

## ORIGINAL ARTICLE

# Glass half full: A diary and interview qualitative investigation of flourishing among adolescents living with chronic pain

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## Abstract

**Background:** Counter to paediatric pain literature that typically highlights the deleterious impacts associated with adolescent chronic pain, evidence suggests that some adolescents flourish in their experience of pain. This study sought to explore how adolescents experience, understand and perceive flourishing while living with chronic pain.

**Methods:** Twenty-four adolescents aged 11–24 years were recruited via clinical and online settings. All adolescents were asked to complete daily diary entries, with a subset of 10 participants asked to complete follow-up interviews.

**Results:** Inductive reflexive thematic analysis generated two themes: ‘Appreciating the moment’ and ‘Becoming a better version of myself’. Themes addressed how self and other comparisons facilitated a renewed appreciation for achievements and pleasures in life due to living with chronic pain. Adolescents further demonstrated a perception of continued personal and social growth in their experience of chronic pain, including increased emotional maturity, resilience, positivity, kindness and improved communication skills.

**Conclusions:** We conclude that adolescents can experience positive changes in functioning and flourish in some domains of life despite, or resulting from, chronic pain. Further research with an exclusive focus on flourishing is needed to build on this work and address this important gap in knowledge.

**Significance:** We present evidence that adolescents can flourish when living with chronic pain. Such knowledge may inform the development of positive psychological treatment strategies that are focused on reinforcing adolescents’ existing strengths, to expand on current treatment options for adolescents living with chronic pain.

## 1 | INTRODUCTION

Chronic pain (i.e., pain lasting longer than 3 months (Treede et al., 2015)) is prevalent among children and adolescents, with 11%–38% of this group experiencing symptoms (King et al., 2011). Additionally, the prevalence of chronic pain is known to increase in adolescence (Carlsson, 1996; King et al., 2011). Research has highlighted the wide-ranging deleterious impact of chronic pain on the lives of adolescents, illustrating impacts on emotional, familial, school, physical and developmental functioning (Cohen et al., 2010; Eccleston et al., 2008; Forgeron et al., 2010; Goubert & Trompetter, 2017; Groenewald et al., 2020; Higgins et al., 2021; Jones et al., 2021).

Despite a dominant focus on negative outcomes in the literature, evidence suggests that adolescents can have positive experiences and flourish while living with chronic pain (Goubert & Trompetter, 2017). While there is no single agreed-upon conceptualization of flourishing in the literature (Witten et al., 2019), flourishing is often considered as ‘life going well’ (Huppert & So, 2013). In the context of mental health, flourishing is defined as a state in which high levels of emotional, psychological and social well-being are experienced (Keyes, 2002, 2005). Building on this, in the context of chronic pain, we use the term ‘flourishing’ as an umbrella term to encompass positive changes or outcomes (e.g. growth) and constructs (e.g. benefit finding), either as a result of, or despite, chronic pain, and as adaptive functioning that moves beyond merely the absence of negative outcomes (Keyes, 2002).

While some research findings indicate that adolescents with chronic pain can display flourishing, this evidence is currently scarce (Soltani et al., 2018; Umberger & Risko, 2016). A small number of studies investigating other areas of adolescent life have identified elements of flourishing. For example, in Eccleston et al. (2008), adolescents with chronic pain reported feeling developmentally ahead of their healthy peers regarding their ability to deal with problems. Building on this, Jordan et al. (2018) found that adolescents described a number of positive aspects related to their experience of chronic pain, with some reporting aspects of growth, emotional development, enhanced maturity, and mastery of skills, such as communication.

Further research with an exclusive focus on flourishing is needed to build on this work and address this important gap in knowledge. Additional evidence concerning the nature and mechanisms of flourishing among adolescents with chronic pain can assist in developing interventions that adopt positive-focused approaches, which draw upon adolescents’ existing capabilities and strengths. This approach may serve to counteract the negative impact of chronic pain. Cross-sectional interview studies typically focus on retrospective accounts of flourishing, which can

provide important opportunities for adolescents to reflect on changes that may have occurred. However, there is a gap relating to how adolescents perceive flourishing in real-time. Therefore, we adopted a combination of diary and interview data collection, to qualitatively explore adolescent’s everyday experience of flourishing with chronic pain. We addressed the overall research question: How do adolescents experience, understand and perceive flourishing in the context of living with chronic pain?

## 2 | METHODS

### 2.1 | Study design

For this study, we adopted a critical realist and experientialist theoretical paradigm, in order to investigate both how flourishing is experienced by individuals, and what flourishing means to individuals (Braun & Clarke, 2022; Zafirah et al., 2020). Therefore, individuals’ knowledge and accounts were considered a true reflection of their perspectives and experiences (Bonnington & Rose, 2014). Daily diary entries (for all participants) and follow-up interviews (for a subset of participants) were used to investigate the study aims. Due to their prospective nature, diaries are an effective way to capture details of everyday experiences whilst avoiding recall issues with methods that require retrospective recall (Holloway, 2008). While daily diary data can be used to explore perceptions and experiences of flourishing in the ‘here and now’, our addition of follow-up interviews allowed retrospective experiences of flourishing to be examined and provided additional richness to the data. In addition, a semi-structured interview design allowed flexibility in the order of topics discussed (Mason et al., 2004), while providing a basic structure to ensure that all relevant areas were covered. We set a target sample size of 20 participants for the daily diary entry phase of the study and 10 participants for the interview phase of the study, both across the full age range. These numbers were chosen based on previous research conducted using diary entry and interview methodology (Azmi & Razak, 2006; Jones et al., 2020; Jordan et al., 2018) to allow us to appropriately qualitatively investigate our aims for this study. The full protocol for this study was registered on the Open Science Framework database: [https://osf.io/qm6cw/?view\\_only=fbb7e2818fb8489c8a1d02ad20b6abc6](https://osf.io/qm6cw/?view_only=fbb7e2818fb8489c8a1d02ad20b6abc6).

### 2.2 | Daily diaries

#### 2.2.1 | Participants

Recruitment and data collection occurred between July and October 2021. After receiving approval from the

relevant university departmental ethical committee, 36 adolescents recruited for a previous National Health Service Research Ethics Committee-approved study, who had expressed interest in participating in further research, were contacted and invited to take part in the initial diary phase of the study. These participants were originally recruited through sources including three United Kingdom tertiary care paediatric-specific pain clinics in the South-West of England and Scotland, pain charities and social media platforms (e.g., Twitter, Facebook and university recruitment panels), and were based worldwide. The inclusion criteria for the study required participants to: (1) be 11–24 years (congruent with a recent extended definition of adolescence; Sawyer et al., 2018), (2) live with recurring or persistent chronic pain (minimum duration of 3 months), (3) be able to provide informed consent/assent, (4) have access to a device with internet connectivity and (5) possess the cognitive and English language ability to complete the diary entries and interviews.

Of the 36 adolescents initially invited to take part, 25 United Kingdom-based participants expressed interest and began the daily diary task, with one participant excluded from the data set due to discontinuing daily diary entries after day 1, leaving a final sample of 24 participants. One participant discontinued entries after day 7, but their data were included in the analysis as ethical permissions facilitated this. Therefore, final daily diary participants comprised 24 adolescents (21 female, 1 male, 1 trans male, 1 non-binary individual). Diary participants were aged 11 to 24 years ( $M=17.83$ ,  $SD=2.57$ ) and had lived with chronic pain from 1.33 to 10.33 years ( $M=4.98$ ,  $SD=2.77$ ). See Table 1 for full participant characteristics.

## 2.2.2 | Measures

### *Baseline measures*

Prior to gaining access to the daily diary entry task, participants were asked to complete self-report measures including standard demographic information (gender, age, ethnicity, education and occupation) and key aspects relating to their chronic pain condition ('How long have you had these pain symptoms?' (Text boxes to enter years and months), 'Where is the pain usually located?' (Multiple choice fields)), to accurately assess the full sample characteristics.

### *Daily diary*

Diary content comprised both qualitative and quantitative items and scales. Due to adopting a qualitative focus for this study, quantitative data are not described or reported here. Each day, participants were invited to write short

paragraphs on up to three positive aspects that they had experienced in the last 24 hours in relation to their chronic pain. Participants were asked to provide as much detail as possible and were given some examples of what they may consider writing about ('Some of the positive things young people have told us about are: (1) living with chronic pain can make some young people feel more independent or patient or accepting or kind or, (2) some young people have found extra meaning in their life or made the best of their life due to their chronic pain or, (3) some young people have developed a new skill or were more mature or were better able to manage their feelings due to experiencing pain or, (4) living with chronic pain has led to something positive happening between some young people and their family or friends'). These prompts were included in order to encourage consideration of flourishing in chronic pain without being prescriptive and form part of standard qualitative diary entry methodology (Hyers, 2018). Finally, participants were given the opportunity to write about anything else that they would like to add regarding how their chronic pain may have affected them in a positive way that day. All diary items were developed using the experience and expertise of the research team as well as templates used in previous daily diary studies (Beeckman et al., 2019; Conner et al., 2018; Jones et al., 2020).

## 2.2.3 | Procedure

Online survey software (Qualtrics, 2020; <https://www.qualtrics.com>) was used to host all consent statements, demographic items, and daily diary material. Potential participants were provided with a participant information sheet when invited to take part in the study via email. Potential participants were also provided with a weblink to a Qualtrics-hosted webpage where they were able to provide informed consent (or informed parental consent and assent if under 16 years of age) as well as basic baseline demographic information once they had decided to take part. Participants were then provided with detailed instructions on completing the online daily diaries (either via telephone or email). Following this, participants were asked to select a day to begin their first diary entry and were subsequently sent individual daily links to each day's diary at 5 PM local time for 14 consecutive days. Daily diary links were sent at 5 PM each day to encourage participants to reflect on flourishing in the previous 24 h and to ensure consistency of completion time. Adolescents were asked to provide 14 days of diary entries to explore daily experiences of flourishing, while at the same time attempting to maintain participant interest and prevent drop out due to fatigue. Actions were taken to minimize participant attrition,

**TABLE 1** Demographic characteristics of study participants (follow-up interview participants highlighted).

Participant	Age	Gender	Ethnicity	Symptoms (years)	Diagnosis	Pain location	Treatment	Diary days completed
1	11	Female	White	3.17	Complex Regional Pain Syndrome	Pain in one or more upper limbs (e.g. arm/s), Pain in one or more lower limbs (e.g. leg/s)	Currently receiving treatment	14
2	15	Female	White	2.33	Complex Regional Pain Syndrome	Pain in one or more lower limbs (e.g. leg/s)	Previously received treatment	11
3	15	Female	White	1.33	Complex Regional Pain Syndrome	Pain in one or more lower limbs (e.g. leg/s)	Previously received treatment	13
4	16	Female	White	7.42	Chronic pain	Pain all over	Currently receiving treatment	12
5	16	Female	Asian or Asian British	4.00	Craniopharyngioma	Head pain (e.g. headache/migraine)	Currently receiving treatment	13
6	17	Female	Other ethnic group	3.00	Complex Regional Pain Syndrome	Pain in one or more lower limbs (e.g. leg/s)	Currently receiving treatment	14
7	17	Non-binary	White	7.92	Scoliosis	Back pain	Currently receiving treatment	14
8	17	Female	White	3.17	Complex Regional Pain Syndrome	Pain in one or more lower limbs (e.g. leg/s)	Previously received treatment	14
9	17	Female	White	2.33	Complex Regional Pain Syndrome, Bone Marrow Edema	Pain in one or more lower limbs (e.g. leg/s)	Currently receiving treatment	14
10	17	Trans Male (FtM)	White	1.42	Chronic Migraine	Pain all over	Currently receiving treatment	12
11	17	Female	White	3.42	Complex Regional Pain Syndrome	Pain all over	Currently receiving treatment	5
12	18	Female	White	6.58	Complex Regional Pain Syndrome	Pain all over	Currently receiving treatment	14
13	18	Male	White	2.00	Ankylosing Spondylitis	Back pain	Currently receiving treatment	13
14	18	Female	White	7.83	Complex Regional Pain Syndrome	Pain in one or more lower limbs (e.g. leg/s)	Currently receiving treatment	14
15	18	Female	White	5.50	Joint Hypermobility Syndrome	Pain in one or more upper limbs (e.g. arm/s), Pain in one or more lower limbs (e.g. leg/s), Neck pain	Previously received treatment	14

(Continues)

TABLE 1 (Continued)

Participant	Age	Gender	Ethnicity	Symptoms (years)	Diagnosis	Pain location	Treatment	Diary days completed
16	19	Female	White	2.92	Complex Regional Pain Syndrome, Dystonia	Pain all over	Currently receiving treatment	14
17	19	Female	White	4.75	Complex Regional Pain Syndrome	Pain in one or more lower limbs (e.g. leg/s)	Currently receiving treatment	14
18	19	Female	White	3.83	Fibromyalgia, Ehlers Danlos Syndrome	Pain all over	Not disclosed	14
19	19	Female	White	10.00	Psoriatic Arthritis, Chronic Migraine	Pain all over	Currently receiving treatment	14
20	19	Female	White	9.00	Complex Regional Pain Syndrome	Pain all over	Previously received treatment	14
21	19	Female	White	3.17	Not disclosed	Pain all over	No treatment	12
22	20	Female	White	6.58	Complex Regional Pain Syndrome	Pain in one or more lower limbs (e.g. leg/s)	Currently receiving treatment	14
23	23	Female	White	7.50	Complex Regional Pain Syndrome, Crohn's disease	Pain all over	Currently receiving treatment	14
24	24	Female	White	10.33	Complex Regional Pain Syndrome	Pain in one or more upper limbs (e.g. arm/s), Pain in one or more lower limbs (e.g. leg/s)	Previously received treatment	14



such as encouraging continued participation via regular emails as well as updates on the progress of all participants as a group. Personal reminder emails were sent if participants failed to complete their daily diary entries for two consecutive days. Each day's diary entries took approximately 10 min per participant to complete. After each day's diary entry, participants were provided with: a brief summary of the study, the first author's contact details, and signposting to sources of support (including website URLs and telephone numbers) for adolescents living with chronic pain, via Qualtrics. Additionally, participants were informed that they may be invited to take part in the interview stage (if indicated that they would like to) as part of the final debrief on day 14. On completion of the study, participants were also sent one Amazon e-voucher to the value of £15 (United Kingdom) to thank them for their time and participation.

## 2.3 | Follow-up interviews

### 2.3.1 | Participants

Twenty-four adolescents indicated that they would be interested in being interviewed when providing demographic information at the beginning of the diary entry phase of the study. Seventeen adolescents were invited to take part in the interview stage as representative of the overall sample. Selection was based upon sampling a varied demographic range of participants and participant completion rates during the preceding daily diary task (such as more than half of total days completed). Ultimately, follow-up interviews were conducted with 10 adolescents (9 females, 1 non-binary individual). Interview participants ranged in age from 11 to 23 years ( $M=17.90$ ,  $SD=3.07$ ) and had lived with chronic pain from 2.33 to 10 years ( $M=5.74$ ,  $SD=2.80$ ).

### 2.3.2 | Measures

#### *Interview schedule*

A semi-structured interview schedule was developed to supplement the diary entries and guide the discussion on positive aspects related to adolescent's chronic pain (see Table 2 for full interview schedule). Initial interview questions were developed by the first author, guided by previous literature. Interview questions were then discussed with the remaining authors and a final interview schedule was produced using their relevant experience and expertise. Interviews explored how adolescents' lives may be positively affected by chronic pain, individually (positive change in emotions, personality, skill development,

enjoyment of activities, meaning in life) (guided by: Dezutter et al., 2015; Jordan et al., 2018; Umberger & Risko, 2016) and in regard to their family (strengthened familial relationships) and social life (strengthened social relationships) (guided by: Carter et al., 2002; Evans et al., 2018; Ross et al., 2018). Previous diary entries were explored and elaborated on with the interviewees. Interview questions were designed to be open-ended to encourage original thoughts by interviewees, while minimizing leading questions. Prompts were used to expand on responses where appropriate. For example, 'Can you give me an example of that?', 'Can you tell me a little more about that? Why do you consider that a positive?'.

### 2.3.3 | Procedure

Interviews were conducted following the electronic provision of informed consent/assent and were arranged at a mutually convenient time. Participants were given the option of their interview being conducted either via telephone or online using Microsoft Teams, with only one participant opting to be interviewed via telephone. All interviews were carried out by RP (first author, PhD student, white, male), recorded using university equipment (Zoom Corporation Audio Recorder, model H1, Tokyo, Japan) and transcribed verbatim by RP (5 interviews) or a supervised research assistant (5 interviews). Transcripts were fully anonymized and cross-checked for accuracy by an independent researcher. Interviews ranged in length from 22.22 to 48.22 min ( $M=34.76$  min). Following completion of the interview, participants were debriefed and provided with a second Amazon e-voucher to the value of £5 (United Kingdom) to thank them for their participation.

## 2.4 | Data analysis and coding

Data provided by online daily diaries and interview transcripts were analysed using inductive (data-driven) reflexive thematic analysis (Braun & Clarke, 2006, 2019, 2021, 2022), adopting a critical realist and experientialist theoretical approach in order to explore both what flourishing means to participants as well as how participants personally experience flourishing (Braun & Clarke, 2022; Zafirah et al., 2020). Therefore, participant accounts and knowledge were treated as a true reflection of their experiences and perspectives (Bonnington & Rose, 2014). Thematic analysis is an established qualitative analytical approach that permits exploration of meaning and experience across a set of participant accounts and has been successfully used to analyse both online and offline paediatric diary data (Azmi &

**TABLE 2** Final interview schedule.

The individual	<p>1. Can you tell me a little about your experience of pain?</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>• How did it start?</li> <li>• How does it affect your life?</li> <li>• How do you describe your pain?</li> </ul> <p>2. Some young people living with chronic pain have told us that in some ways, chronic pain has had a positive impact on some parts of their lives. Could you tell me about any positive changes to your emotions which you have noticed?</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>• Can you give me an example?</li> <li>• Why do you think that is?</li> </ul> <p>3. Some young people have told us that they feel that they have experienced a positive change in their personality due to living with chronic pain. What is your experience of this?</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>• Can you think of ways you have improved due to living with chronic pain?</li> </ul> <p>4. Some young people have told us that they feel that they have gained new skills due to living with chronic pain. What is your experience of this?</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>• Better at solving problems due to living with chronic pain?</li> </ul> <p>5. Some young people have told us that they feel that they have experienced an increase in their enjoyment of activities due to living with chronic pain. What is your experience of this?</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>• Can you tell me about something you enjoy more now than you used to?</li> <li>• Can you tell me about something you appreciate now which you previously took for granted?</li> </ul> <p>6. Some young people have told us that they feel that they have found more meaning in life due to living with chronic pain. What is your experience of this?</p> <p>Prompts:</p> <ul style="list-style-type: none"> <li>• Making the most of opportunities or life in general?</li> <li>• Realized what's important in life?</li> </ul> <p>*If participant mentions higher power/religion:</p> <ul style="list-style-type: none"> <li>• Do you pray about your chronic pain? How does this help?</li> <li>• Can you tell me if you feel that your chronic pain has brought you closer to God?</li> </ul>
Family and social life	<p>Now I'd like to ask you a little about your family and social life.</p> <p>7. Some young people have told us that they have noticed positive changes in their relationship with family members due to living with chronic pain. What's your experience of this?</p> <p>Prompts:</p> <p>Can you think of ways that your chronic pain has had a positive effect on your family?</p> <p>Can you think of ways that your relationship with your family is different from your friend's relationships with their families?</p> <p>Can you think of anything positive which your family has done which has helped with your chronic pain?</p> <p>8. Some young people have told us that they have noticed changes in their relationship with their friends due to living with chronic pain. What's your experience of this?</p> <p>Prompts:</p> <p>Can you think of ways your chronic pain has led to you making new friends or strengthened your existing friendships?</p> <p>Can you think of ways that your chronic pain has led to you becoming more social or better at socializing with others?</p> <p>9. Some young people have told us that they feel different from their friends in a positive way due to living with chronic pain. What's your experience of this?</p> <p>Prompts:</p> <p>Can you tell me about whether you've compared yourself to someone else and felt good about it?</p> <p>Can you think of any ways that you are better at something than your friends due to living with your chronic pain?</p> <p>Can you think of a skill which you have gained due to living with your chronic pain which your friends don't have?</p>
Diary entries	<p>Finally, I'd just like to ask you a little more about what you wrote in your daily diary.</p> <p>10. Final follow-up questions tailored to individual's diary entries which have not been covered above (if any)</p>

Razak, 2006). A reflexive approach involves later theme development from codes (Braun & Clarke, 2021). Codes are subjectively generated by the researcher and may evolve as the researcher's understanding of the data grows deeper (Braun & Clarke, 2022). Thematic analysis was conducted according to a six-phase approach as guided by Braun and Clarke (2006, 2022), namely (1) familiarization, (2) coding, (3) generating initial themes, (4) reviewing and developing themes, (5) refining, defining and naming themes and finally (6) writing up.

### 2.4.1 | Daily diary data analyses

Each participant's daily diary entries (short paragraphs on up to three positive aspects) and interview transcripts were initially collated and qualitatively analysed using QSR International NVivo Qualitative Data Analysis Software (Version 12) to identify initial codes and important features, which were subjectively generated by the first author (RP). Although not all participants elected to write in the free-text entry fields every day of the daily diary two-week data collection period, all participants contributed to this aspect of their diary entries on at least five of the total data collection days. Codes for daily diary entries were then collated to capture common initial candidate themes across participants. Candidate themes were generated separately for diary and interview data. This separate theme development process was conducted since daily diary data provided data on flourishing over a two-week period, while interview data provided information on adolescents' retrospective experience of flourishing. By analysing interview data codes separately from diary codes, we were able to search for any additional candidate themes that may be associated with long-term retrospective flourishing. See Table 3 for examples of theme development.

### 2.4.2 | Candidate theme development of interview data

Following initial candidate theme development of daily diary qualitative data, interview transcript codes were collated to capture common initial candidate themes across participants and to identify any additional candidate themes to those already generated from the diary data codes.

### 2.4.3 | Combined theme development of daily diary and interview data

Following separate candidate theme development from diary and interview data codes, candidate themes were

further refined before being compared again with diary entries and interview transcripts, to identify final patterns and themes present across all participants via both data collection methods. Initial analyses were conducted by the first author (RP), before themes were discussed with co-authors to reach mutual agreement on theme names and content.

## 2.5 | Quality and rigour

Attempts were made to ensure high quality and rigour in our research. This included adhering to recommended trustworthiness criteria such as dependability, transparency, confirmability and credibility of our work, which may be used to contribute to quality analyses (Nowell et al., 2017; Shenton, 2004). The following steps were included. First, all stages of data coding and theme development were carefully documented using NVivo software and Microsoft Excel tables, to track the process of development of final themes. Second, all candidate themes and theme names were discussed among authors to share varied perspectives and ensure that the analysis was grounded in the original data. Third, two sources of data were used to generate codes and themes, namely diary and interview transcript data. This allowed for follow-up interviews to be used to further explore diary entries and expand on patterns of meaning to rigorously inform theme development. Fourth, an effort was made to include quotations from a wide variety of participants as well as diary or interview data forms. Following guidance by Braun and Clarke (2022), we were also careful to avoid common problems found in thematic analysis such as premature analysis closure where data is not fully analysed, thereby producing superficial results, and reporting too many themes.

## 3 | RESULTS

### 3.1 | Qualitative analyses of diary and interview data

Themes generated from interview data were consistent with those identified from daily diary data. Qualitative analysis of the data resulted in the generation of two themes that reflect adolescents' experiences, perceptions and understanding of flourishing in the context of living with chronic pain. Themes were labelled 'Appreciating the moment' and 'Becoming a better version of myself'. Each theme is presented in turn below. The narratives within each theme are based on multiple participant perspectives. To present a concise account, example verbatim



**TABLE 3** Examples of codes and themes generated from diary and interview data during thematic analysis.

Theme	Example codes	Example quotations
Appreciating the moment	<ul style="list-style-type: none"> <li>• Appreciates the small things</li> <li>• Appreciate things others might take for granted</li> <li>• Appreciate activities can still do</li> <li>• Proud of things achieved despite chronic pain</li> <li>• Celebrate small victories</li> <li>• Learned to enjoy hobbies as distraction</li> </ul>	<p>‘Emotionally chronic pain that can definitely be a roller coaster because some days you can’t do anything. And then other days you can do things. I’ve learned to be a lot more grateful for the...days when I can do things and I enjoy them a lot more when I can do them as opposed to just sort of being like, oh I’m cooking dinner. That’s normal. Now when I can cook dinner, it’s like yes, this is an achievement’</p> <p>‘Today, living in pain made me able to appreciate the little things that bring me happiness more. This is because they distracted me from the pain and this made me feel lucky to be alive and have all these things. I feel like I appreciate the little things in life a lot more because of my pain’</p> <p>‘Because of my chronic pain I decided to start a new hobby of making jewellery and I think it’s extra rewarding when I make lots of sales now today because I can feel prouder of my achievements as I’ve overcome hardships’</p>
Becoming a better version of myself	<ul style="list-style-type: none"> <li>• Increased emotional maturity</li> <li>• Increased positivity when comparing to previous bad days</li> <li>• Aware of actions and emotions</li> <li>• Forming of positive relationships with HCP</li> <li>• Putting self in other’s shoes</li> <li>• Shaped future career trajectory</li> <li>• Increased sense of purpose</li> <li>• Provided opportunity to start new hobbies which bring joy</li> </ul>	<p>‘Yeah, it [pain] definitely makes you more aware of your emotions and sort of which ones you need to listen to and which ones you can just be like, it’ll be fine in a month, so just ignore it kind of thing’</p> <p>‘I’ve realized how helping others is something that I want to do because I’ve had the help from medical professionals and family to get through sort of like the hard times with the chronic pain, which is then sort of helped me to sort of realize and appreciate that I want to help others’</p> <p>‘Today I went shopping and someone was quite rude to me in the shop, instead of replying rudely I thought that she might be having a bad day or be in pain so I said sorry and moved out of the way. My chronic pain has helped make me think more about the reasonings behind what people say when they are negative. I’ve found it can help me be more tuned in to how others are feeling and how to respond to them more kindly’</p>

quotations drawn from diary and interview data are used to evidence each interpretative paragraph. Participants’ identities are protected using pseudonyms.

### 3.1.1 | Appreciating the moment

Living with chronic pain was perceived to have brought new meaning to everyday events for adolescents, due to a recalibration of what can and should be achieved. Everyday events overlooked before chronic pain were perceived to be more meaningful and worthy of celebration. A key element of this theme was a renewed appreciation for relatively minor achievements, which

individuals gained as a result of living with chronic pain. An important aspect of this appreciation was the recognition that individuals had previously taken these accomplishments for granted or failed to acknowledge their existence prior to the onset of their pain, but had subsequently developed an awareness of what they are able to achieve despite their chronic pain. Such accomplishments were engaged with joyfully *when* adolescents were able to undertake them, with adolescents reporting a sense of gratitude for being able to do more on a ‘good’ pain day when pain was less severe. This is demonstrated by the quotations below that describe Lisa and Layla’s appreciation of their ability to cook dinner and swim while living with pain:

'Emotionally chronic pain can definitely be a roller coaster because some days you can't do anything. And then other days you can do things. I've learned to be a lot more grateful for the...days when I can do things and I enjoy them a lot more when I can do them as opposed to just sort of being like, oh I'm cooking dinner. That's normal. Now when I can cook dinner, it's like yes, this is an achievement'. (Lisa, aged 23, interview)

'Today I appreciated being in the swimming pool and being able to move my legs'. (Layla, aged 11, diary)

Although often small, such achievements resulted in positive outcomes. The experience of pain had served a valuable and educational function for participants, teaching them to experience joy in their lives despite living with pain, and to express gratitude and pride for positive experiences. A new appreciation for living in the 'here and now' was perceived to have developed in part through adolescents' comparison of their current functioning with time points in which they are unable to perform a particular activity due to pain and associated disability:

'Chronic pain makes you want to make the best of the day, on the days when your pain is tolerable'. (Sarah, aged 15, diary)

'Living with chronic pain has made me realise that moments are extremely precious. Today I went out to lunch with family friends and because I have limits, everything that I do with my friends and loved ones are all very precious to me. Some days I struggle to do certain activities but today I had a lovely afternoon with some family friends and it really made me appreciate the time I spent with them'. (Lily, aged 17, diary)

For others, positivity was perceived to arise from comparisons made between current functioning and a more negative imagined future. This is exemplified by Reese below, who expresses joy and relief at being able to take part in everyday activities, which has led to a new perspective on everyday life and acknowledgement that their future could have resulted in worse outcomes and greater impairments to their functioning:

'...it was a too high probability that I would be paralyzed from my operation. So now just

being able to do anything, it's like, you know, I get immense joy from it because I know that I so easily couldn't have'. (Reese, aged 17, interview)

In addition to an appreciation for a renewed ability to undertake everyday tasks, adolescents also reported discovering newfound hobbies and skills, such as crochet, knitting, new languages and art. Such hobbies and skills were often used by adolescents to distract them from their experience of pain, or to occupy them when they were unable to undertake more physical activities. In addition to providing a sense of joy and a distraction from the pain, these skills could provide a further sense of achievement despite their pain, and an appreciation for new and meaningful directions:

'Because of my chronic pain I decided to start a new hobby of making jewellery and I think it's extra rewarding when I make lots of sales now today because I can feel prouder of my achievements as I've overcome hardships'. (Ivy, aged 17, diary)

'Living with chronic pain has rekindled a lot of my hobbies and led me to develop new ones, such as reading and crochet'. (Riley, aged 17, diary)

Living in the present moment also forced adolescents to gain an awareness of the world around them and to develop a sense of gratitude for everyday small pleasures and positives in life, such as nature and other sources of happiness. Despite these sources of joy being perceived as small, their effects were substantial in terms of resulting happiness. This is exemplified by Ava and Ivy below, who describe their appreciation of smaller pleasures that bring them happiness, a reminder of the possibility of joy despite living with pain:

'Today, living in pain made me able to appreciate the little things that bring me happiness more. This is because they distracted me from the pain and this made me feel lucky to be alive and have all these things. I feel like I appreciate the little things in life a lot more because of my pain'. (Ava, aged 18, diary)

'I was able to sit out on the field for a while and I enjoyed the time I was able to spend outside more, as I appreciate it more as my CRPS means I have issues with different temperatures'. (Ivy, aged 17, diary)

Adolescents acknowledged that such pleasures were typically neither appreciated nor noticed as much before chronic pain. Living with chronic pain appeared to provide a new lens through which to view life, characterized by a heightened focus on positives not previously recognized, and a gratitude for something gained. In turn, this provided a meaning for their pain experience that generated a focus for the adolescent of further self-improvement.

### 3.1.2 | Becoming a better version of myself

An important aspect of living with chronic pain focused on adolescents' sense of growth as individuals. Pain was perceived to provide an educative function in terms of teaching adolescents how to become a 'better', stronger person. Growth was characterized by increased resilience, associated with a more positive outlook and enhanced emotional maturity when comparing with peers and previous self. With regard to emotional maturity, adolescents described being better able to express and manage their emotions due to the experience of living with pain. Reese describes the educative role of pain in terms of providing knowledge around how to self-regulate emotions:

'Yeah, it [pain] definitely makes you more aware of your emotions and sort of which ones you need to listen to and which ones you can just be like, it'll be fine in a month, so just ignore it kind of thing'. (Reese, aged 17, interview)

As well as recognizing advancements in their own emotional maturity over time, adolescents positioned themselves as more emotionally mature when comparing themselves to their healthy peers. Adolescents attributed this to the fact that they have faced and managed hardships that others have not had to experience, which had required them to mature more quickly. Despite these hardships, adolescents perceive this enhanced maturity as a positive outcome, providing an advantage over their peers:

'I am much more mature for my age as I have experienced situations that most 19-year olds will never experience'. (Alice, aged 19, diary)

Adolescents also reflected on the positive aspects of living with chronic pain in terms of facilitating them to develop and maintain a positive outlook in the face of adversity. Lily below recognizes her level of positivity and resilience that

she perceives to have developed due to living with chronic pain:

'I'd say it's [pain] made me more positive in terms of having a better outlook on life. It's made me more, um, I see a lot more of a stronger person in myself. I'm much more resilient to setbacks now'. (Lily, aged 17, interview)

Adolescents were afforded opportunities that were unique to the experience of living with chronic pain. Specifically, chronic pain provided new life skills, including a sense of knowledge, competency and drive that enabled adolescents to undertake previously unconsidered but potentially meaningful careers. These careers included those that focus on supporting others, due to the personal experiences of adolescents themselves and the insight that they had gained from being supported by healthcare professionals to manage their pain. A sense of being a better person resonated in adolescents' desires to 'pay it forward', with adolescents describing a desire to help others in the way that they have been supported by healthcare professionals. As Lucy describes below, the help she has received from healthcare professionals and her family has facilitated a realization that she wants to assist others who are also experiencing life difficulties, while Layla has been inspired to consider a career in healthcare:

'I've realized how helping others is something that I want to do because I've had the help from medical professionals and family to get through sort of like the hard times with the chronic pain, which is then sort of helped me to sort of realize and appreciate that I want to help others'. (Lucy, aged 20, interview)

'Having pain has helped me to learn about jobs I might not have known much about and has inspired me to think about being a physiotherapist'. (Layla, aged 11, diary)

While perceived growth associated with living with chronic pain was experienced at an individual level, there were also broader social connotations associated with development and growth due to living with chronic pain. For example, adolescents described their developing ability to show empathy for the plight of others by putting themselves in others' shoes. This had the effect of strengthening relationships with family and friends and generated a sense of personal growth. This is described by Alice below who sees herself as becoming more kind and caring to others, which has resulted in strengthened relationships due to living with pain:

'I'd say the biggest positive's just being more compassionate and caring. I think it's made a big...difference with especially different relationships with friends and family and it's a big part of my personality now'. (Alice, aged 19, interview)

This heightened understanding of how others are feeling may also lead to increased kindness and awareness when interacting in general social situations. As described by Lisa below, she was able to adopt a stranger's perspective to better understand the reason for their rudeness, which related to Lisa's perception of herself as a kinder individual due to her experiences:

'Today I went shopping and someone was quite rude to me in the shop, instead of replying rudely I thought that she might be having a bad day or be in pain so I said sorry and moved out of the way. My chronic pain has helped make me think more about the reasonings behind what people say when they are negative. I've found it can help me be more tuned in to how others are feeling and how to respond to them more kindly'. (Lisa, aged 23, diary)

Additionally, adolescents described an enhancement in their ability to communicate with others due to living with chronic pain. This included communicating with healthcare professionals to discuss healthcare issues, improving adolescents' sense of confidence around advocacy for their own healthcare needs. Lily describes how she has developed the ability to speak up for herself instead of relying on her parents, which brings her a sense of confidence that she regards as a positive outcome of her chronic pain:

'I am much more comfortable communicating with doctors/physios/OT as I have had a lot more experience around them. This has benefitted me hugely as I don't have to rely on my parents talking for me in appointments. In today's appointment I spoke for myself and I was therefore able to get all my points across for myself. I am a much more confident and independent girl and this is definitely for the better!' (Lily, aged 17, diary)

These positive social outcomes served to improve an adolescent's family and social interactions, with the overall result of improved support to manage their chronic pain. In addition, they may serve to provide adolescents with an

increased sense of agency, in which they have more influence on their lives and the care they receive.

## 4 | DISCUSSION

The aim of this study was to explore how adolescents experience, understand and perceive flourishing in the context of living with chronic pain, using daily diary and follow-up interview data. Qualitative analyses generated two themes. The first theme described how adolescents developed an appreciation and gratitude for achievements and pleasures in life, often through temporal self-comparisons, while the second theme portrayed adolescents' perceptions of continued improvement at individual (including maturity, positivity and resilience) and social (including empathy, kindness, awareness of others and communication) levels of functioning.

Throughout our findings, adolescents reported learning lessons from their chronic pain experience, in terms of both personal and social growth. Notably, adolescents recognized the influence of chronic pain on their current self and future life path, resulting in new avenues regarding potential careers, travel and life skills. This was previously observed by Jones et al. (2020), where adolescents with Complex Regional Pain Syndrome reported constructive use of skills gained due to their chronic pain experience, which provided the hope of a positive future. This further indicates the desire of adolescents to gain something positive from their experience of living with pain and supports the idea of pain appearing to educate and provide opportunities to develop individuals' personal and social skills. This positive perspective may validate the struggles and losses the adolescent has experienced due to their chronic pain, by providing an opportunity to make sense of and engage with the loss, leading to positive transformation (Jones et al., 2020).

Our qualitative findings are congruent with findings in the wider chronic pain literature. For example, our findings that adolescents deliberately identified new opportunities and growth despite adversity are consistent with those of Soltani et al. (2018), who identified benefit finding and a desire to find 'silver linings' from adolescents with chronic pain. This may represent adolescents' desires to attribute meaning to their pain experience to counteract negative outcomes. Unique to our findings was the further enhancement of enjoyment in activities through adolescents' comparisons with self and others at various time points. Comparisons with others perceived as worse-off, previous worsened functioning or a negatively imaged future provided a sense of optimism and gratitude for even small pleasures. Reports by adolescents of a renewed focus on, and time allocated to, social relationships, echo



findings by Jones et al. (2022), who found that adolescents devoted additional time to such relationships due to an inability to participate in previously favoured activities. Social relationships with family members and peers have been shown to have an important influence on adolescents' adaptive responses to pain (Ross et al., 2018) and may serve as additional resilience and coping resources for adolescents (Cartwright et al., 2015; Cousins et al., 2015). Our findings of adolescents' perceived growth in various domains due to living with chronic pain also echo those reported in Umberger and Risko (2016), who found children and adolescents of *parents* with chronic pain achieved growth through being able to perceive things from others' perspectives, displaying enhancements in empathy, strength, emotional maturity, communication skills and development of coping and life skills. This was exemplified in our second theme, where adolescents described a bettering of themselves in a variety of personal and social domains.

The findings of the present study can be considered in the context of key psychological models. Our findings relating to resilience are congruent with the ecological resilience-risk model in paediatric chronic pain proposed by Cousins et al. (2015). This model describes the enhancement of resilience mechanisms that may be used to promote adaptive outcomes and minimize risk factors, using resilience resources such as optimism and positive emotions. This interplay between mechanisms, outcomes, risk factors and resources all occur within the interaction between the individual, their social environment, the culture in which they live and time (Cousins et al., 2015). Furthermore, the description by adolescents in our study of a perceived sense of self-growth, becoming a stronger person and a focus on maintaining a positive outlook, is congruent with the Broaden and Build Theory (Fredrickson, 2001), where positive emotions are able to broaden awareness to further positives in life (Goubert & Trompeter, 2017), leading to further feelings of wellbeing.

Despite this study's strengths in its methodological approach, we also consider some limitations. Importantly, follow-up interviews were not conducted with the full sample of diary entry participants. This was due to time and resource constraints of the research team, as well as participant reluctance. Ideally, follow-up interviews would have been conducted with the full sample to further enrich our data. Additionally, it is important to acknowledge that adolescents may have still experienced some perceived aspects of flourishing (such as increased maturity and growth) unrelated to their chronic pain, due to adolescent developmental changes. For example, changes in emotional capacity (Yurgelun-Todd, 2007), cognitive capacity and psychosocial maturity (Icenogle et al., 2019) are typically seen during adolescence. However, previous work

investigating positive outcomes in adolescents with other chronic health conditions has identified similar growth outcomes to those with chronic pain. A study conducted by Barakat et al. (2006) found evidence of growth in most adolescent cancer survivors one-year post-treatment in areas such as treatment of others, plans for the future and philosophy of life. Although adolescents in our study perceived their flourishing to be linked to their chronic pain, further studies comparing our findings with normative data and other conditions would be useful to conclusively identify flourishing exclusively resulting from living with chronic pain.

Further potential limitations concern participant characteristics. It is possible that our study results may have differed if participants had been skewed towards the lower end of our participant age limits, as there may be differences in how flourishing is understood and engaged in, between younger and older adolescent participants. We may anticipate such differences due to older adolescents typically having broader life experiences to draw on that may provide greater opportunity to flourish, and an increased focus on the importance of peer versus caregiver relationships (Eccleston et al., 2008). Further studies that compare differences in levels of flourishing between younger and older adolescent participants would be valuable to investigate how age and/or developmental stage may influence pain outcomes. A related issue concerns the fact that the majority of our participants (92%) indicated that they had currently or previously received treatment for their chronic pain. Psychosocial interventions have been shown to significantly reduce pain and disability in adolescents with chronic pain (Fisher et al., 2014), which may influence adolescent accounts and perceptions of flourishing. Likewise, it is possible that adolescents who adopt a more positive outlook to their chronic pain experience may be more likely to participate in positive-focused research, biasing results to display an increased optimistic outlook (Phipps et al., 2007). Therefore, further research comparing flourishing in treatment versus non-treatment groups would be useful to identify any potential differences between these groups, as well as treatment-related contributors to flourishing. Furthermore, our sample was limited to participants with a White, British racial background. This is a common issue in research studies where a focus is placed on Western Educated Industrialized Rich Democratic (WEIRD) societies for data collection, which results in a sample that is not representative of the diverse global population (Henrich et al., 2010). Likewise, almost all our adolescent sample identified as female. Further studies making use of more diverse participant samples would be useful to gain a thorough understanding of flourishing and potential differences across adolescents. Finally, while this study focused on the experience



of adolescents, further studies would be useful to explore flourishing from the perspectives of those in the adolescent's broader social circle, such as parents, siblings, peers, romantic partners and healthcare professionals, to provide a complete picture of how chronic pain may influence flourishing in all those affected.

More broadly, it is also important to recognize that while we opted to focus exclusively on positive outcomes and benefits that adolescents may gain from their chronic pain experience, it should be acknowledged that chronic pain is a predominantly negative experience for the majority of individuals (Eccleston et al., 2004; Murray et al., 2020). Therefore, within the biopsychosocial framework of pain that considers factors that both support and hinder the experience of pain, negative outcomes will likely co-exist with reported positive outcomes. Further studies concurrently investigating positive and negative outcomes of chronic pain would be useful to identify how these constructs may influence each other.

In conclusion, this study provides further evidence to supplement previous limited findings that adolescents can experience positive outcomes and flourish when living with chronic pain. Regardless of whether this perceived flourishing is an attempt to gain something positive despite an otherwise negative pain experience, or whether these positive outcomes are uniquely the result of chronic pain, the positive outcomes associated with chronic pain cannot be ignored and warrant further investigation.

## AUTHOR CONTRIBUTIONS

All authors discussed the results and commented on the manuscript. Ryan D Parsons: This author substantially contributed to conception and design, acquisition of data, analysis and interpretation of data; drafting the article or revising it critically for important intellectual content; final approval of the version to be published. Joanna L McParland: This author substantially contributed to conception and design, analysis and interpretation of data; drafting the article or revising it critically for important intellectual content; final approval of the version to be published. Sarah L Halligan: This author substantially contributed to conception and design; drafting the article or revising it critically for important intellectual content; final approval of the version to be published. Liesbet Goubert: This author substantially contributed to conception and design; drafting the article or revising it critically for important intellectual content; final approval of the version to be published. Abbie Jordan: This author substantially contributed to conception and design, analysis and interpretation of data; drafting the article or revising it critically for important intellectual content; final approval of the version to be published.

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## CONFLICT OF INTEREST STATEMENT

None of the authors have any conflicts of interest to declare.

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