

## Original Reports

# Pediatrician Explanations of Pediatric Pain in Clinical Settings: A Delicate Craft

Abbie Jordan,<sup>\*†</sup> Myfanwy Williams,<sup>\*</sup> Abigail Jones,<sup>\*</sup>†, Melanie Noel,<sup>‡,§</sup> Alexandra Neville,<sup>¶</sup> Jacqueline Clinch,<sup>||,\*\*,††</sup> Tamar Pincus,<sup>‡‡</sup> Jeremy Gauntlett-Gilbert,<sup>††,§§</sup> and Hayley Leake<sup>¶¶</sup>

<sup>\*</sup>Department of Psychology, University of Bath, Bath, UK, <sup>†</sup>Centre for Pain Research, University of Bath, Bath, UK, <sup>‡</sup>Department of Psychology, University of Calgary, Calgary, Canada, <sup>§</sup>Alberta Children's Hospital Research Institute, Calgary, Canada, <sup>¶</sup>Department of Anesthesiology, Perioperative, and Pain Medicine, Stanford University School of Medicine, Palo Alto, California, <sup>||</sup>Bristol Medical School, University of Bristol, UK, <sup>\*\*</sup>Bristol Royal Children's Hospital, University of Bristol, Bristol, UK, <sup>††</sup>Bath Centre for Pain Services, Royal United Hospitals Bath, Bath, UK, <sup>‡‡</sup>Department of Psychology, Royal Holloway, University of London, UK, <sup>§§</sup>Centre for Health and Clinical Research, University of the West of England Bristol, Bristol, UK, <sup>¶¶</sup>IIMPACT in Health, University of South Australia, Adelaide, Australia

**Abstract:** Explaining chronic pain to children and families can be challenging, particularly in the absence of an obvious physiologically identifiable cause for the child's pain. In addition to medical intervention, children and families may expect clinicians to provide clarity around the cause of pain. Such explanations are often provided by clinicians who have not received formal pain training. This qualitative study sought to explore the following question: What do pediatricians consider to be important when providing pain explanations to children and their parents? Using semistructured interview methods, 16 UK pediatricians were interviewed regarding their perceptions of explaining chronic pain to children and families in clinical settings. Data were analyzed using inductive reflexive thematic analysis. Analyses generated 3 themes: 1) timing of the explanation, 2) casting a wider net, and 3) tailoring of the narrative. Study findings demonstrated the need for pediatricians to skilfully interpret where children and families are in their pain journey and deliver an appropriate and adaptable explanation relating to individual needs. Analyses identified the importance of providing a pain explanation that could be repeated and understood by others outside the consultation room, to enable children and families to accept the explanation.

**Perspective:** Study findings identify the importance of language in addition to familial and broader factors that may influence the provision and adoption of chronic pain explanations provided by pediatricians to children and families. Improving pain explanation provision may influence treatment engagement for children and their parents, subsequently impacting pain related outcomes.

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**Key words:** Explanations, pediatric pain, clinicians, children, communication.

Received October 12, 2022; Revised February 26, 2023; Accepted March 4, 2023.

This work was supported by charitable funding from the Royal United Hospitals Bath NHS Foundation Trust (no specific grant number).

The authors report no conflicts of interest to declare.

Address reprint requests to Abbie Jordan, PhD, Department of Psychology, University of Bath, Claverton Down, Bath BA2 7AY, UK. E-mail: [a.i.jordan@bath.ac.uk](mailto:a.i.jordan@bath.ac.uk)

1526-5900/\$36.00

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<https://doi.org/10.1016/j.jpain.2023.03.002>

Pain is a common experience in childhood, with chronic intermittent or persistent pain occurring in up to 38% of 5 to 18 year olds.<sup>24</sup> A sizeable number of those children report impairments in social, emotional, cognitive, developmental, and physical functioning.<sup>8,22,38,42</sup>

Whilst chronic pain can occur as a primary condition or as a symptom of other long-term conditions, there is often no clear pathological cause of pain. Until the recent adoption of "chronic primary pain" diagnoses into ICD-11, few valid diagnostic labels existed.<sup>33</sup> Pediatricians infrequently agree on the cause of a young person's pain. Notably,

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Konijnenberg et al<sup>26</sup> identified that only 43% of pediatricians were able to agree about the primary cause of pain in a group of 134 young people (8–18 years) that were referred to an outpatient clinic as a result of pain. This lack of clarity can create a sense of uncertainty for children, parents, and clinicians.<sup>31,32</sup> There is a nuance and delicate craft to pediatricians providing explanations that are positively received and ultimately helpful to the child and family.

Central to managing uncertainty surrounding chronic pain is the desire for an explanation for the cause of the pain. Without an accepted explanation, many children with chronic primary pain and their parents and caregivers (hereon referred to as parents) report challenges with understanding their condition and engaging with treatment.<sup>31,32,36</sup> Improving one's understanding of aspects of pain, such as the underlying biology, is associated with improved function and reduced pain frequency for individuals living with chronic pain.<sup>44</sup>

Adults and children report incidents of the reality of their pain being challenged,<sup>12,43</sup> and that some clinicians regard chronic pain as less valid when not accompanied by an identifiable medical cause.<sup>12</sup> Of particular importance is the language which clinicians use to explain the nature and cause of pain to children and families. Coakley & Schechter<sup>11</sup> provide a helpful overview of different metaphors used by clinicians to describe pain (eg, alarm system), but do not include wider exploration of how these metaphors are delivered. Recent studies have explored the use of metaphors in the context of pain; however those studies are adult-focused and lack consideration of the developmental needs of children.<sup>6,30</sup> Missing from the literature is a consideration of how pain is explained to children and families, and the context in which these explanations are provided and understood by individuals.

Addressing an important knowledge gap, this study sought to understand how clinicians explain chronic pain to children and families, and which factors influence how and when these explanations are provided. Developing an understanding of pediatric pain explanations will provide important knowledge around which elements of the pain concept are being addressed in clinical appointments, and where gaps exist for improvement. It is imperative to understand the experiences of pediatricians since they are often the first clinicians whom children and parents contact regarding their experience of chronic pain. Despite being an important point of contact for children and parents, pediatricians typically do not receive specific training providing chronic pain explanations.<sup>21</sup> Thus, this study aimed to answer: What do pediatricians consider to be important when providing pain explanations to children and their parents?

## Methods

### Study Design

This study comprises a secondary analysis of data from an earlier published paper by the authors<sup>32</sup> which

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addressed pediatricians' experiences and perceptions of diagnostic uncertainty in the context of treating children and young people with chronic pain. Whilst interview data in the Neville et al<sup>32</sup> study explored a variety of topics pertaining to pediatricians' experiences and perceptions of diagnostic uncertainty, only data that specifically addressed this original research question were analyzed in that original study. Consequently, data generated from the original interviews about pain explanations did not meet the scope of the original study and is instead analyzed in this secondary analysis study. Such an approach is congruent with the methodological literature which describes how qualitative secondary analyses enable researchers to answer novel or further research questions beyond those addressed in the original study.<sup>18,20</sup> For further information about the original study please refer to Neville et al.<sup>32</sup>

### Participants

Individual semistructured telephone interviews were conducted by the first author with 16 pediatricians who work with children experiencing chronic pain. Participants were recruited from the United Kingdom via established networks and healthcare organizations. All participants who expressed an interest in learning more about the study and provided informed consent, took part in the study. Pediatricians were eligible for inclusion in the study if they had experience assessing and/or treating children (0–18 years) who experience chronic pain in a UK-based healthcare setting. Participants were excluded if they had not treated a child whose pain experiences lasted for more than 3 months (ie, chronic pain), and/or were unable to speak English fluently. There was no requirement for pediatricians to have specific pain training. Pediatricians, rather than pediatric pain specialists, were selectively sampled as they are more likely to interact with patients earlier in their pain journeys than clinicians who work in tertiary-level pediatric chronic pain settings. Some of our sample had further subspecialties, and these pediatricians were included because children with pain can enter services for a range of reasons and therefore encounter a variety of differently trained pediatricians.

This study used the full sample of 16 pediatricians as described in the original study.<sup>32</sup> Recruitment of the sample in the original study was informed by various study characteristics such as the nature of the study aims, researcher qualitative expertise and data quality and richness.<sup>41</sup> Consequently, a small sample of pediatricians (n = 16) was selected since the data was deemed to be rich, the study aims narrow and the authors held extensive expertise in the use and application of qualitative methods (including reflexive thematic analysis as also used in this secondary analysis study). This sample size is congruent with other studies which have adopted a similar analytical approach (eg, <sup>19,23</sup>).

## Procedure

Study procedures were approved by the Psychology Research Ethics Committee at the University of Bath. The first author circulated invitations to participate in the study via professional pediatric networks. As a recruitment strategy, snowballing was adopted by encouraging participants to discuss the study invitation with relevant colleagues. Participants were screened for eligibility by the first author who also briefed participants on study procedures and obtained verbal informed consent. Following completion of an online consent form and demographic questionnaire hosted on Qualtrics online survey software,<sup>37</sup> participants were interviewed via the telephone. Interviews ranged from 18 to 45 minutes (mean duration = 29 minutes), were audio-recorded and transcribed verbatim. To ensure participant anonymity, all identifying information was removed. Additionally, participant names were replaced with participant numbers. A £20 Amazon voucher was provided to compensate participants for their time.

## Measures

### Demographic Characteristics

Demographic data were collected regarding pediatricians' reported gender identity, job title, medical specialty, years of experience, and current clinical setting. In brief, 13 participants identified as female (3 male) and qualified with a range of 15 to 28 years' experience (Mean 20.19 years, SD 4.45 years). Pediatricians originated from a variety of clinical specialties including rheumatology, epilepsy, and general pediatrics. All pediatricians self-reported having treated a child or young person (0–18 years) with pain which lasted 3 months or longer (chronic pain).

### Interview Schedule

The semi-structured interview schedule comprised open-ended questions and prompts to facilitate the interviewer to expand on topics of interest.<sup>28</sup> Interview schedule questions focused on pediatricians' beliefs and confidence when delivering chronic pain diagnoses and explanations to children and their families. Following an inductive approach, a total of 16 full interview transcripts were analyzed, comprising the same data set as used in the original study.<sup>32</sup> Analyses in this study deliberately focused on analyzing all interview data provided by the 16 participant responses across all interview questions since pain explanations were discussed by participants in response to a variety of different interview questions. Importantly, all 16 participants provided data which addressed the topic of pain explanations. Analyzing a wider range of potentially eligible data was a deliberate strategy to facilitate collection of the richest and most comprehensive data around pain explanations. The full interview schedule can be found in [Table 1](#).

**Table 1. Semistructured Interview Schedule**

QUESTION NUMBER	QUESTIONS AND PROMPTS
1	Can you tell us a bit about any training you have received about treating individuals with chronic pain? Prompts: a. What about pediatric pain specifically?
2	Can you please tell us about your experiences of treating children with chronic pain? Prompts: a. What kinds of patients have you treated? b. Can you walk us through the process of seeing a child with chronic pain and providing a diagnosis? c. How have these patients and their families managed the diagnosis and treatment?
3	Can you please tell us about what happens once a child with pain arrives in your clinic at an initial assessment appointment? Prompts: a. Can you tell us about any referrals that you might make at this point? b. Can you tell us about any tests that you might administer?
4	How do you sit with uncertainty regarding diagnosing children with idiopathic chronic pain? Prompts: a. What is it like to diagnose a child with chronic pain in the absence of a test result? b. How does this experience fit with your training and understanding of what it means to be a physician?
5	How do you explain chronic pain to paediatric patients and their parents? Prompts: a. Why do you choose to explain pain in that matter?
6	What happens when you provide a diagnosis and it is not believed or accepted by children and/or parents? Prompts: a. How do you negotiate the "disagreement"?
7	Is there anything else that we have not talked about that you think is important for us to understand about clinician uncertainty in paediatric chronic pain?

### Data Analyses

Data analysis was conducted using QSR International's NVivo 12 software.<sup>34</sup> An inductive approach to reflexive thematic analysis was selected for analyzing data generated in this study.<sup>1,3,4</sup> This analytical approach was chosen for its recognition of the importance of participant experiences and the reflexive role of the researcher within the analytical process.<sup>2</sup> For the researcher, reflexivity means reflecting critically on their role as a

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researcher, their research practice and the process of the research.<sup>3</sup> This sense of continual critical reflection is a critical element of conducting the analyses and the write up of results, acknowledging how unique researcher beliefs, practices and perceptions may impact analysis and interpretation of the data. Specifically, inductive reflexive thematic analysis adopts a "bottom-up" approach to analysis, enabling identification of patterns in the data and attributing themes as meaning-based patterns.<sup>1,3,4</sup> Analysis followed the approach detailed by Braun and Clarke<sup>2</sup> which emphasizes the researcher's subjectivity and reflexive engagement with data, theory, and interpretation. Specifically, analysis followed the 6-stage approach described by Braun & Clarke<sup>2</sup> comprising: 1) data familiarization and notetaking; 2) systematic data coding; 3) generating themes from codes; 4) progressing and reviewing themes; 5) defining, refining, and naming themes; and 6) report writing. Epistemologically, we adopted a constructionist approach to analysis as this enabled us to consider the importance of social, cultural, and contextual factors within the analysis.<sup>17</sup> Such cultural and contextual factors are key to understanding how explanations of pain are crafted and provided to families by clinicians.

#### Quality in Qualitative Research

The quality of our analyses was assessed via the following procedures. Credibility was established through detailed ongoing discussions of developing codes and themes between the first and second author on a biweekly basis. Discussions were broadened to include the wider study team across the duration of the study further demonstrating trustworthiness in the data and analytic interpretations.<sup>14,29,39</sup> Credibility was further established through the inclusion of quotations from across the data sample within the results section, demonstrating how analyses are grounded in the data and reflect the perceptions and experiences of the participants. Additionally, evidence of dependability is provided through the clear and detailed description of the analytical process undertaken.<sup>39</sup> Finally, the researchers actively engaged with the processes of reflexivity across the duration of the study, noting their relation to the participants and data itself.<sup>5</sup> In the case of this study, data were collected by the first author, an experienced pediatric pain researcher, with no existing relationship with any of the study participants. Data were analyzed

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by MW under the supervision of the first author. Prior to undertaking the initial analyses of the data, MW had no pre-existing relationship with either the participants or the data. Collectively, the authors have backgrounds in medicine, psychology and physical therapy, with many authors having extensive years' experience of working clinically and/or conducting research with children and adolescents who live with chronic pain. By contrast, MW was a novice to pediatric chronic pain research, receiving supervision from the first author as part of their Master's degree.

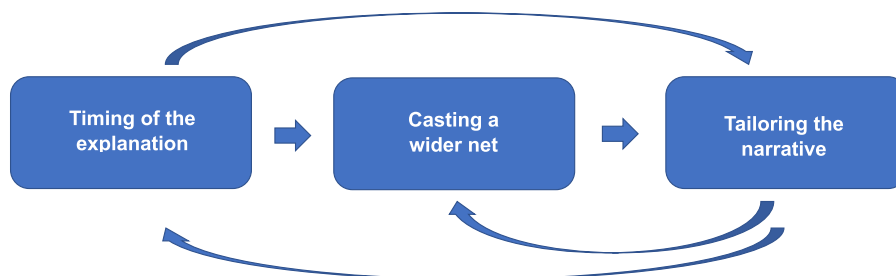
#### Results

An inductive reflexive thematic analysis of the data generated 3 themes, each of which represent pediatricians' experiences of factors required to provide chronic pain explanations to children and families. Together, these themes describe and exemplify the importance of developing a shared clinical and familial narrative regarding pain explanations, and importantly, the active role of the pediatricians in achieving this. Each of the 3 themes captures a different aspect of how pediatricians create this shared narrative and are titled: 1) timing of the explanation; 2) casting a wider net; and 3) tailoring of the narrative. Themes are described below in turn. Anonymized quotations are provided which evidence how the analysis is grounded in the data. Fig 1 provides an overview of the themes and the relationship between the 3 themes.

#### Timing of the Explanation

Of paramount importance to the development of a shared agreement concerning the pain explanation was the timing of when the explanation was provided to children and families by the pediatrician. Pediatricians perceived that timing was one of a number of factors that determined the degree to which the pain explanation was heard, understood and deemed credible by the child and their family. Specifically, pediatricians discussed a sequential approach to providing an explanation for the child's pain, focusing first on the importance of validating the child's pain.

*"I mean, acknowledging the pain I think is a really important factor. So, I think really early on I would always confirm with the family that I completely*



**Figure 1.** Thematic representation of processes involved in pediatricians' experiences of providing pain explanations to children and families.

*acknowledge the pain is real and the pain is experienced by the child.” (Pediatrician 3)*

As illustrated in the above quotation, validation was perceived by the pediatrician as critical for enabling the child and parent to develop trust and view them as a credible individual in their pain journey. Therefore, such validation was required as the first stage of providing an accepted and agreed pain explanation. Pediatricians identified listening as a key component of validating the child's and parents' experiences. Such listening included descriptions of previous clinical encounters in which children and parents felt that their child's pain was not deemed to be real or credible in clinical contexts. This initial validation was pivotal in building the foundation for a trusting relationship between the child, their parents, and the pediatrician. Additionally, clinician validation of the child's pain served to provide a foundation on which a pain explanation could later be built. Only once the reality of the pain and its impact on the child's life had been explicitly recognized, could the pediatrician move forward in beginning to offer an explanation for the child's pain.

*“Acknowledging that they're [the child] suffering and acknowledging that we know that they're in pain and acknowledging that life is unfair and that they're having to cope with all the pressures that all their friends are coping with but actually you've got to cope with managing this pain on top. The moment you say that...their whole demeanour changes and they feel they can engage. I think often they feel it's been a battle up until now.” (Pediatrician 12)*

Establishing trust with children and parents was described as a precarious process, requiring completion of small incremental steps over time. Pediatricians were mindful of maximizing their credibility with children and parents, achieving this through tasks such as listening and responding to personal circumstances in a supportive manner. An important element of this process involved pediatricians offering practical solutions and suggesting goals which held personal value to the child and their parents. For example,

*“We've got to look at this pain in a real, practical sense now and see just how can we get around it to keep you doing the things that you do normally, because if you don't go to school and you don't see your friends, then everything will get worse.” (Pediatrician 7)*

The above quotations provide examples of ways in which pediatricians may work towards aligning children and parents in their willingness to receive a pain explanation.

As part of this sequential approach to providing pain explanations, pediatricians described the necessity of repeating particular information regarding the nature of the pain, particularly with respect to validation of the child's pain. This process of repeating information

was perceived by pediatricians to provide opportunities for children and their parents to test and query the information provided. Engaging in a process of "testing" the pain explanation over time, was considered by clinicians to be a method that enabled children and parents to reformulate their beliefs about the cause of the child's pain, and ultimately to acknowledge the provided pain explanation as legitimate. This is exemplified below by pediatrician 2 who describes their awareness of the need to repeat information over multiple instances to enable "buy in" of the pain explanation by children and parents.

*“It takes time, you have to keep repeating the same thing, so you [child and parents] have to hear it 9 times before you like buy into it. And that's why it's helpful having a set patter [wording for the pain explanation], because...you're saying the same thing again and again. And so, I'm aware I give them a very long appointment for the first, well it's an hour, to go over everything, and then I give them my email address, and often there'll be email exchange for the first week. Again, they're just sussing out, checking out, googling, doing different things, and then coming back and just getting your take on stuff”. (Pediatrician 2)*

Additionally, this sense of "planting a seed" of information at an early point in the clinical encounter for the pediatrician to deliberately return to it later in the process of providing a pain explanation highlights the complexity of the stage-like approach involved in providing a pain explanation.

*“For most instances...I've usually introduced this idea of there being pain with no physical cause quite early on, so then it's always been kind of accepted when you kind of come back to it later.” (Pediatrician 5)*

Taken together, this theme demonstrates that timing is a critical element of ensuring everyone is on the same metaphorical page regarding a credible pain explanation and establishing a trusting relationship between pediatricians, children, and parents.

### **Casting a Wider Net**

Whilst interactions between pediatricians, children, and parents are critical to providing "acceptable" pain explanations, pediatricians acknowledged potential difficulties due to possible differences in perceptions around pain and its explanation between family members. To ensure acceptance of the pain explanation, pediatricians emphasized the importance of providing a convincing explanation for the child's pain to all family members, focusing on unifying their understanding of the child's pain and subsequent management:

*“And talk about how the whole family needs to be looking at it from the same point of view, otherwise it's very difficult if father doesn't support and the*

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*mother's struggling on her own, it becomes very difficult." (Pediatrician 1)*

Differing perspectives about the cause of the child's pain from multiple authority figures was perceived as a potential barrier to the child accepting the pain explanation. Critical to recognition of the pain explanation as credible was the need for pediatricians to communicate with the designated "medical authority" within the child's family. Such an authority was unique to each family and sometimes this nominated figure did not attend the clinic appointments.

*"Sometimes it's because you haven't got the right people in the room, so if you've just got the mum in the room with the child, it may be that you need to invite the dad or the gran or the wider family, whoever it is determining sickness behaviour and sickness understanding, you know in your own family there'll be somebody who you've learnt sickness behaviour from, and in the first appointment you don't always have the right people in the room. So, it's sort of exploring that." (Pediatrician 2)*

As described above by pediatrician 2, without the presence and support of this nominated authority figure, the pain explanation provided was not deemed to be credible within the child's family. This identifies the need for pediatricians to explore the beliefs and attitudes of the child's wider family beyond the individuals present in the clinic appointment. Furthermore, pediatricians perceived that children and parents valued an "accepted" pain explanation because they could themselves deliver it to friends and family as a justification for changes in the child's behavior or engagement with usual activities. Pediatricians perceived the importance of the existence of a simple, credible yet repeatable explanation to help to destigmatize the experience of chronic pain within the child's wider social circle. Importantly, pediatricians demonstrated an awareness of the need for this replicable explanation which could be shared with others beyond the child's immediate family.

*"Most people seem to feel gratified when they have a story they can tell people, and I think it's not so much about the family's understanding, because often they kind of know what caused the pain in the first place, but I think it's about explaining to other people what's wrong with your child when they're not going to school, they're not going to football anymore, they're no longer out playing in the street, whatever it may be that they're not doing anymore, having a narrative around that seems to really matter to family." (Pediatrician 11)*

Pediatricians perceived that pain explanations often enabled parents to help other people make sense of their child's ability to function in the context of living with persistent pain. Whilst the above quotation suggests that whilst individuals may be aware of the

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distinct injury which caused short term pain, they still desire a narrative to explain how this particular pain transitioned into chronic pain, highlighting the importance of perceived credibility of the pain within a wider social context.

**Tailoring the Narrative**

Addressing a different influence on the acceptability of pain explanations, this theme focuses on the importance of "tailoring" the provided pain explanation to meet the particular needs of children and parents at specific time points in their pain journey. For example, pediatricians demonstrated their awareness of the need to provide different explanations according to the child and parent's behavior and wellbeing at a certain time point, acknowledging the need to alter the intended explanation if the child experienced distress. As demonstrated below, tailoring of explanations even occurred midexplanation if pediatricians perceived that children and/or parents were struggling to "buy-in" to the explanation.

*"So, if they're [child] sobbing, I'll then go down that concept of trying to explore it a bit more. If they become defensive in their posture, I might think of a different way to frame it [explanation for the pain] to them so that then you get buy-in. And there needs to be buy-in mainly for the adults, to be quite honest, although the young person will need to buy in." (Pediatrician 4)*

Another way that pediatricians "tailored" their pain explanation was by deliberately selecting language to best provide a meaningful explanation of the pain to the child and parents in that particular clinic appointment. In many instances, this involved using terms such as "pain signals" (pediatrician 10) in explanations aimed at facilitating a conceptual shift from acute to chronic pain. This is exemplified by pediatrician 9 who used a gate metaphor to explain pain as described below.

*"I do talk about the gates being left open from the nerves, which I think is quite a common one that I've heard other people use as well in terms of there's still a message going from something that may have been hurt or something that may have been irritated back to your brain." (Pediatrician 9)*

Importantly, as part of this shift from acute to chronic pain, pediatricians demonstrated a skill in subtly shifting the focus of the pain explanation from something biological and "broken" (eg, tooth causing pain) to a focus on the brain, something which can be influenced by a wider set of influences outside of purely biological factors (eg, psychological factors). This is illustrated by Pediatrician 15 below:

*"The difference between acute pain, like a toothache for example, and the chronic pain... the pain signals are not the problem anymore it's your pain*



*experience of how your brain processes those pain signals and amplifies them.” (Pediatrician 15)*

With a particular focus on language, pediatricians selected and used familiar metaphors as educational tools to explain pain to children and families. For example, Pediatrician 4 used a metaphor associated with visiting a theme park to normalize the experience of chronic pain and prevent the child and their family from feeling ostracized.

*“So, I talk about me queuing for a ride in (name of well-known theme park) and feeling really sick and having to run away and vomit in the corner, or not. And once you get them hooked into that concept and they understand that there are things that are not organic that would cause you to feel sick or be sick, then actually then I’d use that then to kind of explore that a bit more with them and then talk about pain being part of that.” (Pediatrician 4).*

In the above instance, the pediatrician used a commonly understood biological function (anticipatory nausea) to normalize chronic pain and explain that pain is not always “organic” or a result of a physical stimulus. The function of this metaphor is to validate the reality of the pain without an attributable physical source, and to enable a conversation about how anxiety can be a maintaining factor. In this way, metaphors are used to create a base understanding that helps to bridge the gap from intuitive knowledge of pain from lived experiences of acute pain, towards a wider understanding of the biopsychosocial nature of chronic pain and associated treatment approaches.

Tailoring of metaphors by pediatricians inherently acknowledged the lack of a “one-size-fits-all” approach to providing accepted explanations of pain to children and parents, acknowledging that pain can be a puzzle that needs “working out” (Pediatrician 14). In particular, accurately tailoring pain explanations to the needs of the individual child and their family was seen as both clinically skillful and necessary for engagement with the provided explanation for pain.

*“I have to explore what the family’s perception is of their child’s pain. Some of them are very open to it being not a medical problem but still having symptoms and working out how they are going to manage that. And some are less so.” (Pediatrician 6)*

In addition to linking pain explanations to universally age-appropriate experiences (eg, rollercoasters), pediatricians also tailored metaphors to the sporting and leisure interests of the individual child. For example, one pediatrician selected a football-related metaphor to explain pain to a football-loving child. This highlights the importance of connecting the explanation of the experience of pain to something that was a salient and important part of that child’s life.

*“if it’s a boy who plays football, you say, well, you’re playing a football match and you hurt yourself, someone kicks you, then you’ll still play the match and you don’t feel it because you’re so involved in playing the match. And that doesn’t mean that someone hasn’t harmed you, you only feel the pain afterwards. So, pain is something that you might not feel in a certain situation or you might feel more in another situation, depending on what your brain’s doing.” (Pediatrician 8)*

Overall, metaphors were used as tools to tailor chronic pain explanations to each child by relating chronic pain to familiar scenarios. This tailoring allowed for simplification of complex biological and psychological processes so that chronic pain could be understood, validated and normalized by the child. Furthermore, tailoring metaphors to children’s interests aided in engagement in the pain explanation from children and parents. Together, different tailoring strategies were used by pediatricians to increase the likelihood that pain explanations would be understood and accepted by children and parents.

As shown in Fig 1, throughout the process of providing pain explanations, pediatricians intuitively assessed when to provide particular information and how provision of this particular information interacted with previously provided material. The themes worked as building blocks which pediatricians continuously turned to when interpreting where the children and families were in their pain journey and comprehension process. Therefore, the delivery of pain explanations was a dynamic process whereby pediatricians were not only tailoring narratives at different time points, but also interpreting when these metaphors would be best received. Furthermore, pediatricians emphasized the importance of ensuring that all family members were unified within the narrative, as without this unification buy in to the narrative will likely be limited.

## Discussion

This qualitative exploratory study examined pediatricians’ experiences of delivering pain-related explanations to children and families. The aim was to understand how pediatricians explained the underlying causes for children’s chronic pain, and the broader context in which pediatricians perceived that these explanations were provided and understood by children and families. Study findings highlight the importance of pediatricians understanding the need to first validate the child’s pain before providing a chronic pain explanation over an extended time period. Pediatricians appreciated the importance of considering other individuals in the child’s life with regard to the provision and acceptability of the pain explanations. They also emphasized the importance of tailoring the pain explanation to meet the individual needs of children and families.

Central to these themes was pediatricians’ emphasis on the need to earn children and families’ trust and to

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be perceived as credible. Pediatricians described how they developed a sense of rapport and trust with the child and family over time through validation of both the child's pain, and child and parents' associated experiences. Whilst still relatively understudied, validation of pain has been shown to be critical in terms of effective pain communication, particularly in the case of individuals with medically unexplained pain.<sup>13,40</sup> It may be an essential counterpoint to individuals' experiences of invalidation and disbelief from healthcare professionals.<sup>12</sup> Our study findings contribute to the validation literature by highlighting the important role that pediatrician validation of the child's pain may provide in terms of facilitating an accepted pain explanation over time. Understanding what makes positive patient-provider alliances is vital as such relationships are associated with better longer-term chronic pain clinical outcomes and patient satisfaction.<sup>7</sup> Only once pediatricians had established themselves as credible individuals who believed the reality of the child's pain could they engage with the delicate process of providing the building blocks of a pain explanation over an extended time period. Validation of the child's pain provided an initial foundation stone for this precarious process.

The concept of an "accepted" story of the child's pain and its origin (the pain narrative) was central to pediatricians perceiving their pain explanations as being heard and willingly received by the child, family, and wider social circle. Built over time, this narrative was deemed to be an important means to explain changes in the child's functioning and behavior, both to the child and family but also to the wider social circle who may understandably lack a plausible explanation for the child's pain and its impact on function. Narratives and stories are universally understood and accepted ways to communicate key messages and information between individuals, that transcend factors such as literacy level, education and culture.<sup>27,35</sup> Notably, Frank's work on the topic of illness narratives provides important insight into how such narratives enhance sense making in the context of living with a health condition.<sup>15</sup> Aligning our findings with the work of Frank, pediatricians perceived pain explanations (or pain narratives) to be functional in the context of sense-making of pain for children and families, enabling them to communicate pain with others in their social circle.

We found that pediatricians perceived metaphors to be a helpful way to describe pain to children and their families through linking the experience of pain to commonly shared childhood experiences. Whilst such metaphors were seemingly intuitive for pediatricians in our study, evidence suggests that use of metaphors are more effective at improving pain comprehension when compared with a standard explanation.<sup>16</sup> By situating these metaphors in individuals' lived experiences (such as football or theme parks), pediatricians perceived increased child and family engagement with explanations and normalized experiences. Acknowledgment of the benefits of using metaphors in our study is also supported by work conducted by Bullo and Hearn<sup>6</sup> where individuals described the usefulness of metaphors in

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explaining something like pain which is "inexplicable" and that lacks established and recognized analogies. Importantly, our study findings identified that the mere use of metaphors is insufficient for effective pain communication, highlighting the importance of clinician skill in providing the "right" language and metaphors to explain pain that are pertinent to the unique needs of the young person and their family.

Considering the extensive and deleterious impact of pediatric pain at an individual and societal level, increasing pain education for pediatricians may be helpful to improve the acceptability of pain explanations provided to children. Pediatricians play a pivotal role in children's pain journeys as they are often the first point of contact for children with chronic pain and their families, and they therefore influence factors such as diagnostic uncertainty.<sup>31</sup> However, surveys have found only 20% of the Swiss Society of Paediatrics were confident in treating chronic pain.<sup>9</sup> Whilst narrative reviews have recently described the importance of pediatric chronic pain education,<sup>25</sup> research studies have, to date, not yet assessed how pediatricians explain chronic pain to children and families. For children and families, having a greater understanding of the mechanisms behind chronic pain can reduce the anxiety of the unknown and facilitate behavioral change when needed.<sup>25</sup>

This study should be interpreted with consideration of its limitations. Notably this study only explored accounts from pediatricians, omitting study of the experiences of children and families with regard to their perceptions of the pain explanations provided. Consequently, little is known regarding how children and families perceived the ongoing process associated with the provision of pain explanations and the utility of the metaphors adopted by pediatricians as a means of explaining chronic pain. To address this knowledge gap, future research should examine perceptions of children, parents and pediatricians regarding the provision of pain explanations in clinical settings. Additionally, results are situated in the context of pediatricians who practice in the United Kingdom and therefore may vary with location due to training and cultural perceptions of chronic pain. Perceptions of chronic pain have been shown to vary across cultures.<sup>10</sup> Therefore, it is vital to ensure training around pain explanations meets the individual country's needs for their healthcare system and also consider the use of digital technologies in patient-clinician communications. Relatedly, it would be beneficial to conduct similar studies in countries where healthcare settings are very different (variations in pediatrician clinic size, use of private practice, referral, testing structures) to explore possible similarities and differences across settings with regard to the content and processes that pediatricians engage with when providing explanations of chronic pain to children and families. Further to the above, as the study involves secondary analysis, it is important to acknowledge that the interview guide was not developed to answer the research question in this particular study. Finally, it is important to acknowledge that the study sample may represent pediatricians who have a greater interest in



chronic pain compared to the general population of pediatricians due to the self-selection recruitment process. Consequently, it is possible that pediatricians who participated in the study are more knowledgeable about pediatric pain than pediatricians who did not take part in this study.

Addressing some of the issues described above, future work in this area should include multiple stakeholder perspectives to better understand how pain explanations are provided, understood, and accepted by children and families. Including children, families, and pediatricians in future work will enable differing perspectives in this process to be compared and contrasted. Secondly, it would be helpful for such work to adopt a longitudinal perspective, examining how the pain explanation is provided in real time over time across multiple clinical encounters. Such an approach will avoid relying on pediatricians to either recall their past experiences or hypothesize about future clinical encounters. Studying clinical encounters in real time will enable knowledge to be generated around the specific wording used to explain pain and the dialogue between children, parents, and pediatricians around these explanations.

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- Overall, findings of this research study have highlighted the complexity and fragility associated with the process of pediatricians providing pain explanations to children who live with chronic pain and their families. In brief, our findings highlighted the importance of clinician skill, timing and careful use of language with regard to providing pain explanations that can be adopted by children and families. When explanation tailoring is combined with the appropriate timing and involvement of the child's wider social circle, pediatricians perceive a greater likelihood that their pain explanation will be heard and believed by children and parents. Our findings highlight the importance of conducting further research addressing the perspectives of multiple stakeholders with regard to the process of explaining pain to children and families, and what factors may influence the delivery of pain explanations.

## Acknowledgments

We would like to thank the pediatricians who kindly took part in this study.

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