Postoperative pain in children: a gender approach

DOR PÓS-OPERATÓRIA EM CRIANÇAS: UMA ABORDAGEM DE GÊNERO

DOLOR POST-OPERATORIO EN NIÑOS: UN ABORDAJE DE GÉNERO

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ABSTRACT

The objective of this study was to verify and describe, from a gender focus, the associations between gender and specific postoperative pain variables in pediatrics. This is a cross-sectional study of 77 children between 6 and 13 years of age (M=9 years; sd=2.2 years), ASA I and II, 77.9% from low-income classes, 68.8% boys and 32.8% girls. Data were collected on the first postoperative (1st PO) day through semi-structured interviews and four measurement scales. The main baseline diseases were adenotonsillitis and fractures. Prevalence of pain on the 1st PO was 91.7% for girls and 75.5% for boys (p>0.05). No association was found between pain intensity and gender. The most used pain descriptors were it cuts and it squeezes. The preferred scale was the EFMC (with faces from a Brazilian cartoon: Monica's Gang). Pediatric pain management is still inadequate and gender may influence the pain response.

DESCRIPTORS

Child
Pain, postoperative
Pain measurement
Gender identity
Pediatric nursing

RESUMO

O objetivo do estudo foi verificar e descrever, sob o enfoque de gênero, as associações entre o sexo e as variáveis específicas da dor pós-operatória em pediatria. Corte transversal com 77 crianças, com idades entre seis e 13 anos (M=9 anos; dp=2,2 anos), ASA I e II, 77,9% pertencentes às classes socioeconômicas C e D, 68,8% meninos e 32,8% meninas. Os dados foram coletados no primeiro dia pós-operatório, por meio de entrevista semi-estruturada e quatro escalas de medida. As principais doenças de base foram adenoamigdalite e fraturas. A prevalência de dor foi de 91,7% para meninas e 75,5% para meninos (p>0,05). Não houve associação entre intensidade de dor e sexo; as palavras mais utilizadas para descrever a dor foram corta e aperta. A escala preferida foi a Escala de Faces do *Cebolinha e da Mônica*. O manejo da dor em pediatria ainda é inadequado e o gênero pode influenciar na resposta dor.

DESCRITORES

Criança
Dor pós-operatória
Medição da dor
Identidade de gênero
Enfermagem pediátrica

RESUMEN

El objetivo del estudio fue verificar y describir, bajo en enfoque de género, las asociaciones entre el sexo y las variables específicas de dolor post-operatorio en pediatría. Corte transversal, con 77 niños con edad entre 6 y 13 años (M=9 años, ds=2,2 años), ASA I y II, 77,9% pertenecientes a clases socioeconómicas C y D, 68.8% varones y 32,8% mujeres. Datos recolectados en primer día post-operatorio, mediante entrevista semiestructurada de cuatro escalas de medida. Las principales enfermedades de base fueron adenoamigdalitis y fracturas. La prevalencia de dolor fue de 91,7% para niñas y 75,5% para niños (p>0,05). No hubo asociación entre intensidad de dolor y sexo, las palabras más utilizadas para describir el dolor fueron corto y abierto. La escala preferida fue la Escala de Rostros de *Cebollita y Mónica*. El manejo del dolor pediátrico es aún inadecuado y el género puede influir en la respuesta.

DESCRIPTORES

Niño
Dolor postoperatorio
Dimensión del dolor
Identidad de género
Enfermería pediátrica

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INTRODUCTION

Postoperative pain represents an obstacle for quality of life in pediatrics and adequate management of this experience represents a challenge to be solved in the surgical context. It is undeniable that, in many children, pain is still insufficiently assessed and treated, despite the advances achieved in the study of the pain phenomenon[1-3].

Limited improvements have been appointed in pain management in children[2,4], although various instruments have been described to measure and assess pain in childhood. Obstacles are frequently related to the scales' unproven validity and inadequacy for all age groups.

Assessing the way children interpret their illness and the pain stimulus is fundamental for effective pain relief. The many factors to be analyzed for adequate pain management in childhood include the fact that children learn to assess, understand the meaning and the relevance of phenomena, and also to manifest behaviors based on the internalization process of gender premises.

Sex and gender are mistakenly used as synonyms[5]. Gender, however, comprises the range of cultural meanings attributed to biological differences. It refers to the attributes, functions and relations that transcend the reproductive biological aspect and which, social and culturally constructed, are attributed to the sexes to justify differences and relations of power and oppression between them.

Thus, the attitude of men and women is closely connected with the symbolic representations of masculinity and femininity that are historically constructed, changeable and relational. That is why the gender focus is associated with social class, race/ethnic origin, general differences, culture, among others[6].

In men, the hegemonic model's establishment of the stereotyped view of masculinity represses behaviors that are traditionally attributed to the female, such as exposing feelings and emotions and talking about their sexuality with other people[5].

In this context, it is relevant to consider parents' influence in their children's socialization process, as they react differently according to age, sex and order of birth. Boys are stimulated to repress pain complaints and to develop more active and independent behaviors, while girls can release their anguish and use passive coping strategies like rest and medication use[7].

Thus, gender socialization is considered a multidimensional construct, which influences social learning and leads to variations in behaviors, including the *pain* - response[8].

The male gender standard supposedly emphasizes *machoism*, resisting pain to evidence a male essence, differently from the female. And the female gender standard is supposed to contain socialization elements that accept pain as a normal part of life, permitting pain communication[9].

In this sense, in a study that involved adults in pain[10], it was observed that women frequently exhibited less pain tolerance than men or communicated greater pain intensity than the latter.

Regarding the study of childhood pain, however, in addition to the scarce literature on how gender interferes in the pain measurement process in children, no differences between boys and girls were observed[11], while hardly consistent differences were appointed between the sexes[9,12-13], facts that evidence the need for research to understand how gender interferes in the *pain* - response.

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OBJECTIVES

General objective

• To verify and describe, from a gender focus, associations between the child/adolescent's sex and specific postoperative pain variables.

Specific objectives

• To characterize the profile of the children and adolescents under analysis according to age, socioeconomic conditions, baseline disease and type of surgery;

• To identify the occurrence of pain on the first postoperative day and at the time of data collection; pain intensity according to the measurement scales; pain quality; and the measurement scale the children prefer;

• To check the association between sex and pain occurrence, intensity and quality and the child's preferred scale.

METHOD

An observational and cross-sectional study was developed at the Pediatric Unit of the Teaching Hospital at *Universidade Federal do Triângulo Mineiro* (UFTM), Uberaba - MG, in 2006. The convenience sample comprised 77 children submitted to small and medium surgical procedures, male and female, in physical condition ASA I or II according to the criteria of the American Society of Anesthesiology, and unaware of the category estimation method.

The variables were: sex; age; socioeconomic situation; baseline disease, type of surgery; pain occurrence, intensity and quality and preferred pain measurement scale.

Postoperative pain was considered as pain directly related to the surgical site. Four ordinal and one-dimen-

sional scales were used for subjective pain intensity measurement: the Smile and Crying Faces Scale (SCFS); the *Cebolinha* and *Mônica* Faces Scale (CMFS); the Bear Face Scale (BFS) and the Numerical Scale (NS).

The quality of the pain experience was investigated through words – the most adequate to describe the pain felt. No instrument was used, the children could freely choose the Portuguese words they knew and used every day.

All children were trained for the measurement task during the preoperative phase and data were collected on the first postoperative (PO) day.

Based on the Microsoft Excel database, quantitative variables were submitted to descriptive measures of centrality (mean, median and mode) and dispersion (minimum, maximum and standard deviation) and, for qualitative variables, simple frequency distribution was obtained. The results were organized in tables.

Associations were explored through the chi-square and Mann-Whitney tests. Significance for all tests was set at α=5%. All tests were performed in *EpiInfo statistical software version 6.04*.

The Institutional Review Board at Universidade Federal do Triângulo Mineiro (UFTM) approved the research project, under protocol CEP No 643/06. All interviewees and responsible persons were previously informed about the research and signed the free and informed consent term.

RESULTS

Seventy-seven children were assessed, 68.8% male and 31.2% female. Ages ranged from 6 to 13 years, in line with the range delimited for the study, with a mean age of 9.0 years and standard deviation (s.d.) of 2.17 years.

The girls' mean age (9.4 years±1.9 years) was similar to the boys' mean age (9.3 years ± 2.3 years) (p=0.854).

Regarding socioeconomic condition, most children (42.9%) fitted in class D of the Classification Key of Socioeconomic Classes in Brazil (ABA/ABIPEME), followed by class C (35.1%), class E (18.2%) and class B (3.9%). The comparison between the socioeconomic situation of female and male children did not reveal significant differences either ($\chi 2=1.60$; p=0.660), with 0.0%, 33.3%, 45.9%, 20.9% of girls in classes B, C, D, E, respectively; and 5.7%, 35.9%, 41.6%, 17.0% of boys in classes B, C, D, E, respectively, revealing that both groups are relatively homogeneous.

The children presented baseline diseases, mainly adenotonsillectomy (28.6%), fracture (26.0%) and disease of the genitourinary apparatus (15.6%) for both sexes.

The distribution of baseline diseases according to gender, in decreasing frequency order, corresponded to amygdalitis (45.8%), and fracture, hernia and tumor (12.5%), respectively, among girls. Among boys, the highest score was for adenotonsillitis (28.6%), followed by fracture (26.0%), and disease of the genitourinary apparatus (15.6%).

The most frequent surgery types were: orthopedic corresponded to 29.9% (F sex – 16.7% and M sex – 35.9%) and otorhinolaryngologic to 29.9% (F sex – 45.8% and M sex – 22.7%), in line with the baseline diseases observed (Table 1).

Table 1 - Association between sex and baseline disease and surgery type - Uberaba, MG - 2006

Baseline Disease	Female		Male		Total	
	N	%	N	%	N	%
Adenoamygdalitis	11	45.8	11	20.7	22	28.6
Fracture	3	12.5	17	32.1	20	26.0
Disease genitourinary Ap.	1	4.2	11	20.7	12	15.6
Hernia + Disease genitourinary Ap.	0	0.0	5	9.4	5	6.5
Disease gastrointestinal Ap.	2	8.3	2	3.8	4	5.2
Hernia	3	12.5	1	1.9	4	5.2
Tumor	3	12.5	1	1.9	4	5.2
Anatomic malformation	1	4.2	2	3.8	3	3.9
Burn	0	0.0	2	3.8	2	2.6
Otitis	0	0.0	1	1.9	1	1.3
Surgery Type						
Orthopedic	4	16.7	19	35.8	23	29.9
Otorhinolaryngologic	11	45.8	12	22.6	23	29.9
Pediatric	6	25.0	4	7.5	10	13.0
Urologic	0	0.0	10	18.9	10	13.0
Pediatric and urologic	0	0.0	6	11.3	6	7.8
Neurologic	3	12.5	0	0.0	3	3.9
Plastic	0	0.0	2	3.8	2	2.6
Total	**24**	**100.0**	**53**	**100.0**	**77**	**100.0**

Regarding pain frequency on the first PO day was 91.7% among girls and 75.5% among boys. Although no statistically significant difference was observed (p>0.05), more girls mentioned pain.

As for pain intensity, measured through the four measurement scales used in this study, in comparison with the children's sex, no significant difference was found (Table 2).

Table 2 - Descriptive measures of NS and BFS, CMFS and SCFS scales regarding sex and result of comparative Mann-Whitney test - Uberaba, MG - 2006

Measurement Scale	N	Minimum	Median	Maximum	Man-Whitney	P
Numerical Scale					3.82	0.051
F	24	0,000	4,000	10,000		
M	53	0,000	4,000	10,000		
Cebolinha and Mônica Faces Scale					3.22	0.073
F	24	0,000	2,000	5,000		
M	53	0,000	2,000	5,000		
Bear Faces Scale					1.26	0.260
F	24	0,000	2,000	4,000		
M	53	0,000	2,000	4,000		
Smiling and Crying Faces Scale					0.44	0.510
F	24	0,000	4,000	10,000		
M	53	0,000	4,000	10,000		

As for the postoperative pain quality, the words girls most frequently used were: cuts (21.1%), tight (15.8%); and boys: burns (17.6%), followed by tight, cuts and pricks (8.8%) (Table 3). Based on the version of the McGill Pain Questionnaire translated to Portuguese(14), we observed that most girls (77.8%) and boys (84.9%) described their pain using words that could be grouped as sensitive (Table 4). No reference was made to words that described the affective pain dimension.

Table 3 - Frequency distribution of Portuguese words children between 6 and 13 years used to describe postoperative pain - Uberaba, MG - 2006

Pain descriptors	Female		Male		Total	
	N	%	N	%	N	%
Pricking	1	5.3	0	-	1	1.8
Tight	3	15.8	3	8.8	6	11.3
Tight and burning	0	-	1	2.9	1	1.8
Burning	2	10.5	6	17.6	8	15.0
Splitting	0	-	1	2.9	1	1.8
Somewhat good	1	5.3	0	-	1	1.8
Cutting	4	21.1	3	8.8	7	13.2
Hurting	2	10.5	2	5.8	4	7.6
Squeezing	0	-	1	2.9	1	1.8
Stabbing	0	-	2	5.8	2	3.8
Penetrating	0	-	1	2.9	1	1.8
Stinging	0	-	1	2.9	1	1.8
Searing	1	5.3	0	-	1	1.8
Strong	1	5.3	1	2.9	2	3.8
Pounding	0	-	1	2.9	1	1.8
More or less	0	-	1	2.9	1	1.8
Beating	0	-	1	2.9	1	1.8
Pricking	0	-	3	8.8	3	5.7
Pressing	0	-	2	5.8	2	3.8
Pulling	1	5.3	1	2.9	2	3.8
Burning	1	5.3	2	5.8	3	5.7
Tearing	1	5.3	1	2.9	2	3.8
Rasping	1	5.3	0	-	1	1.8
Total	**19***	**100.0**	**34****	**100.0**	**53*****	**100.0**

* Does not know = 3; ** Does not know = 6; *** Does not know = 9

Table 4 - Frequency distribution of Portuguese words children between 6 and 13 years used to describe postoperative pain, grouped based on the Proposed Adaptation of the McGill Pain Questionnaire for Portuguese - Uberaba, MG - 2006

Pain dimension	Female		Male		Total	
	N	%	N	%	N	%
Evaluative	1	5.6	1	3.0	2	3.9
Mixed	3	16.7	4	12.1	7	13.8
Sensitive	14	77.8	28	84.9	42	82.3
Total	**18**	**100.0**	**33**	**100.0**	**51**	**100.0**

(χ^2=3.23; p=0.520); 11 words (14.3%) did not correspond to the McGill Questionnaire groupings.

According to the scales used for pain measurement in children, regarding the scale they liked most criterion, 56.4% of the children chose the Cebolinha and Mônica Faces Scale – CMFS – 59.1% of girls and 55.0% of boys (Table 5), with a positive and significant association (χ^2=10.58; p=0.032). Next, another 22.6% of the children chose the Smiling and Crying Faces Scale - SCFS -, 36.4% of girls and 15.0% boys.

Table 5 - Association between sex and scale the child preferred - Uberaba, MG - 2006

Children's Preferred Scales	Female		Male		Total	
	N	%	N	%	N	%
Numerical Scale	0	0.0	1	2.5	1	1.7
Mônica and Cebolinha Faces Scale	13	59.1	22	55.0	35	56.4
Bear Faces Scale	1	4.5	11	27.5	12	19.3
Smiling and Crying Faces Scale	8	36.4	6	15.0	14	22.6
Total	**22**	**100.0**	**40**	**100.0**	**62***	**100.0**

(χ^2=10.58; p=0.032); *Mentioned not feeling postoperative pain = 15 children.

DISCUSSION

The study population predominantly included male children, while less than one third was female. The large majority belonged to poorer socioeconomic classes, probably due to the fact that the School Hospital is a teaching hospital that exclusively delivers care through the Unified Health System (SUS).

Ages and socioeconomic conditions were quite similar between boys and girls, reducing the possibility that these variables would represent a confounding factor in pain responses.

The main baseline diseases the children presented were adenotonsillitis, fracture and disease of the genitourinary apparatus. Among boys, although no statistically significant difference was observed, fractures were more frequent than among girls, probably due to the fact that they involve in more risky and violent activities, which can be considered an early sign of what happens with young men. Some traditional male characteristics, such as strength, virility, competitiveness and the attempt to comply with the traditional masculine model turn the male population much more vulnerable to violence than the female[15]. Also, pain ratios in upper and lower limbs among school-age children are related to activities like falls from bicycles, falls when running and collisions, causing wounds, fractures or traumas[16].

Brazilian epidemiological mortality data confirm this assertion, as five times more men than women die of external causes. This percentage difference is more enhanced among adolescents and young adults[15].

In line with the observed baseline diseases, the most frequent surgery types were orthopedic and otorhinolar-

yngologic. Tonsillectomy, with or without adenoamygdalectomy, was mentioned as one of the most common surgical procedures in childhood[17].

Most children indicated pain during the first PO day, most of whom at the time of data collection, raising inquiries on the adequacy of pain management in this group. The importance of health professionals' acknowledgement of children's *pain* response is highlighted, as well as the prescription and administration of analgesics[2,18-19], with a view to avoiding the harmful effects of pain. In addition, these professionals' perception of children's sex/gender and their gender understanding can influence adequate management of this experience[19].

Regarding sex, higher pain frequencies were found among girls than among boys. These data are similar to the adult population, in which women frequently show low pain tolerance levels or communicate high pain levels when compared to men[10]. Also, girls and women frequently report more pain than boys and men in pain experience research, and more frequently seek help for pain[8].

It should also be appointed, however, that sex differences in pain responses seem to be inconsistent in children[9], who showed less coherence between the sexes[13]. Besides, epidemiological pain prevalence studies in children show little difference between the sexes[12].

Furthermore, it should be taken into account that gender differences in behavioral pain responses should not be interpreted as signs of gender differences in pain thresholds[11].

Thus, even if these results may suggest that women show less pain tolerance or express pain more frequently than men, they approximate childhood pain studies, which appoint little consistency in terms of differences between the sexes. The present study sample was relatively small though, entailing the need for further research with larger samples with a view to more consistent results.

Regarding postoperative pain quality, in adults, studies have appointed that the three dimensions are involved in postoperative pain description[20], although the sensitive stands out in acute pain cases, similar to the present study, and the words the children most mentioned were: *cutting, tight, burning* and *pricking*.

According to the scales used for pain measurement in children, although most girls and boys chose the CMFS, behaviors in terms of other choices was very different, according to the preference distribution for the other face scales. Studies have affirmed that face scales seem to be the best option for pain measurement in children over five years old[3,21-22]. Regarding the scale the children declared they liked most, it should be questioned whether this preference does not derive from the fact that the CMFS is the only scale that permits sexual distinction through the female (Mônica) and male (Cebolinha) characters, enhancing gender identification.

CONCLUSION

Pain prevalence levels among children on the first PO day was high and the fact that most of them reported pain at the time of data collection lead to the conclusion that postoperative pain management in this group was inadequate.

Girls reported pain more frequently than boys and, although no significant association was observed among these variables, the results suggest that girls display less pain tolerance or express pain more frequently than boys.

Boys and girls judged pain quality and intensity similarly through the measurement scales. It is highlighted that the children chose no word from the affective group, in line with studies that appointed the sensitive pain dimension as the most present in the postoperative phase.

Regarding the pain measurement scales used, both girls and boys preferred the CMFS. The second choice was the SCFS, according to studies that appointed Face Scales as the best option for pain measurement in children older than five.

As for the children's preference of the CMFS, it should be taken into account that Mônica and Cebolinha are associated with many Brazilian children's play universe and widely accepted, but it should be questioned whether this preference could not derive from the fact that this is the only scale that permits sexual distinction through the male (Cebolinha) and female (Mônica) characters, enhancing gender identification.

In view of the above, it is highlighted that care delivery to children with postoperative pain should consider gender aspects, which can influence the *pain* response, particularly in boys who, concerned with reproducing the traditional masculine model, could be going through unnecessary suffering.

Hence, in the context of effective and efficient care for children in pain, care humanization is appointed as a right for all, mainly in children, who often do not manage to communicate what they are feeling.

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