 17 children who reported having had a urinary incontinence experience (UI) in the school setting were asked to report the impact of this experience on a scale from one to five with the aid of a scale of facial expressions represented as 1 – no impact no or zero and 5 - severe impact. In 33% (n = 6) of these children, the impact of having had IU at school corresponded to the score of 5, namely, an extremely harsh and unpleasant experience; to 22% (n = 4), the score of 4, and to 45% (n = 8) the score of 3. The scores 1 and 2 were not chosen, demonstrating the impact of urinary leakage as a highly negative experience (Figure 3).



**Figure 3.** Reports of children on the impact of their experience of urinary incontinence in the school context through the application of a scale of facial expressions. Brasília (DF), 2014.

This data shows the social, emotional, and behavioral impact of urinary incontinence. It is observed that the occurrence of episodes of urinary leakage in the childhood generates feelings of guilt, shame, isolation, and anxiety in addition to the use of holding maneuvers and strategies to hide incontinence accidents<sup>(6,18)</sup>.

Thus, one episode of urinary leakage in the school setting, even on one single occasion, can become a traumatic event for the child, often associated with feelings such as guilt, anxiety, and isolation<sup>(6,18)</sup>. These situations may be related to shame to ask to go to the toilet, lack of permission to go at the appropriate time, or even a clinical condition such as overactive bladder<sup>(4)</sup>, which leads to daytime incontinence.

This study explored the school microsystem in a different way from those that have been performed in national surveys. However, the issue still requires further investigation such as prospective studies with pediatric samples; observational studies for the understanding of how the environmental situation of toilets in Brazilian schools is; and studies that capture the perceptions of teachers and education professionals about the voiding habits of students. These data could provide a broad view of voiding patterns in this environment, including the whole school community in this investigative process.

The findings of this study also indicate the need for government strategies such as the School Health Program, which aggregate the question of toileting habits and micturition disorders during childhood to the themes already approached<sup>(19)</sup>. Furthermore, partnerships between the school nurse and community aimed at public awareness of healthy habits and promotion of a healthy environment in terms of physical and sanitary conditions of school toilets are relevant. In the clinical practice, the investigation of urological symptoms and voiding habits must take into account the child's behavior in outdoor spaces, at home, and especially at school.

## FINAL CONSIDERATIONS

In general, the frequency and permission to use the restroom were satisfactory from the perspective of the interviewed students in the

studied schools because 73% of children report going to the school toilet daily, and 66% claim to have permission to go at any time. In addition, the study showed that 19.7% had experienced one episode of urinary leakage at school at some point in their lives and that this experience was associated with a negative impact on the child.

Given these results, it is observed that the permission to use the toilet is granted at any time according to most respondents. Despite this positive perspective, it is necessary to point out that sometimes the rules established by teachers and institutions are already considered as normal for the children. Therefore, it is necessary to analyze the data with caution, especially when it

comes to the child's understanding of the concept of "visits at any time."

It is also believed that further studies using interview methods, such as focus groups are recommended to capture this information and minimize possible biases. In addition to other techniques of data collection, further studies could investigate in more depth the main reasons for not going to the toilet. In this study, the most argued reason was "lack of need"; however this type of response may be associated with other risk behaviors in urology such as low fluid intake.

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## CONTEXTO ESCOLAR E HÁBITOS MICCIONAIS: ESTUDO TRANSVERSAL COM ESCOLARES DO DISTRITO FEDERAL

### RESUMO

Estudo transversal realizado em oito escolas públicas e particulares do Riacho Fundo, (Distrito Federal), com escolares de seis a 12 anos, com o objetivo de avaliar a frequência de ida e permissão para uso do toalete na escola, sob a perspectiva do escolar, assim como mensurar a taxa de ocorrência e o impacto da experiência de ter tido alguma vez na vida um evento de perda urinária no contexto escolar. A coleta de dados incluiu entrevista por meio de perguntas-chave desenvolvidas pelas pesquisadoras. A análise dos dados incluiu técnicas básicas de análise exploratória de dados como, frequência absoluta e relativa, calculadas no programa Statistical Package for the Social Sciences. Das 86 crianças participantes da pesquisa, 73% (n=63) relataram ir todos os dias ao toalete escolar, ao passo que as que afirmam não utilizar o toalete apontaram como justificativas a falta de vontade, a falta de papel higiênico nos toaletes e a falta de privacidade ou problema com as portas. Quanto à permissão para o uso do toalete, 66% (n=57) afirmaram poder ir sempre que tivessem vontade. A experiência de perda urinária na escola foi relatada por 17 (20%) crianças e apresentou impacto altamente negativo sob a perspectiva do escolar.

**Palavras-chave:** Micção. Saúde escolar. Enfermagem pediátrica.

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## CONTEXTO ESCOLAR Y HÁBITOS MICCIONALES: ESTUDIO TRANSVERSAL CON ESCOLARES DEL DISTRITO FEDERAL

### RESUMEN

Se realizó un estudio transversal en 8 escuelas públicas y privadas del Riacho Fundo (Distrito Federal) con escolares de 6 a 12 años que tuvo como objetivo evaluar la frecuencia de idas y permiso al baño en la escuela bajo la perspectiva del escolar, así como medir la tasa de ocurrencia y el impacto de la experiencia de haber tenido alguna vez en la vida pérdida urinaria en el contexto escolar. La recolección de datos incluyó entrevistas con preguntas claves desarrolladas por los investigadores. El análisis de datos incluyó las técnicas básicas de análisis exploratorio de datos como la frecuencia absoluta y relativa, calculada utilizando el programa Statistical Package for the Social Sciences. De los 86 niños participantes, el 73% (n = 63) informaron ir todos los días al baño de la escuela, las justificaciones para no ir fueron falta de voluntad, la falta de papel higiénico y la falta de privacidad o problemas con las puertas. En referencia al uso del baño, el 66% (n = 57) dijo que podían ir cuando tuviesen necesidad. La experiencia de pérdida urinaria en la escuela fue reportada por 17 (20%) niños y presentó un impacto muy negativo desde la perspectiva del escolar.

**Palabras clave:** Micción. Salud escolar. Enfermería pediátrica.

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