

Health related quality of life in children with migraine. A controlled study

Saúde e qualidade de vida em crianças com migrânea.
Estudo controlado

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ABSTRACT

Background: Headaches are prevalent in the pediatric population. Migraine significantly impacts the health-related quality of life (HRQoL) of sufferers. **Objective:** To measure the impact of migraine on the HRQoL of children, by applying the Brazilian version of the SF-36 in children with migraine and in controls. **Methods:** In this cross-sectional study, HRQoL was measured with the SF-36, and scores for the 8 domains of the test were contrasted comparing children (5 to 14 years) with and without migraine. **Results:** Sample consisted of 66 children (30 with migraine and 36 controls). Mean age was 10.9 years for migraine (Standard Deviation - SD = 3 years) and 10.4 for controls (SD = 3.1 years). Proportion of children with low HRQoL scores was significantly higher in the migraine group, relative to controls, for the 8 domains of the test: vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning, and mental health. **Conclusion:** Children with migraine are significantly impacted in their HRQoL, relative to children without migraine.

Keywords: Migraine; Migraine at childhood; Quality of life; Short form 36; Brazilian SF-36

RESUMO

Introdução: As dores de cabeça são prevalentes na população pediátrica. A migrânea afeta significativamente a qualidade de saúde de vida (QV) dos doentes pediátricos. **Objetivo:** Avaliar o impacto da migrânea sobre a qualidade de vida (QV) de crianças, através da aplicação da versão brasileira do SF-36 em crianças migranosas e nos controles sadios. **Métodos:** Estudo transversal, onde a QVRS foi medida através do SF-36, e a pontuação para os oito domínios do teste foram contrastadas comparando-se crianças (5-14 anos) com e sem migrânea. **Resultados:** A amostra foi composta por 66 crianças (30 com migrânea e 36 controles). A média de idade foi de 10,9 anos para migrânea (Desvio Padrão - DP \pm 3 anos) e 10,4 para os controles (DP \pm 3,1 anos). Proporção de crianças com baixos índices de QV foi significativamente maior no grupo de enxaqueca, em relação aos controles, para os oito domínios do teste: capacidade funcional, aspectos físicos, dor, vitalidade, aspectos emocionais, saúde mental, estado geral de saúde mental, e mais uma questão de avaliação comparativa de condições atual e de anos atrás. **Conclusão:** As crianças com enxaqueca são significativamente afetadas em sua QV, em relação às crianças sem enxaqueca.

Palavras-chave: Migrânea; Migrânea na infância; Qualidade de vida; SF-36 versão brasileira

INTRODUCTION

Migraines represent an important public health problem, burdening the individual sufferers, their families, and the society. Costs associated with migraine are significant as well, as it is the impact of the disease on health-related quality of life (HRQoL) of the affected sufferers.^(1,2)

Migraine is prevalent at all ages, including among children and adolescents, being indeed the most common primary headaches in the pediatric population.^(2,3) Age directly influences the prevalence of migraine and its gender distribution. In adolescents and young adults, the prevalence is higher in women. Before menarche, prevalence is higher in boys than in girls.⁽⁴⁾

Migraine at childhood is associated with impact on the HRQoL at several domains, including social, psychological and physical. It also impacts performance at school, by being associated with absenteeism, early dismissals, and missing physical or recreational activities. Furthermore, pediatric migraine affects interpersonal and family relationships.⁽⁵⁾ It has been suggested that children with migraine are sometimes as burdened as those with arthritis or cancer.⁽⁶⁾

The burden of migraine is complicated and modified by its comorbidities. It has been reported that children with headaches have levels of stress, fatigue and somatic symptoms that are significantly different than of those without headaches. They are also less likely to report themselves as being happy and seem to have an overall 10% decrease in their quality of life, relative to controls.⁽⁷⁾

Although the impact of migraine on the HRQoL is well described for the adult population, important data gaps exist for the pediatric population. Accordingly, the aim of this study was to define the impact of migraine on the HRQoL of children from 5 to 15 years, by applying the Brazilian version of the SF-36 in children with migraine and in controls. We found the topic of relevance, since it provides an estimate of the impact of the disease from the perspective of the affected sufferer, instead of their parents or providers.

METHODS

This was a cross-sectional study, comparing two groups of children from 5 to 14 years, with migraine with or without aura ($n = 30$), and without headaches (control group - $n = 36$).

Children with migraine were diagnosed by a headache specialist as per the Second Edition of the International Classification of Headache Disorders.⁽⁸⁾ They were selected among those registered at the neurology service of the City Public Health Service (DEMASP).

Controls consisted of volunteers without headache, selected among healthy children that were accompanying their parents who were, in turn, patients at the same clinic. All parents consented for their children to participate.

After consultation and agreeing to participate, all children responded to the Brazilian SF-36, a validated version of the Medical Outcome Study 36.⁽⁹⁾ This questionnaire assesses self-perception of health in its most representative domains.⁽¹⁰⁾ It is a non-disease specific self-applied questionnaire⁽¹⁰⁾ consisting of closed questions clustered among 8 sections: vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning, and mental health. For each section, scores range from 0 to 100.^(9,11) Based on the scores, the following categories were defined: impaired quality of life (0-60 points) and not impaired (61- 100).

The questionnaire was responded by the children, who could consult their parents if difficult in comprehension was evident. For children younger than seven, the questionnaire was responded by the parents or guardians.^(2,12)

Data were analyzed using Stata 10 (Stata Corp., College Station, Texas). Summary tables and descriptive statistics (mean, standard deviation and proportions) were calculated for each variable. For proportions, contingency tables or ANOVA tables were developed, and the Chi-squared (χ^2), Fischer Test and Fischer for ANOVA comparisons were used. Multivariate analyses (multinomial logistic regression) adjusted for age and gender. Significance level was defined at the 5% level.

The study was approved the Ethics in Research Committee of Universidade Presidente Antônio Carlos (UNIPAC) (approval number 827/2010).

RESULTS

As mentioned, the migraine group consisted of 30 children (63.3% girls), contrasted with 36 controls (44.5% girls, $\chi^2(2) = 2.3440$, $p = 0.126$). A total of 13 children with migraine had age from 5 to 10 year (43.3%), while 17 were from 11 to 15 (56.7%). In the control group, 50% of the children were in each age range. No significant

differences were seen when comparing the age categories between groups ($\chi^2(1) = 0.2920$, $P = 0.589$). Mean age was 10.9 years in the migraine group ($SD = 3$) and 10.4 among controls ($SD = 3.1$). Differences were not significant ($F = 0.45$, $p = 0.5044$).

Table 1 displays the frequency of participants that were impaired in their HRQoL or each of the 8 components of the SF-36, with respective results of the Fisher exact test or Chi-squared test. Proportion of children with low HRQoL scores was significantly higher in the migraine group, relative to controls, for the eight domains of the test: vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social role functioning, and mental health.

Table 1. Health-related quality of life, as measured by the SF-36, as a function of migraine status

SF-36 Scale	Control		Migraine		Chi ² /F (*)	p value
	N	%	N	%		
Functional capacity						
000 - 060	0	0.0	10	33.3	-	<0.001
061 - 100	36	100.0	20	66.7		
Physical functioning						
000 - 060	1	2.8	20	66.7	30.79	<0.001
061 - 100	35	97.2	10	33.3		
Pain						
000 - 060	1	2.8	16	53.3	21.88	<0.001
061 - 100	35	97.2	14	46.7		
General health						
000 - 060	2	5.6	11	36.7	10.01	0.002
061 - 100	34	94.4	19	63.3		
Vitality						
000 - 060	2	5.6	13	43.3	13.29	<0.001
061 - 100	34	94.4	17	56.7		
Social aspects						
000 - 060	1	2.8	11	36.7	12.63	<0.001
061 - 100	35	97.2	19	63.3		
Emotional aspects						
000 - 060	4	11.1	13	43.3	8.88	0.003
061 - 100	32	88.9	17	56.7		
Mental health						
000 - 060	1	2.8	13	43.3	16.10	<0.001
061 - 100	35	97.2	17	56.7		

DISCUSSION

Herein we contrasted the HRQoL of children as a function of migraine status. Groups did not differ significantly as a function of age and gender, although

girls were numerically over-represented in the migraine group. Children with migraine were slightly older as well. Findings are discussed in the context of each category of the SF-36.

Functional capacity

While nearly one third of the children with migraine had low scores on this domain, the same was not seen in the control group ($p < 0.001$), suggesting the impact of migraine. For the studied age, this impact is probably reflected in school performance (although absenteeism was not assessed by us), either directly driven by migraine or due to conditions comorbid to migraine.⁽¹²⁾ In a study conducted in Austria, children with migraine lost an average of 9 school days per year, while in Italy, absenteeism could be as high as 17 days in 3 months.^(13,14)

Physical functioning

Nearly 70% of the children with migraine had low scores in this domain, relative to 2.8% in those with control, demonstrating the impact of migraine on physical functioning. Previous studies suggest that nearly 80% of the children with migraine have symptoms that are important enough to interfere in their ability to play sports or games, which, per se, impacts the HRQoL at this age.⁽¹⁵⁾ Furthermore, children with migraine are more likely than those without migraine of reporting fatigue and tiredness.⁽²⁾

Pain

While the vast majority of controls (97%) had high scores on this domain, less than half of those with migraine had it ($p < 0.001$), suggesting that children with migraine have other types of pain more frequently than controls. Several of migraine comorbidities cause pain, and children with migraine also seem more likely to be diagnosed with conditions such as ear infections or gastric problems, which also cause pain.⁽¹³⁾

General health perception

Children with migraine were significantly more likely to have low scores in this domain relative to controls (36.7% vs. 5.6%, $p < 0.002$) a finding supported by previous reports. In a study conducted in Italy, children with headaches had psychological, physical and social impairments, and higher levels of stress and somatic

symptoms, relative to controls.⁽¹⁶⁾ Of interest is that children with migraine indeed detect that their health is negatively affected when fulfilling the SF-36, relative to children without migraine.

Vitality

As for the other categories, important differences were seen between groups (low scores in 43.3% vs. 5.6%, $p < 0.001$). In a study conducted in India, 58% of children with migraine had low scores in this domain, affecting their daily activities,⁽¹⁵⁾ and confirming the impact of migraine on vitality.

Social aspects

While 97.2% of controls had high score in this domain, the same happened in 63.3% of children with migraine ($p < 0.001$), meaning that over one third of children with migraine are socially impacted, a fact that has been previously reported. Children with headaches are nearly three times more likely to have emotional symptoms and behavioral problems that impact their relationships within family, at school, while playing, and overall.⁽¹⁷⁾ Due to their headaches, children with migraine may avoid certain activities that are common for the age and are relevant to group playing.

Emotional aspects

Once more, differences were significant when comparing children negatively affected in this domain (43.3% vs 11.1%, $p = 0.003$). Several studies suggest that children with migraine are more likely to report symptoms of anxiety and depression, relative to children without headaches.⁽²⁾ Vulnerability, defined as the personality trait that predisposes to anxiety and depression, also contribute to HRQoL impact.⁽¹⁷⁾ It has also been reported that excessive concern and even catastrophism is more likely in those with migraine, negatively affecting their emotional health.⁽²⁾

Mental health

Only 2.8% of the control children had low scores in this domain, relative to 43.3% in those with migraine ($p < 0.001$). Of all HRQoL domains, psychological functioning is likely the best investigated, often with the use of disease-specific questionnaires for depression and

anxiety. These studies confirm the high prevalence of anxiety and depression symptoms in children with migraine.⁽²⁾ Stress, mainly at school, also influences the relationship between migraine and HRQoL, and dissatisfaction with life was higher in migraineurs with high levels of stress, relative to migraineurs without increased stress.⁽¹⁸⁾

CONCLUSIONS

Migraine impacts HRQoL in all of the domains measured by the SF-36. Limitations of this study include the relatively small sample size, although we emphasize that all comparisons were significant. Since the study was conducted in a general neurology clinic (not pediatric neurology), available cases were indeed limited. Nonetheless, our study adds to the field, since few studies on the topic of HRQoL in children with migraine have been conducted. Our findings suggest that therapeutic interventions aiming not only to improve migraine, but also to improve HRQoL of affected children are of importance.

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