

# THE MANAGEMENT OF PEDIATRIC CHRONIC PAIN IN SPAIN: A WEB-BASED SURVEY STUDY

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## Abstract

**Objective:** To improve understanding of current practices in the treatment of children and adolescents with chronic pain in Spain.

**Methods:** A web-based survey was conducted with a representative sample of healthcare professionals (i.e., general practitioners (GP) and pediatricians (P)) in Spain. The survey included 23 questions on the pain education and training they had been given, and on organizational issues and current practices in the assessment and management of children and adolescents with chronic pain in their current work.

**Results:** The survey was completed by 191 professionals (75 GP and 116 P) with wide experience in the management of children and adolescents with chronic pain (mean number of years = 21; SD = 8). Half of the participants reported that they had not been given any specific education or training on pediatric chronic pain management during their studies, and 80% acknowledged important gaps in their training. Although the majority assessed pain when attending children with chronic pain (80%), and almost all (96%) believed that protocols to guide the management of chronic pain in young people were necessary, only a third reported that they usually use a specific protocol. Less than 25% were part of a multidisciplinary team addressing the needs of children and adolescents with chronic pain.

**Conclusions:** This survey has identified considerable limitations in the management of children and adolescents with chronic pain in Spain. This information can now be used by policy makers to improve the care given to children and adolescents suffering from chronic pain and their families.

**Key words:** Adolescents; Children; Chronic pain; General practitioners; Pain management; Pain programs; Pediatricians.

## INTRODUCTION

Pediatric chronic pain has an enormous societal impact. For example, it has been estimated that prevalence rates range from 6% to 45% (1–3). In Spain, the only epidemiological study on pediatric chronic pain conducted within the general population to date reported a prevalence rate of 37% and showed that the most frequent pain locations in children and adolescents were the lower extremities, the head and the abdomen (4). Chronic pain negatively impacts the life of young people at all levels (5). Research has shown that chronic pain is associated with poor psychological, physical and social functioning (6–11) and even with educational/working performance (2,12). Furthermore, the negative effects of chronic pain can also extend to people living with the patients (13,14) and may be associated with high direct and indirect costs (15,16). Although the treatment of young people with chronic pain has improved in the last 30 years(17–19), pediatric chronic pain is still poorly managed, and young people suffer unrelieved pain unnecessarily (20–22).

The management of chronic pain in children and adolescents is challenging (23). Remarkably, psychosocial treatments that have proved to provide relief for many young people with chronic pain (5,16) are not always available (17). Furthermore, although there has been significant progress in the understanding of the pharmacokinetics and pharmacodynamics of different pain medications in neonates, infants, children, and adolescents, current data is still limited in these populations (24,25). In addition, although multidisciplinary programs have proved to be the best option for treating young people with chronic pain (26), the fact is that there are still too few of these programs, particularly in Spain (27). As a result, many pediatric patients with chronic pain

are first treated by primary care physicians (19,27) who then usually refer these patients to specialized programs, resulting in an unnecessary delay in receiving proper specialized care (28). There are no specific studies on how the treatment of children and adolescents with chronic pain in Spain is provided. Research on this area would help interested stakeholders to identify potential barriers and areas for improvement.

Importantly, recent studies have shown that the pain management education given to health care professionals might be inadequate to address the needs of children and adolescents with chronic pain, and of their families (29–31), Spain included (32).

Therefore, the aim of this study was to improve understanding of current practices in the treatment of young people with chronic pain in Spain, and the training given to primary care physicians (general practitioners –GP- and pediatricians –P-) who are responsible for providing the first response to children and adolescents suffering from chronic pain and their families. We also explored if there were any statistically significant differences between GP and P. Since this was an exploratory study, we did not have any hypotheses.

## **METHODS**

### *Procedure*

In this study, we used a slightly modified version of the survey developed by Miró and colleagues (33). The original survey included 55 questions on a wide range of issues (e.g., years of training and practice, treatments used, questionnaires used). The survey was reviewed by the authors for suitability and modified where appropriate. In addition, telephone interviews were carried out with 24 Spanish health care professionals with experience in the study and

treatment of young people with chronic pain in order to gather key information about the assessment and treatment of this population in Spain. Participants in this telephone interview were requested to identify to the best of their knowledge what were the positive and negative issues in the treatment of children and adolescents with chronic pain as currently provided in Spain. Data from the interviews was used to further elaborate on the survey. Once the new questions had been generated, the survey was piloted with ten health care professionals, all experts in the management of young people with chronic pain. No problems of comprehension or any other sort were found.

The final version of the survey included 23 questions in three areas: pain education and training received, organizational issues, and current practices in the assessment and management of young people with chronic pain in their current workplace. Participants could choose multiple response options, and they were requested to do so when appropriate. The relevance of the questions in the survey was not measured, as this was not related with the objective of the study. In addition, on the basis of the data obtained during the telephone interviews with professionals, the survey included 15 statements about general and specific issues in the assessment and management of young people with chronic pain that participants had to agree with or not. This required a Yes/No type of answer. These statements were about problems that the interviewed professionals found of importance for the current and future management of young people with chronic pain in Spain. Participants completed the survey online. The survey was conducted from January 2019 to June 2019. The survey took approximately 10 minutes and is available on demand from the

corresponding author. Interested readers may obtain a copy of the survey from the corresponding author.

The Human Subjects Review Committee of the Universitat Rovira i Virgili approved all study procedures.

### *Participants*

The participants were recruited with the support of an agency specializing in market research with wide experience in the health care field.

Potential participants were selected from a representative sample of GP and P working in primary care who had shown an interest in responding to specialized surveys (N=841). Of those who were interested in responding to specialized surveys, only those with experience in the management of children and adolescents with chronic pain in Spain were invited (N=705). In this study, only those health care specialists that were currently working or had worked with this population were defined as experienced. Potential participants received an email with explanations about the study and a link to the survey. At the time, all of the participants were currently working in the management of children and adolescents with chronic pain in Spain. Although 254 (36%) of those invited responded to some of the questions in the survey, just 191 (27%) responded to them all. Only the responses from those who completed the survey have been included in the analysis. There were no differences between those that participated and those that did not, in terms of age, sex or number of years of experience.

Insert Figure 1 about here

### *Data analysis*

We used absolute (n) and relative (%) frequencies to describe participants' responses. The Chi square test was used to compare general practitioners (GP) with pediatricians (P). The statistical analysis was performed using the SPSS statistics package, version 23.0 (SPSS, Chicago, Illinois, USA).

## RESULTS

One hundred and ninety-one experts (75 GP and 116 P) responded to all the questions in the survey. Most of them were men (53%), with wide experience in the treatment of young people with chronic pain (mean number of years treating young people with chronic pain = 21; SD = 8). See Tables 1-4 for detailed information on the percentages and differences between GP and P.

### Pain education

Despite having experience in the assessment and treatment of children with chronic pain, half of the participating GP and P reported that they had not been given any specific education or training on the management of pediatric chronic pain during their university studies. Interestingly, most participants were given specific training on the management of pediatric chronic pain from professional courses and postgraduate training.

Most participants acknowledged important gaps in their training on the management of young people with chronic pain, and stated that they would be interested in improving. Participants were most interested in being trained on treatment (pharmacological and non-pharmacological). Most participants considered that online training would be the most practical channel. Table 1 provides additional information on the education and training received.

Insert Table 1 about here

### *Organizational issues*

Only 6% of GP and 24% of P were members of a multidisciplinary team addressing the needs of young people with chronic pain. Table 2 provides all the information available about which specialists were part of the multidisciplinary teams. Most respondents reported that there was no appropriate coordination between primary care and specialized care.

Almost all participants stated that children and adolescents required specific treatment and organizational arrangements, which were not properly provided for in their organization where the survey took place. For the most part, they wanted to have more time with both the child with chronic pain and the parents. Generally speaking, GP and P agreed on what they perceived as the most important barriers to providing the best treatment possible: namely, having little time for each patient, the lack of specific training on how to handle this chronic pain population and the inadequate coordination with other professionals (see Table 2).

Insert Table 2 about here

*Current practices in the assessment and management of young people with chronic pain*

Most, but not all, participants assessed pain intensity when attending children with chronic pain. The most important reasons for not doing so included the lack of time to complete a full evaluation and the absence of an assessment protocol at the primary care center (see Table 3). When assessing children with chronic pain, the domains most frequently assessed were: pain intensity, the side effects of treatment, the physical, emotional and social function of the child, and the overall satisfaction with treatment.



Although most GP and P reported that chronic pain management protocols were necessary, only a few reported that they usually used a specific protocol when treating children and adolescents with chronic pain. The main reasons for not using specific protocols were as follows: they did not have one and did not know where to find one, a perceived lack of their usefulness in clinical practice, and the lack of time to implement them (see Table 3).

Insert Table 3 about here

*Key issues in the current and future management of young people with chronic pain in Spain*

Interestingly, participants perceived that awareness of pediatric pain is inadequate in the scientific community, while they also perceived that this is an interesting field to be explored by professionals. They also thought that the assessment of this population was challenging, that the training provided was insufficient, and that health care professionals could be (inadvertently) contributing to the chronification of the problem by not being able to provide adequate treatment. As perceived by this group of professionals, two potential barriers to better treatment of young people with chronic pain in Spain were the following: (1) the *translation* of research findings to clinical practice and (2) the transition of patients from pediatric programs to adult pain units. Table 4 summarizes this information.

Insert Table 4 about here

## **DISCUSSION**

One of the key findings from this study is that a substantial proportion of the participants (about 50%) reported that they had been given no specific training on the management of pediatric chronic pain during their university studies. In addition, more than 80% of participants stated that they currently had

gaps in their knowledge about the treatment of young people with chronic pain. In fact, current practices, as they described them, have some important deficits (e.g., they do not regularly assess important areas for the treatment of young people with chronic pain, like emotional or social function). Importantly, participants also identified the lack of adequate training as one of the main barriers to providing the best treatment possible. Thus, it is not surprising that most participants showed an interest in improving their training on pediatric chronic pain management. This finding is in line with international reports (23,30,31,34–36), in which pain education is regarded as key to improving pain relief (32). Therefore, improving specific training on pediatric chronic pain management seems to be mandatory if the care of children and adolescents with chronic pain is to be improved, as insufficient professional qualification, knowledge deficits, and incorrect or outdated beliefs may lead to suboptimal pain management and increase the risk of additional problems (20–22,37,38).

Treatment, both pharmacological and non-pharmacological, was the area that was identified by the highest percentage of participants as needing improvement. Various studies about the use of analgesics suggest that healthcare professionals may frequently undertreat their patients, leading to inadequate pain relief (24,25,39–41). As a result, specific ongoing education is needed on the efficacy, safety and pharmacokinetic parameters of analgesics in infants, children, and adolescents. Participants in this study preferred to improve their training with online education. However, it is unclear if this would be the most appropriate method. Research has shown that interprofessional education is the best way to provide the training needed to improve pain care (42–45). A recent study by Miró and colleagues (32) showed that there is no

such program implemented in the undergraduate curriculum of future health care professionals in Spain. Nevertheless, studies are needed to clarify what the best educational options are.

Another key finding is that to improve health care organization most participants suggested that it would be necessary to increase the time spent not only with patients but also with their parents. The parent's role in the context of pediatric chronic pain is critical (46). That is to say, it is important that parents understand chronic pain, and its potential causes and consequences to enhance caregiver support. Current approaches to the treatment of young people with chronic pain require the cooperation of parents or other significant adults (47–50).

One other important finding of this study is that very few of the participants were members of a multidisciplinary team for the management of pediatric chronic pain. Participants also reported that coordination between primary care and specialized care was inadequate. Research has demonstrated that the best treatment option for young people with chronic pain is a multidisciplinary/interdisciplinary program (51,52). Generally speaking, these programs are provided in specialized units(53–55), but there are very few of these in Spain (27). Therefore, the development of new specialized programs/units and better coordination between primary care professionals and these highly specialized resources could help improve pediatric chronic pain management in Spain.

Finally, most participants reported that they regularly assessed chronic pain in children, and almost all of them (96%) stated that treatment protocols were necessary. However, very few of them reported that they regularly use a

specific treatment protocol. Thus, another potential avenue for improving care for these children and their families would be to develop and implement protocols to help in guiding the assessment and the management of children and adolescents suffering from chronic pain. The responses given in this survey indicate that, although questionnaires providing valid and reliable reports are available for use with Spanish-speaking young people (56–59), they are not widely used. This might be a consequence of the lack of training and/or the inadequate transfer of research developments into clinical practice. Both of these factors have been identified as key barriers in the management of young people with chronic pain (60,61).

In this study, GP and P did not respond too differently, which shows that children and adolescents with chronic pain in Spain are managed in very similar ways despite the differences in the training given to these two types of health care professionals.

This study is not exempt from limitations. First, the sample size could be considered somewhat small ( $n=191$ ). However, it is very similar to samples used in other studies with somewhat comparable objectives [62,63]. Second, although the sample of participants was representative, it is unclear how representative these results are of all health-related regions in Spain. Thus, additional research is warranted to validate these findings. Third, although general practitioners and pediatricians are key professionals in the treatment of young people with chronic pain in primary care in Spain, other professionals who also have a key role have not participated in this study. Thus, future research should examine the contributions and perceptions of these other professionals (e.g., nurses, physiotherapists, psychologists).

Regardless of these limitations, this study provides unique and important information that gives greater insight into current practices in the treatment of children and adolescents with chronic pain in Spain. The data from this study also gives important clues on how to improve the treatment of this population. Furthermore, this information can now be used by policy makers concerned with improving the care given to children and adolescents suffering from chronic pain and their families.

### **Transparency section**

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*Author contributions:* All authors were involved in the conception and design of the study. JM drafted a first version of the paper, and all authors revised subsequent versions of the manuscript. All authors approved the final version of the paper and agree to be accountable for all aspects of the work.

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**Figure legend.**

Figure 1. Flowchart describing participant inclusion

ACCEPTED MANUSCRIPT