ORIGINAL ARTICLE

Communicating with children about 'everyday' pain and injury: A Delphi study

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Abstract

Background: 'Everyday' pain experiences are potentially critical in shaping our beliefs and behaviours around injury and pain. Influenced by social, cultural and environmental contexts, they form the foundation of one's understanding of pain and injury that is taken into adulthood. How to best communicate to young children about their everyday pain experiences, in order to foster adaptive beliefs and behaviours, is unknown.

Methods: In this Delphi survey, we sought expert opinion on the key messages and strategies that parents/caregivers can consider when communicating with young children (aged 2–7 years) about 'everyday' pain that is most likely to promote recovery, resilience and adaptive pain behaviours. Eighteen experts participated including specialists in paediatric pain, trauma, child development and psychology; educators and parents. The survey included three rounds.

Results: Response rate was over 88%. Two hundred fifty-three items were raised; 187 reached 'consensus' (≥80% agreement amongst experts). Key messages that the experts agreed to be 'very important' were aligned with current evidence-based understandings of pain and injury. Strategies to communicate messages included parent/caregiver role modelling, responses to child pain and discussion during and/or after a painful experience. Other key themes included promoting emotional development, empowering children to use active coping strategies and resilience building.

Conclusions: This diverse set of childhood, pain and parenting experts reached consensus on 187 items, yielding 12 key themes to consider when using everyday pain experiences to promote adaptive pain beliefs and behaviours in young children.

Significance: Parents and caregivers likely play a critical role in the development of children's fundamental beliefs and behaviours surrounding pain and injury that are carried into adulthood. Everyday pain experiences provide key opportunities to promote positive pain-related beliefs and behaviours. This Delphi survey identified key messages and strategies that caregivers can consider to optimize

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learning, encourage the development of adaptive pain behaviours and build resilience for future pain experiences.

1 | INTRODUCTION

Pain experiences are common during childhood and include 'everyday' pains (i.e. associated with minor scratches, bruises and cuts), procedural pains (e.g. vaccine injections), more significant injuries (e.g. broken bones) and chronic pain. Approximately 20% of adolescents experience chronic pain (King et al., 2011), leaving them at risk of persisting health issues and societal disadvantage (Murray et al., 2020).

Children's pain experiences can be guided by their social contexts, including parent/caregiver modelling and responses (Chambers et al., 2002), sibling and/or peer relationships, and wider social, cultural and environmental contexts. How pain is portrayed and modelled in these contexts, including behavioural reactions to pain, guides learning surrounding pain and pain behaviour, shaping the development of children's fundamental beliefs about pain, which they take with them through adolescence and adulthood.

'Everyday' pain experiences provide an optimal opportunity for young children to learn about pain and pain behaviour because they occur frequently, allowing for the development and reinforcement of learning. These experiences involve not only learning that is related to direct exposure for children, but include opportunities for learning through subsequent interactions with others in their environment (e.g. parents, educators). Young children can also learn about pain and develop empathy for pain by observing others in pain. Studies investigating 'everyday' pain experiences in pre-schoolers (under 6 years) and parental and caregiver responses to 'everyday' pains have been conducted in a number of settings (O'Sullivan et al., 2021b), including in the home (O'Sullivan et al., 2021a), in childcares (Baeyer et al., 1998; Fearon et al., 1996; Gilbert-MacLeod et al., 2000), and within a play centre (Noel et al., 2018). These studies have identified that common parent and/or caregiver responses to children's pain include reassurance and tactile comforts (i.e. hugging). Age and gender differences in both child pain behaviour and caregiver responses to that behaviour are observed (Fearon et al., 1996; Noel et al., 2018), but whether certain responses are adaptive or not is not currently understood. There remains then, a clear need to better understand how parents and caregivers can best foster the development of adaptive pain beliefs and behaviours in young children, that facilitate recovery and resilience, and protect against later development of pain problems.

The primary aim of this Delphi study was to gain expert opinion on the key messages and strategies that parents/caregivers can consider when communicating with young children (aged 2–7 years) within the context of 'everyday' pain. This age range was chosen because 'everyday' pain experiences are common during this age group, and because it is considered to be a critical age for learning and development, with high levels of brain plasticity and reorganization (Britto & Pérez-Escamilla, 2013; Marshall & Kenney, 2009). We were interested in the opinions of experts from within and outside of the paediatric pain field (e.g. child development specialists, psychologists, educators and parents). Secondary aims were to understand whether these messages and communication strategies might differ according to age and gender, whether tissue injury is evident or not, or when a child is observing another in pain.

2 | METHODS

This was a Delphi survey. Ethical approval was obtained from the University of South Australia Human Research Ethics Committee (ID:203696). The protocol for this study was lodged and locked on Open Science Framework (submitted 21/7/2021; https://osf.io/vep68). All deviations from that protocol are clearly indicated in this manuscript.

2.1 | Participants

Categories of experts were first identified to ensure that opinions from important expert groups were not overlooked (Okoli & Pawlowski, 2004). Experts sought for participation on the Delphi panel included: those from the fields of paediatric pain (including specific expertise in everyday pains and pain within this period of child development), paediatric health (i.e. doctors), psychology, education, child development, paediatric trauma, phobias, attachment theory, parents and people who regularly work with children (i.e. educators, teachers, childcare workers). A list of potential participants was then collated for each category, with most identified through research-based Internet searches, and the remaining were identified through word of mouth, or advertising on social media.

Potential participants were contacted via email, where they were given detailed information about the study and were invited to participate in the Delphi survey. A return

email stating they were willing to take part was considered as their consent to participate. To follow recommendations in the Delphi method, we aimed for a minimum of 15 participants, as per Delphi method recommendations, to ensure a comprehensive and diverse range of opinions would be included (Okoli & Pawlowski, 2004) and to allow for potential drop-outs.

2.2 | Survey procedure and data analyses

We conducted three survey rounds (Figure 1).

The Delphi survey was distributed, collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools hosted at the University of South Australia (Harris et al., 2009, 2019). Participants were first asked to complete a questionnaire about themselves, including demographic information, their professional role with children, area of expertise, whether or not they are a parent (including the age of their child[ren]) and asking for their opinion on what constitutes a 'modern' understanding of pain. The latter question was asked to determine how many participants were contributing an opinion that was based on current pain science knowledge and understanding. We considered participants to have a 'modern' understanding of pain and injury if they described pain to be a complex experience that could be influenced by multiple factors, rather than purely a symptom of tissue pathology. This question was posed to obtain a broad understanding on participants' perspectives that

they would be bringing into the Delphi survey, not to determine inclusion or exclusion.

Round 1 of the survey included six questions that were broken down into three sections. Question 1 began with an open-ended question: *In your expert opinion, what are the key messages that can be communicated to children (aged 2–7 years), within the context of a child experiencing 'everyday pain', that are most likely to encourage them to have an understanding of pain and injury that promotes recovery and resilience?* Subsequent questions prompted participants to consider aspects of age, gender, pain that is associated with and without clear tissue injury (i.e. abdominal pain, headache), strategies to communicate these messages and any considerations for when a child is observing another in pain or observing another responding to another in pain (such as a parent responding to a sibling). These questions were designed with additional prompts to allow participants to freely generate ideas whilst addressing our questions of interest. The Delphi survey questions were generated by the research team, involved several iterations and were piloted in four participants before being distributed to the final Delphi panel. See Supplementary File S1 for all survey questions.

Participants were given 2 weeks to respond to each round, with reminders being sent out twice during those 2 weeks if no response was received. A deadline of 2 weeks was chosen to be long enough for participants to attend the survey around busy schedules, but short enough to maintain participant interest and minimize study attrition
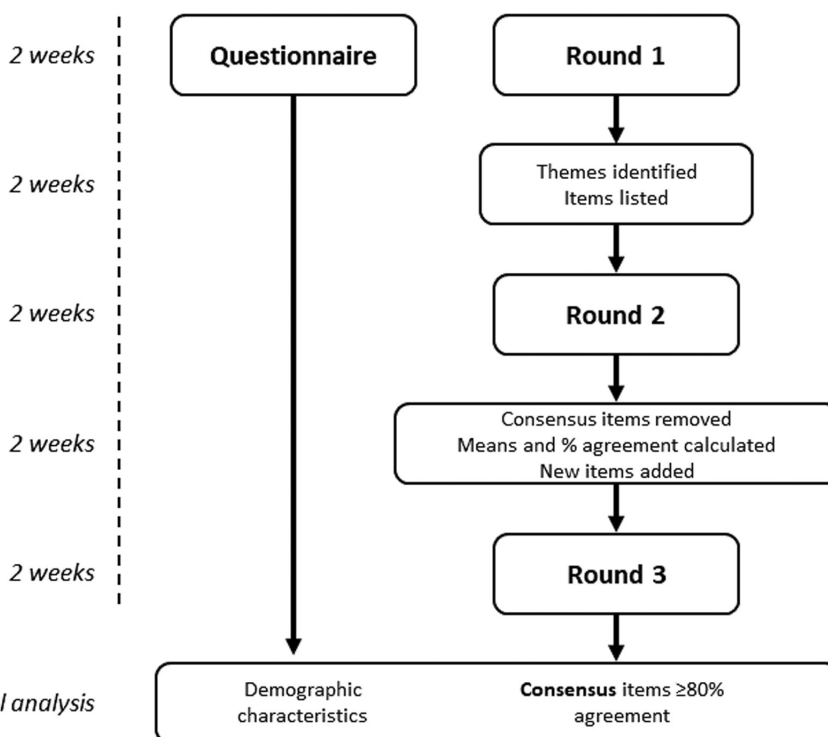

FIGURE 1 Outline of the Delphi survey procedure

(Trevelyan & Robinson, 2015). We aimed for a response rate of ≥70%.

At the completion of Round 1, all responses to open-ended questions were collated and converted into statements ('items') that were suitable for rating on a Likert scale. Where possible, the exact language was retained from participant responses to avoid any implicit researcher interpretation bias. In instances where sections of responses were not suitable for an importance rating, such as general observations, opinions or thoughts (e.g. 'my son does 'X''), these responses were removed from the analysis. Where there was repetition in statements amongst expert opinions, the 'item' with the most detail was included, or the statements were combined to form one statement. After the conversion of participants' ideas into 'items', data were continually read and re-read to gain familiarization with the data. Data 'items' were grouped according to patterns of meaning that reflected the content and meaning of participants' ideas and addressed the main research aims. This was an iterative process that was continually reviewed throughout the analysis process. If an 'item' spanned across multiple groups, it was allocated to the group that was considered most appropriate. Broad 'themes' were then identified from these patterns and named to reflect the scope and focus of that theme. This initial Round 1 analysis was conducted by the primary researcher (SBW). A second researcher (MN) reviewed 'items' for clarity, to ensure participant ideas were well represented, and that the generated 'themes' were appropriate, addressed the main research aims and reflected the patterns of ideas that were raised by the participants. Any disagreements between the two researchers were discussed, and if required, a third researcher was consulted (GLM). In Round 2, participants were sent the collective responses from Round 1 (as broken down into themes and items) and were asked to allocate a response on a 9-point Likert scale, indicating how important they believed each item to be. A 9-point Likert scale was chosen to increase reliability and discriminating power, test–test reliability and due to respondent preference (Preston & Colman, 2000). The Likert scale was grouped into three categories; each item was anchored at 1, 5 and 9 and included 'Not at all important' (1–3), 'Unsure importance' (4–6) and 'Very important' (7–9). The Likert scale was categorized to facilitate analysis and interpretation as it allowed for equal grouping of categories (three groups). During Round 2, in addition to allocating responses on the Likert scale, participants were given the opportunity to provide comments on individual items or could provide broader comments on the generated themes.

Responses from Round 2 were collated, and measures of central tendencies were calculated. Items from Round 2 that reached consensus were removed for Round 3.

Consensus on items was achieved when there was agreement on the level of importance of that item, which was pre-defined as ≥80% of respondents indicating a similar level of importance, with responses falling within one of the three pre-defined Likert categories (i.e. ≥80% of responses falling within either 1–3, 4–6 or 7–9 on the Likert scale) (Diamond et al., 2014). In Round 3, items that did not reach consensus from Round 2 were re-distributed to the Delphi panel where participants were again asked to allocate a response on the same 9-point Likert scale, indicating how important they believed each item to be. In addition, the calculated measures of central tendencies from Round 2 were presented alongside each 'item' (i.e. mean Likert response and the percentage agreement [within each 3-point Likert category]), which provided participants with information about the distribution of responses from the other panel members in Round 2. Any new items that were raised from additional comments in Round 2 were also included in this final round.

2.3 | Final analysis

Descriptive summaries and statistics were reported for participant demographic characteristics, response rates for each survey round and withdrawals. Descriptive statistics (percentage agreement) were reported for items that reached consensus in both Rounds 2 and 3 and were ranked according to the level of participant agreement on the 9-point Likert scale of importance.

3 | RESULTS

Twenty-three participants/experts volunteered to take part in the survey. After receiving Round 1 of the survey, two participants withdrew due to personal reasons, and another three withdrew because they expressed a lack of expertise on the topic. Eighteen participants took part in the Delphi survey (15 females, 3 males). All categories of experts were represented. Participants came from a range of professions and some had expertise across multiple categories: clinical and research psychology (including psychological trauma; 4 participants); paediatric pain (3 participants); developmental psychology (2 participants); preschool, middle school and high school education (5 participants); parents (17 participants); health care professionals specializing in paediatrics (physiotherapist, MDs [emergency, pain specialist, mental health, expertise in resilience]; 4 participants); child and family advisers and mental health consultants (1 participant); specialists in attachment-based interventions (1 participant). Seven countries were represented:

Australia (7 participants), New Zealand (2 participants), Canada (1 participant), United States (2 participants), South Africa (2 participants), Austria (1 participant) and the United Kingdom (3 participants). Participants had an average of 13.7 years in their professions (min 2, max 38 years). Eleven participants worked directly with children, and eight of those worked directly with children aged 7 years or younger. Seventeen participants were parents, and 10 of those had children that were aged 7 years or younger. It was considered that seven participants had a 'modern' understanding of pain (as defined above).

Seventeen participants responded to Round 1 (94% response rate), 18 participants responded to Round 2 (100% response rate) and 16 participants responded to Round 3 (89% response rate). Responses from Round 1 were collated, from which 12 themes and 235 items were raised. Themes included: 'Messages about 'everyday' pain', 'Messages specific to when pain is not associated with injury', 'Ways to communicate messages about pain', 'Parent/caregiver response to a pain experience: general ideas', 'Parent/caregiver response to a pain experience: attend to the child and validate their pain and injury', 'Parent/caregiver response to a pain experience: encourage exploring of emotions/interoception', 'Empowering children and promoting resilience', 'Tailoring communication about 'everyday' pain for different ages', 'Differences in communicating about 'everyday' pain between genders', 'Behaviour and emotion modelling when observing another in pain', 'Observing another in pain is an opportunity for empathy building' and 'When observing another in pain – help children process the experience'. In Round 2, 128 items reached consensus (≥80% of responses were in agreement) and a further 18 items were raised. In Round 3, 59 items reached consensus, making for a total of 187 items reaching consensus in the survey. See Table 1 for a summary of the top three items under each theme that reached consensus (i.e. the three items that reached the greatest consensus amongst experts), in order of agreement ranking. See Supplementary File S2 for a full list of the consensus items.

4 | DISCUSSION AND CONCLUSIONS

The primary aim of this study was to gain expert opinion on the key messages and strategies that parents/caregivers can consider when communicating with young children within the context of 'everyday' pain, to optimize recovery, resilience and adaptive pain behaviours. We gained consensus on a set of 187 key messages, classified into 12 themes, from an interdisciplinary and international panel.

Some key messages concerned an understanding of 'how pain works'. For example, the messages that 'pain is our body's warning system' (P8, paediatric MD), that there can be an 'emotional component [to pain]' (P9, early childhood educator), and that 'sometimes the way [people feel on the] inside can make pain better or worse' (P8, paediatric MD) echo current and evidence-based understanding of pain and injury (IASP, 2020). Whilst these messages appear simple, they are not well understood by the public (Turner et al., 2017); there is value in this knowledge—adults with chronic pain who shift their understanding of pain towards these types of messages have better outcomes than those who do not (Lee et al., 2016). However, research on paediatric populations is needed (Laekeman et al., 2021; Robins et al., 2016).

Other key messages concerned providing reassurance, normalizing pain and educating children that pain can be influenced by multiple factors other than tissue damage. For example, telling them they will 'feel better soon' (P12, middle school educator) provides reassurance that there is an end to their pain. This is controversial given evidence that reassuring children during acute pain *increases* their pain and distress (McMurtry et al., 2010). Communicating that '[the child] can have some control over [their pain]' (P16, paediatric trauma psychologist) and that the way they feel on the inside can influence pain, provides the message that the child's pain is adaptive and is empowering them to actively engage with their own pain management. These messages are consistent with educational target concepts for youth and adults with persistent pain (Leake et al., 2021). These messages, if delivered effectively, may lay the foundations for children to develop an understanding of pain and injury that promotes adaptive pain behaviour, active pain management, and potentially reduce the risk of developing pain problems in adolescence and adulthood.

Several experts endorsed that it was important to validate children's pain. For example, getting down to their level, acknowledging their pain, making them feel safe, heard and protected and validating what happened by talking about the event. There is growing recognition that validation of pain experiences might have several benefits, including improved psychological well-being. Edmond and Keefe (2015) discussed theoretical models that may predict patient outcomes from validation of pain-related thoughts. These included: (i) the operant conditioning model (Fordyce, 1976), wherein social reinforcement by adults can lead to the development and maintenance of negative pain behaviours; (ii) the biosocial model (Linehan, 1993) wherein when a child shares their pain-related thoughts, feelings and emotions, it helps them to feel understood and accepted, which may in turn, reduce emotional arousal, negative affect and pain

TABLE 1 The top three consensus 'items', listed under each 'theme', in order of highest consensus. See Supplementary File S2 for full list of consensus items

Theme	Item	Consensus	Percentage consensus
Messages about 'everyday pain'	There is often an emotional component to pain (e.g. fear, anger, confusion)	Very important	100
	Treating pain can help the child heal better and faster	Very important	100
	Knowledge that there is no danger	Very important	94
Messages specific to when pain is not associated with injury	Staying calm/relaxed can help manage the pain messages	Very important	94
	Sometimes emotions (i.e. anxiety) can contribute to these pains	Very important	89
	More emphasis that the child's pain is real	Very important	88
Ways to communicate messages about pain	Can be communicated within an adult's response/reaction to a child when they are experiencing pain. (That is, messages can be communicated from an adult to a child when an adult attends to a child who is in pain.)	Very important	94
	Role modelling	Very important	94
	A discussion 'in the moment' (of everyday pain) – led by trusted adult(s)	Very important	88
Parent/caregiver response to a pain experience: general ideas	Address their fears	Very important	100
	Verbal and non-verbal: it is important that the caregiver communicates calmness and competence, so the child can trust that the caregiver is in charge and knows how to keep them safe and comfort	Very important	100
	Talk out loud about what you can see and what you are doing, talk them through your first aid process so they understand what is going on	Very important	100
Parent/caregiver response to a pain experience: attend to the child and validate their pain and injury	Acknowledge their pain	Very important	100
	Let them know you are taking it seriously	Very important	100
	Make sure they feel safe, heard and protected	Very important	100
Parent/caregiver response to a pain experience: encourage exploring of emotions/interoception	Allow the child to cry and express their feelings (i.e. 'It's okay to cry when we get hurt. It's good for us to show our feelings')	Very important	94
	Allow the child to react before responding to their injury (have an awareness that children draw upon the reactions of their caregivers to help form their own reactions and will pick up on the attitudes of those around them towards their pain)	Very important	94
	It is important for caregivers to validate emotions and connect to how emotions make our bodies feel inside	Very important	94
Empowering children and promoting resilience	Teaching children that there are things they can do—giving them some autonomy over what might help them feel more comfortable	Very important	100
	They might need some help with the injury to calm down. That is totally normal	Very important	100
	Let them know there are strategies that can be used to help reduce pain	Very important	100

TABLE 1 (Continued)

Theme	Item	Consensus	Percentage consensus
Tailoring communication about 'everyday pain' for different ages	Same principles still apply of allowing any emotions to come up and be felt, heard and therefore accepted	Very important	94
	Differences based on developmental abilities and cognitive level, rather than age	Very important	93
2–3 years old (toddlers)	Simple communication during painful incident	Very important	94
4–5 years old (pre-schoolers)	Allow room/opportunity for questions coming from the child him/herself	Very important	100
5–7 years old (school children)	Parents/carers should have an awareness that sometimes there might be more complex emotions or causes of an injury such as bullying or harassment in the playground	Very important	94
Differences in communicating about 'everyday pain' between genders	It should not be between gender, but will differ between individual children	Very important	100
	Allow every child to express their pain how they choose to and not dismiss pain because of gender	Very important	100
	Their personalities dictate differences in messages and communication	Very important	94
Behaviour and emotion modelling when observing another in pain	Help the child learn/assess when adult support is needed	Very important	100
	Be cognizant of the ability of the child, even if they are very young, to learn from observing interactions/demonstrations	Very important	100
	Try not to minimize or over-dramatize the experience	Very important	100
Observing another in pain is an opportunity for empathy building	Teach children that they can help others feel better through providing kind words and physical assistance, (e.g. offering a wet paper towel for a sore knee)	Very important	100
	It is important that children see that all emotions/big feelings (like pain and being scared when hurt) can be shared and that the adults are here to help	Very important	100
	Build empathy by asking the child what they think that person is feeling? What do they think might help? How do they see that person trying to feel better? What is safe and healthy to try?	Very important	94
When observing another in pain—help children process the experience	Provide a safe space for the child to process what has happened even if they were just a bystander. Communicate openly about the pain experience being observed (if appropriate, perhaps broadcasting what is happening in calm and empathic way that the child observing can understand)	Very important	100
	Provide honesty about the situation to help them process what is happening	Very important	100
	Debrief after the event if you think the event may have been a) traumatizing b) interesting to the child	Very important	100

(Edmond & Keefe, 2015); and (iii) the interpersonal process model of intimacy (Reis & Shaver, 1988), which proposes that when partners engage in validating behaviour, it can increase intimacy and relationship satisfaction. The latter may be relevant to infant attachment-based theory (Bowlby, 1978), where pain validation from a parent may strengthen the parent–child bond. Experimental studies in adults have demonstrated that people who receive validation, versus invalidation, of a pain experience demonstrate greater positive affect (Linton et al., 2012; Vangronsveld &

Linton, 2012). Validating children's pain experiences appears intuitive and theoretically well justified, however empirical research is needed.

Many themes centred around supporting children's emotional development and empowerment. For example, allowing children to express their feelings and emotions, encouraging them to '[connect] to their body's warning signs' (P22, early childhood educator), helping them to communicate their feelings, yet also being mindful of not letting the parent or caregiver's fears and/or emotions intervene. Experts agreed that often children draw upon the reactions and emotions of their caregivers to inform their own reactions and emotions. Whilst it was agreed that it was important to allow children to express their emotions, it may also be noteworthy to consider ways in which children's emotional regulation skills can also be supported in these contexts. Observing another in pain, or observing another attending to someone in pain, was considered to create opportunities for learning through caregiver role modelling, debriefing and reflecting with a trusted adult after the event, and empathy building. It was posited that empathy could be encouraged by the caregiver through exploring how others might be feeling, discussing observed emotions or considering how they can help others. Prosocial behaviour and empathy are often encouraged by caregivers to promote social development in children, and the strategies raised align with recent evidence (Spinrad & Gal, 2018).

Empowering children and promoting resilience was another strong theme. Experts agreed that it was very important to teach children strategies to use to reduce their pain and/or attend to their injury. They considered it is important to promote active coping strategies, encourage return to their activity when they feel comfortable and allow them to be involved in treatment decision-making (facilitated as appropriate for child's age). Moreover, experts suggested opportunities for learning through discussing first aid and healing, what went well, what did not, or to highlight and reinforce an effective coping strategy with which the child had engaged.

Experts identified several strategies that they believed could effectively communicate these messages to young children. This included role modelling of the parent and/or caregiver, and through direct responses and reactions to a child's pain. These strategies are aligned with social learning theory, which posits that real-life experiences of children can directly and indirectly shape their learning, and subsequently their behaviours (Grusec & Davidov, 2010; O'Connor et al., 2013). Other strategies included having 'a discussion "in the moment [of the everyday pain experience]" [which is] led by a trusted adult' (P16, paediatric trauma psychologist); a 'discussion after the painful

[experience]' (P1, paediatric pain researcher)—which is consistent with recent research that supports adult–child reminiscing about a pain experience to improve future outcomes (Pavlova et al., 2021); use resources that employ 'visualisation (e.g. pictures, story books, short-animated video)' (P2, paediatric pain psychologist) to reinforce messaging, yet '[avoid] poor messaging with unrealistic [portrayals] of pain (cartoons, etc)' (P8, paediatric MD). The latter is consistent with recent evidence that found children's popular media to portray an unhelpful, unrealistic, gender-stereotyped depiction of pain (Mueri et al., 2021). Experts raised that it was critical for these messages to be communicated to parents and caregivers, highlighting the importance of the role that they play in communicating pain messaging to young children.

Experts believed that the messages and strategies to communicate messages needed to be tailored to the child's developmental and cognitive level, rather than age. They agreed that general principles should be maintained across the ages of 2–7, yet 'levels of abstraction would differ' (P6, developmental psychologist) and communication strategies should differ. Simple communication, adaptive modelling and more non-verbal language were recommended for younger children, and greater explanations, more detailed messages and depth of communication should increase as the child develops.

There was consensus amongst experts that messages and communication '[should not differ] between gender but differ between individual children' (P22, early childhood educator). They agreed that it 'is only societal and gender [stereotypes] that make it seem like they need different responses' (P9, early childhood educator). Indeed, Mueri et al. (2021) found that pain-related gender stereotypes were prevalent in young children's popular media, where boy characters experienced more pain instances than girl characters, yet observers were more responsive to girls when they experienced pain. Thus, strong expert recommendations to maintain gender-neutral messaging clearly contradict broader social influences, which points to the challenge and importance of pursuing such recommendations.

This study has several strengths and limitations. The nature of Delphi surveys means that our findings are the opinions of a limited number of experts. Furthermore, derivation of themes may be biased by the analysis. To counter these limitations, we sought a diverse range of relevant experts, we set a priori sample size, response rates and consensus levels consistent with the literature recommendations (Okoli & Pawlowski, 2004), and our Round 1 analysis was reviewed by two researchers with separate expertise. Overall, we achieved a high response rate (between 89 and 100%) and participant attrition. We also lodged our protocol prior to data collection, a practice

now recommended to promote transparency in reporting and reproducibility (Lee et al., 2018). Importantly, further empirical research is needed before recommendations and guidance can be definitively made.

We sought broad expert opinion on the key messages and communication strategies that parents/caregivers could consider when communicating with young children about 'everyday' pain. Expert consensus on the key messages was aligned with a modern conceptualization of pain, and strategies to communicate these messages involved strong parent/caregiver guidance. Other themes that emerged included fostering emotional development and empowering children to be active participants in recovery.

AUTHOR CONTRIBUTIONS

SBW, MN and GLM all contributed to the conception, design, analysis, interpretation, drafting and revising of the submitted manuscript.

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CONFLICTS OF INTERESTS

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REFERENCES

Baeyer, C. L., Baskerville, S., & McGrath, P. J. (1998). Everyday pain in three- to five-year-old children in day care. *Pain Research and Management*, *3*, 198043.

Bowlby, J. (1978). Attachment theory and its therapeutic implications. *Adolescent Psychiatry*, *6*, 5–33.

Britto, P. R., & Pérez-Escamilla, R. (2013). No second chances? Early critical periods in human development. *Social Science & Medicine*, *97*, 238–240.

Chambers, C. T., Craig, K. D., & Bennett, S. M. (2002). The impact of maternal behavior on children's pain experiences: An experimental analysis. *Journal of Pediatric Psychology*, *27*, 293–301.

Diamond, I. R., Grant, R. C., Feldman, B. M., Pencharz, P. B., Ling, S. C., Moore, A. M., & Wales, P. W. (2014). Defining consensus: A systematic review recommends methodologic criteria for reporting of Delphi studies. *Journal of Clinical Epidemiology*, *67*, 401–409.

Edmond, S. N., & Keefe, F. J. (2015). Validating pain communication: Current state of the science. *Pain*, *156*, 215–219.

Fearon, I., McGrath, P. J., & Achat, H. (1996). 'Booboos': The study of everyday pain among young children. *Pain*, *68*, 55–62.

Fordyce, W. E. (1976). *Behavioral methods for chronic pain and illness.* C.V. Mosby Company.

Gilbert-MacLeod, C. A., Craig, K. D., Rocha, E. M., & Mathias, M. D. (2000). Everyday pain responses in children with and without developmental delays. *Journal of Pediatric Psychology*, *25*, 301–308.

Grusec, J. E., & Davidov, M. (2010). Integrating different perspectives on socialization theory and research: a domain-specific approach. *Child Development*, *81*, 687–709.

Harris, P. A., Taylor, R., Minor, B. L., Elliott, V., Fernandez, M., O'Neal, L., McLeod, L., Delacqua, G., Delacqua, F., Kirby, J., & Duda, S. N. (2019). The REDCap consortium: Building an international community of software platform partners. *Journal of Biomedical Informatics*, *95*, 103208.

Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, *42*, 377–381.

IASP. Announces revised definition of pain. 2020. Available from: https://www.iasp-pain.org/publications/iasp-news/iasp-announces-revised-definition-of-pain/

King, S., Chambers, C. T., Huguet, A., MacNevin, R. C., McGrath, P. J., Parker, L., & MacDonald, A. J. (2011). The epidemiology of chronic pain in children and adolescents revisited: A systematic review. *Pain*, *152*, 2729–2738.

Laekeman, M., Schäfer, A., Moog, M. E., & Kuss, K. (2021). Recommendations for a pediatric pain education curriculum for physical and occupational therapists: Scoping review and survey. *Children (Basel)*, *8*(5), 390.

Leake, H. B., Moseley, G. L., Stanton, T. R., O'Hagan, E. T., & Heathcote, L. C. (2021). What do patients value learning about pain? A mixed-methods survey on the relevance of target concepts after pain science education. *Pain*, *162*, 2558–2568.

Lee, H., Lamb, S. E., Bagg, M. K., Toomey, E., Cashin, A. G., & Moseley, G. L. (2018). Reproducible and replicable pain research: A critical review. *Pain*, *159*, 1683–1689.

Lee, H., McAuley, J. H., Hübscher, M., Kamper, S. J., Traeger, A. C., & Moseley, G. L. (2016). Does changing pain-related knowledge reduce pain and improve function through changes in catastrophizing? *Pain*, *157*, 922–930.

Linehan, M. M. (1993). Cognitive-behavioural treatment of borderline personality disorder Guilford Publications.

Linton, S. J., Boersma, K., Vangronsveld, K., & Fruzzetti, A. (2012). Painfully reassuring? The effects of validation on emotions and adherence in a pain test. *European journal of pain (London, England)*, *16*, 592–599.

Marshall, P. J., & Kenney, J. W. (2009). Biological perspectives on the effects of early psychosocial experience. *Developmental Review*, *29*, 96–119.

McMurtry, M. C., Chambers, C. T., McGrath, P. J., & Asp, E. (2010). When "don't worry" communicates fear: Children's perceptions of parental reassurance and distraction during a painful medical procedure. *Pain*, *150*, 52–58.

Mueri, K., Kennedy, M., Pavlova, M., Jordan, A., Lund, T., Neville, A., Belton, J., & Noel, M. (2021). The sociocultural context of pediatric pain: an examination of the portrayal of pain in children's popular media. *Pain*, *162*, 967–975.

Murray, C. B., Groenewald, C. B., de la Vega, R., & Palermo, T. M. (2020). Long-term impact of adolescent chronic pain on young adult educational, vocational, and social outcomes. *Pain*, *161*, 439–445.

Noel, M., Chambers, C. T., Parker, J. A., Aubrey, K., Tutelman, P. R., Morrongiello, B., Moore, C., McGrath, P. J., Yanchar, N. L., & Von Baeyer, C. L. (2018). Boo-boos as the building blocks of pain expression: An observational examination of parental responses to everyday pain in toddlers. *Canadian Journal of Pain*, *2*, 74–86.

O'Connor, T. G., Matias, C., Futh, A., Tantam, G., & Scott, S. (2013). Social learning theory parenting intervention promotes attachment-based caregiving in young children: randomized clinical trial. *Journal of Clinical Child and Adolescent Psychology*, *42*, 358–370.

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: an example, design considerations and applications. *Information & Management*, *42*, 15–29.

O'Sullivan, G., McGuire, B., Roche, M., & Caes, L. (2021a). Exploring parental responses to pre-schoolers' "Everyday" pain experiences through electronic diary and ecological momentary assessment methodologies. *Frontiers in Psychology*, *12*, 741963.

O'Sullivan, G., McGuire, B. E., Roche, M., & Caes, L. (2021b). Where do children learn about pain? The role of caregiver responses to preschoolers' pain experience within natural settings. *Pain*, *162*, 1289–1294.

Pavlova, M., Lund, T., Nania, C., Kennedy, M., Graham, S., & Noel, M. (2021). Reframe the pain: A randomized controlled trial of a parent-led memory-reframing intervention. *The Journal of Pain*, *23*, 263–275.

Preston, C. C., & Colman, A. M. (2000). Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. *Acta Psychologica*, *104*, 1–15.

Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In *Handbook of personal relationships.Chichester*. Wiley.

Robins, H., Perron, V., Heathcote, L. C., & Simons, L. E. (2016). Pain neuroscience education: State of the art and application in pediatrics. *Children*, *3*(4), 43.

Spinrad, T. L., & Gal, D. E. (2018). Fostering prosocial behavior and empathy in young children. *Current Opinion in Psychology*, *20*, 40–44.

Trevelyan, E. G., & Robinson, P. N. (2015). Delphi methodology in health research: how to do it? *European Journal of Integrative Medicine*, *7*, 423–428.

Turner, B. J., Liang, Y., Rodriguez, N., Valerio, M. A., Rochat, A., Potter, J. S., & Winkler, P. (2017). Gaps in the public's knowledge about chronic pain: Representative sample of Hispanic Residents from 5 states. *The Journal of Pain*, *18*, 628–636.

Vangronsveld, K. L., & Linton, S. J. (2012). The effect of validating and invalidating communication on satisfaction, pain and affect in nurses suffering from low back pain during a semi-structured interview. *European Journal of Pain*, *16*, 239–246.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.