

Parent proxy report and pre-adolescent self-report of pain and trauma: A cross-sectional observational study in Sweden

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ABSTRACT

Background: The prevalence of musculoskeletal pain changes significantly between pre-adolescence and adolescence. It is unclear whether parent proxy reports and child report of pain and trauma are concordant. This study investigated the respective agreement between pre-adolescents and their parents in reporting head and/or neck trauma and recurrent neck pain and/or headache. **Methods:** This cross-sectional observational study formed part of a study carried out to ascertain the prevalence of non-specific neck pain and/or headache in 131 Swedish pre-adolescents. Information was gathered from a questionnaire completed in school, and an informed consent with additional questions for the parents. **Results:** All of the students (n=131) who were approached to participate in the study agreed to complete the questionnaire. Of these, 40% (n=52) reported that they experienced neck pain and/or headaches with 31% (n=41) reporting the frequency was “often.” The parental report differed with 6% (n=8) of parents acknowledging that their child often had neck pain and/or headache. Similarly, 61% (n=80) of children reported trauma to the head/neck while 20% (n= 26) of the parents reported that their child had experienced trauma to the head and/or neck region. **Conclusion:** Neck pain and/or headache in this group of Swedish pre-adolescents were common, as was previous trauma to the head or neck. Most of the parents were unaware that their child often had neck pain and/or headache or had suffered head or neck trauma. This discordance should be further explored to better understand the change in reporting pain from pre-adolescence to adolescence.

Introduction

Pain is the most common reason why people seek health-care.¹ The decision to seek care for the pre-adolescent in pain involves both the parent and the child. The clinical encounter involves both their perspectives of the problem including exposure to trauma, assessment of pain and the impact on daily living. Studies comparing parent proxy and child report of pain show discrepancies^{2,3} and few explore musculoskeletal pain in the pre-adolescent.^{4,5} Studies of parent proxy reports of trauma in the pre-adolescent age group have not been performed, but Sundblad et al. 2006 study of older children reported that parent-child agreement occurred consistently only in cases of severe trauma.⁶ Because pain in childhood is a predictor of pain in adulthood,⁷ gathering an understanding of the complexity of the problem from the child perspective is warranted and considered the gold-standard.^{8,9} It has been accepted that assessing pain in children is different from assessing pain in adults.¹⁰

A parent’s perception that their child is experiencing pain is the main motivating factor when arranging a visit to a caregiver. Parents, particularly mothers, are relied upon by health care practitioners to provide information about their child.¹¹ Many things influence the parent’s and the child’s verbal response to the doctor’s questions. Some of the factors which influence how the child responds are: (1) if the rating has positive or negative consequences associated with it; (2) if the response is verbal or written; and

among other things (3) if the child’s previous experience with health care has been positive or negative.¹² The parental response is influenced by their own health, the relationship they have with the child, and their expectations of the child.¹ It is consistently noted in children and adolescents with chronic pain syndromes, as in low back pain and headaches that parents underestimate the amount of pain their child is experiencing.^{13,14 15,16,17}

Von Baeyer et al in 2017¹⁸ implied that some children from four years old are able to relay information in an age appropriate tool about how much pain or “hurt” they have, although authors agree that children under seven years may have difficulty using scales appropriately to relay accurate information about pain.^{18,19,20} By the age of eight years, most children have the skills of numeracy to use a numbered scale to rate their pain.^{21,22,23}

Although the gold standard for assessing health related parameters is self-report, when measuring pain retrospectively, there is a tendency for children to inflate their pain, reporting higher numbers than if they had recorded pain daily.²⁴ This is particularly true for children who have experienced significant pain or anxiety associated with the painful event.²⁵

The aim of this study was to compare the agreement of answers from pre-adolescent middle school students with

answers given by their parents on questions addressing prevalence and frequency of neck pain and headache and the occurrence of head and /or neck trauma.

Methods

This was a cross-sectional observational study included as a sub-set of a larger study carried out to ascertain the prevalence of non-specific neck pain and/or headache in Swedish pre-adolescent children. This was a group of middle school students in the 4th, 5th and 6th grades, who were 9-10 years, 11-12 years and 12-13 years old. Participants were selected from a convenience sample of students at a municipal school in a middle-class suburb outside Stockholm, Sweden. An informed consent form with additional questions for the parents (the parents were asked if the child experienced neck pain and /or headache, and how often; experienced trauma to the head or neck; and if the child had a systemic disease) was sent home in a sealed envelope. Information was gathered from students via a questionnaire which was completed in school with an informed teacher present. The inclusion criteria are listed in Table 1.

Those who were between 10-13 years
Those who agreed to participate
Those who had written consent from parents or guardians
Those who had filled out the questionnaire
Those who had the ability to communicate verbally

Table 1. Inclusion criteria for students.

The questionnaire was adapted from questionnaires found in the literature investigating characteristics of headaches and neck pain.^{26,27,28,29} The questionnaire was pilot tested on a group of 10 year olds (n=10) to ensure that the youngest students had no problems understanding the questions and the alternatives provided. The questions concerned the duration and the frequency of pain, among other questions. None of the pilot participants were included in the final study.

Categorization

The neck pain/headache group was defined as those students who answered “I have neck pain” or “I have headaches” when asked on the questionnaire if they experienced neck pain or headaches. The no-pain group consisted of students who answered “I never have neck pain or headaches, or “I only have neck pain or headaches when I am sick” when answering the same question.

Ethical Consideration

The procedures were performed with the approval of the Anglo-European University College Research Ethics Subcommittee for postgraduate research in accordance with

the Declaration of Helsinki. Ethics approval was required in Sweden and was granted by the Stockholm regional Medical Ethics Committee.

Results

The questionnaire was completed by 131 students between 10 and 13 years of age. These accounted for 100% of the students who were asked to participate. Of these, 40% (n=52) reported that they experienced neck pain and/or headache. In the fourth grade (10-11 years) there were as many boys as girls who described having neck pain and/or headaches and this was also true for the fifth graders (11-12 years). In the sixth grade (12-13 years) there were more girls than boys reporting neck pain and/or headache (Figure 1).

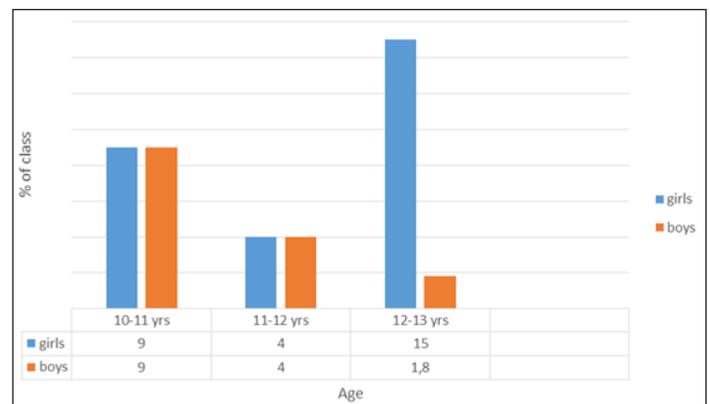


Figure 1. Gender Prevalence of neck pain and/or headache in pre-adolescent students.

In all, 31% (n=41) of the children reported in the questionnaire that they “often” had neck pain and/or headaches, while 6% (n=8) of the parents wrote that their child had neck pain and/or headaches “often.” In total 61% (n= 80) of children reported trauma to the head/neck, whereas 20% of parents reported that their child had experienced trauma to the head and/or neck region (Figure 2 following page). There was no significant association found between the occurrence of trauma and the incidence of neck pain and/or headaches in the students examined when analyzed with the Chi square test (P=.102)

Discussion

The goal of this study was to compare and contrast a pre-adolescent child’s perception of pain with that of their parents. As such, there was a clear difference in the report of the students versus the report of their respective parents. Pre-adolescent students were selected to better understand the changes which occur in neck pain and/or headache prevalence and gender distribution between pre-adolescence and adolescence. It is first in adolescence that neck pain and/or headache take on more adult-like characteristics with an increase in overall prevalence and a shift in

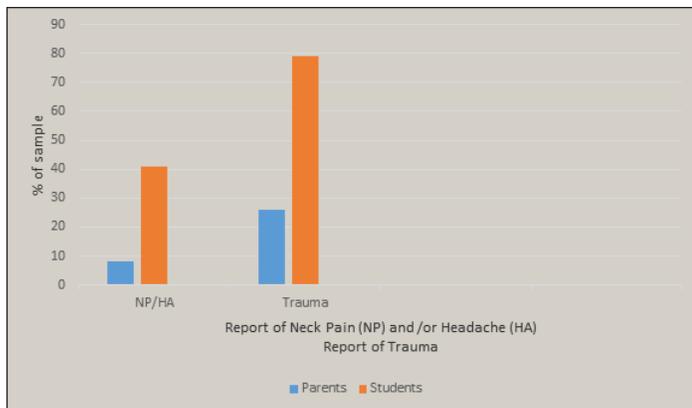


Figure 2. Parental and student report of neck pain and/or headache and trauma.

gender distribution with a female preponderance.^{30,31} It was difficult to compare the results from this study with others because prevalence rates of neck pain and/or headaches in children vary considerably depending primarily on the criteria used and how the study has been designed. Parents reported approximately five times less frequent head and neck pain than their child. These discrepancies may reflect the weakness of the questionnaires in assessing pain in pre-adolescents and highlight the need for gathering data prospectively with daily recording of symptoms as well as through interviews with parents and children. Other possible reasons for discrepancies may be lack of communication and/or the child feelings of awkwardness about their own physical state. The results otherwise support the findings of Lundqvist et al⁶ which indicated that parents not uncommonly underestimate headaches in their children.

There was also a discrepancy between parental report and child self-report in regard to the incidence of trauma to the head or neck. Despite the fact that so many students reported trauma, there was no statistical relationship between trauma and neck pain and/or headache in these students. It is feasible that children did not always tell their parents that they have hurt themselves. It is also possible that their memory of having experienced trauma is better than what their parents remember.

There was an even gender distribution among the students who reported having neck pain and/or headaches who

were between 10 and 12 years of age. This is similar to other reported data for this age group.^{4,32} Students between 12 and 13 years of age must be considered peri-adolescent and interestingly, in this group, there was an increase in prevalence of neck pain and/or headaches among both boys and girls, along with a clear shift in gender distribution with female preponderance. The increase in the prevalence of neck pain and/or headache with a female gender shift in adolescence has been noted previously in the literature.^{31,33}

The fact that trauma was not significantly related to neck pain and/or headaches in this study may be that injuries occurring in childhood may become symptomatic first in adolescence with cumulative strain associated with increase in demands of studying and screen time. To explore this theory, it would be appropriate to conduct a prospective study following students to see if those who experienced trauma early in childhood more commonly suffered neck pain and/or headaches once they reach adolescence.

Limitations

This was a pragmatic study of students in their own school setting. A pragmatic study is useful for its real world implications, but also has some weaknesses. Despite a high participation rate, the study sample was small so only trends may be observed. The study sample, a convenience sample, represents students from one school only which may introduce bias. The study sample was intended to be pre-adolescent but included a class of peri-adolescents. Further studies should clearly subgroup children into pre-adolescent, peri-adolescent and adolescent groups to investigate how neck pain and headaches evolve in this transitional period.

Conclusion

Forty percent of the pre-adolescents in this middle school setting reported recurring neck pain and/or headaches. Four out of five parents reported headaches, neck pain and trauma experienced by the child significantly less frequently than the child. This is important not only because recurrent musculoskeletal pain in this age group can have a significant impact on quality of life, but the discordance in reporting may be a factor in why report of pain changes significantly between pre-adolescence and adolescence. Because musculoskeletal pain in adolescence is a predictor for pain in adulthood, early attention in pre-adolescence could serve as a preventive measure for the long-term.

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