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Clinician perspectives concerning the treatment of adolescents with co-occurring chronic pain and mental health symptoms

Dr Sharon Bateman[a,b], Dr Line Caes[c], Dr Melanie Noel[d], Dr Jeremy Gauntlett-Gilbert[e,f], Dr Abigail Jones[g], Dr Abbie Jordan[a,b,*]

[a] Department of Psychology, University of Bath, Claverton Down, Bath BA2 7AY, UK
[b] Centre for Pain Research, University of Bath, Claverton Down, Bath BA2 7AY, UK
[c] Division of Psychology, Faculty of Natural Sciences, University of Stirling, Stirling FK9 4LA, UK
[d] Department of Psychology, University of Calgary, 2500 University Dr, NW Calgary, Alberta T2N 1N4, Canada
[e] Bath Centre for Pain Services, Royal United Hospitals Bath, Bath, UK
[f] Centre for Health and Clinical Research, University of the West of England, Bristol, UK
[g] College of Health, Science and Society, University of the West of England, Bristol, UK

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ABSTRACT

Pain and mental health symptoms frequently co-occur in adolescents, often posing physical, social, and emotional challenges. While previous research has focused on clinician perspectives on chronic pain in isolation, limited knowledge exists on the potential unique challenges these co-occurring symptoms' present to clinicians in providing appropriate support to adolescents. This study examined clinician perspectives on the challenges and barriers to treating adolescents who experience co-occurring pain and mental health symptoms. Using a cross-sectional qualitative online vignette survey, responses were collected from 40 clinicians, including psychologists, physiotherapists, and doctors involved in treating adolescents (11–19 years) who experience co-occurring chronic pain and mental health symptoms. Participants, recruited from several countries, were asked about their perceived challenges to treating adolescents with co-occurring chronic pain and mental health symptoms. Vignettes were analyzed using reflexive thematic analysis. The analysis generated two themes. The first, 'tangled threads', describes how clinicians perceive mistrust from the adolescents based on previous negative clinician encounters and a perceived need to 'undo' this anticipated harm. The second theme 'the difficult-to-pursue integrated approach' depicts how fragmentation and siloed services for pain and mental health hinder effective treatment for adolescents who experience both symptoms. Co-occurring pain and mental health symptoms in adolescents are often initially mismanaged because they do not fit the mould of the services available to treat them, resulting in a more complex presentation to clinicians. The development of a more integrated clinical approach to treating adolescents with co-occurring pain and mental health symptoms is needed.

Perspective: This study identifies that clinicians perceive they face challenges treating adolescents with co-occurring pain and mental health symptoms, often due to the adolescent's prior clinical experiences and the limited comprehensive treatment options available to them. An integrated approach is urgently needed to tailor care and reduce harm.

Introduction

Chronic pain (i.e., recurrent or persistent pain that lasts for more than three months[1]) is experienced by an increasing number of adolescents and has an overall prevalence in children and adolescents of 1 in 5 (20.8%).[2] Chronic pain can impact numerous domains of adolescent life, including psychological well-being. Adolescents who experience chronic pain are twice as likely to experience high levels of emotional distress compared with their peers who do not experience chronic pain.[3] Indeed, adolescents who experience chronic pain often report higher levels of anxiety and depressive symptoms.[4–7] Importantly, such co-occurrence of symptoms could present a greater number of challenges to clinical

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[*] Corresponding author at: Department of Psychology, University of Bath, Claverton Down, Bath BA2 7AY, UK.

E-mail addresses: s.l.bateman@bath.ac.uk (D.S. Bateman), line.caes@stir.ac.uk (D.L. Caes), melanie.noel@ucalgary.ca (D.M. Noel), jeremy.gauntlett-gilbert@nhs.net (D.J. Gauntlett-Gilbert), abbie4.jones@uwe.ac.uk (D.A. Jones), aj791@bath.ac.uk, a.l.jordan@bath.ac.uk (D.A. Jordan).

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management compared with treating either symptom in isolation. For example, co-occurring chronic conditions in adults have created multiple obstacles in effectively managing and treating the associated symptoms, along with specific personal challenges encompassing social, psychological, economic and physical difficulties.[8]

Whilst treatment of child and adolescent chronic pain can be effective in some circumstances, i.e., especially relaxation and Cognitive Behavioral Therapy (CBT), in managing chronic pain in children and adolescents,[9] for treating Fibromyalgia [10] and for reducing headache pain intensity;[11] research evidence demonstrates numerous challenges with treating chronic pain.[12] Such challenges include inadequate investment in research and services, insufficient training of medical professionals, a failure to provide adequate or suitable pain relief in clinical practice, and inequality in accessing appropriate support.[13] Even where clinicians provide high-quality care and understand pain, systematic barriers prevent improvements in their practice.[14] Such barriers include deficits in communication from health care professionals to parents, for example, doctors and nurses providing conflicting information, parental factors (e.g., the inability to recognize or assess their child's pain), and youth-related factors (e.g., the refusal to take medications [14] and fear of pain which plays a vital role in treatment outcomes [15]). However, little is known about the potential additional barriers clinicians may encounter when assessing and treating adolescents who experience co-occurring chronic pain and mental health symptoms. Clinical reflection on practices identified a lack of integrated approaches, with treatment often focused on treating individual symptoms and disorders instead of adopting a more holistic approach towards the adolescent.[16] Failure to adopt an integrated approach may hamper the identification of symptoms of several disorders within the context of the adolescent's broader life and ecosystem. Confirming this lack of integration, a recent scoping review highlighted a knowledge gap concerning the co-occurrence of pain and primary psychological disorders.[17] This review highlighted a dearth of chronic pain research focusing on investigating the diversity of mental health disorders frequently encountered by adolescents regardless of their pain status. This review added to the call for research focusing on co-occurring pain and mental health prevalence to better understand the co-occurring symptoms.[6,18–20] To date, no research has considered the perspectives of clinicians concerning their experiences of assessing and treating adolescents with co-occurring chronic pain and mental health symptoms.

This study sought to address this knowledge gap by adopting a qualitative vignette design to understand the challenges clinicians face in assessing and treating adolescents with co-occurring chronic pain and mental health symptoms. Understanding these challenges can identify treatment gaps, highlight educational needs, and guide service improvements.

Methods

Design

This study adopted a cross-sectional qualitative design to analyze data from an online vignette survey. The study was approved by the UK National Health Service Ethics Committee (Approval number: 19/YH/0182) and the Psychology Research Ethics Committee at the University of Bath (19−250).

Participants

Between September 2020 and February 2021, 40 clinicians, working with adolescents (aged 11–19) experiencing pain and/or mental health symptoms were recruited for this vignette study. We recruited through specialist pain or mental health centers, social media posts and snowballing. Participants had no relationship with the research team prior to commencement of the study and were informed that this study formed part of a PhD. Initial clinician eligibility for participation required participants to be:

1) Clinicians involved in the treatment of adolescents aged 11-19 years who experience chronic pain (pain for 3 months or more) and / or mental health symptoms (each clinician only responded to cases within their area of expertise).
2) Fluent in English.
3) Practice in a state-funded or private clinic setting (no restrictions on discipline or country).
4) Able to give informed consent for themselves.
5) Have computer and internet access or be happy to receive paper copies of the assessments.
6) Have cognitive competency to be able to complete study tasks.

The authors recruited 21 (52.5%) participants from the UK and 19 (47.5%) worldwide. The sample comprised 10 physiotherapists (25%), 11 psychologists (27.5%), 16 medics (40%), 2 nurses (5%) and 1 occupational therapist (2.5%). Participants worked across a range of clinical settings including specialist pain centres (n=24, 60%), secondary care/district general hospitals (n=9, 22.5%), rehabilitation hospitals (n=3, 7.5%), tertiary care hospitals (n=2, 5%), community pain services (n=1, 2.5%) and general practice/primary care (n=1, 2.5%). Time qualified in professional roles ranged from 2 to 50 years (M= 14.75, SD 9.5). Most participants were aged 31–40 years (45%). See Table 1 for full participant demographic details.

Participants provided informed consent and confirmed their eligibility to participate in the study. As comparisons across groups were not the aim of this vignette study, this moderate purposive sample size was selected to capture a range of high-quality, in-depth perspectives.[21]

Table 1
Demographic Data for Participants.

Age range (years)	Number of participants (%)
18−30	4 (10)
31−40	18 (45)
41−50	9 (22.5)
51−60	6 (15)
61−70	2 (5)
70+	1 (2.5)
Gender	
Male	12 (30)
Female	28 (70)
Geographical location	
Australia	1 (2.5)
Canada	3 (7.5)
Israel	1 (2.5)
Singapore	1 (2.5)
Sweden	1 (2.5)
UK	21(52.5)
USA	12 (30)
Professional discipline	
Physiotherapy	10 (25)
Psychology	11 (27.5)
Medicine	16 (40)
Nursing	2 (5)
Occupational therapy	1 (2.5)
Clinicians' place of work	
Specialist pain centre	24 (60)
Secondary care/district general hospital	9 (22.5)
Rehabilitation hospital	3 (7.5)
Tertiary care hospital	2 (5)
Community pain service	1 (2.5)
General practice/primary care	1 (2.5)

With regard to discipline, the sample comprised 10 physiotherapists (25%), 11 psychologists (27.5%), 16 medics (40%), 2 nurses (5%) and 1 occupational therapist (2.5%). Participants worked across a range of clinical settings including specialist pain centres (n=24, 60%), secondary care/district general hospitals (n=9, 22.5%), rehabilitation hospitals (n=3, 7.5%), tertiary care hospitals (n=2, 5%), community pain services (n=1, 2.5%) and general practice/primary care (n=1, 2.5%)

Procedure

Clinicians in this study were recruited via (1) emailing the contacts at specialist pain and mental health centers, (2) contacting those who responded to the social media post on Twitter and (3) responding to emails from clinicians who had been approached via snowballing methods. Regardless of recruitment route, participants were directed to a Qualtrics online survey software link,[22] which included a study summary. The online link provided access to a participant information sheet and a consent page asking clinicians to confirm their eligibility and consent to participate. Clinicians were asked to verify that they worked with adolescents aged 11–19 years who experience chronic pain and/or mental health symptoms. Once participants provided consent to participate in the study, they gained access to the online survey. Participants were asked to create a unique identification code (initials and year of birth) to allow them to withdraw if later requested. The survey comprised a range of demographic questions and four vignettes, which included scenarios of adolescents who experience co-occurring chronic pain and mental health symptoms. Participants were requested to provide detailed responses to the vignettes. If participants failed to complete the survey, the authors contacted them with a unique access code which would allow them to complete their response, should they wish. Following the screening of all responses for fraudulent participation, the authors sent an online shopping gift card valued at £15 (GBP) to each participant as a thank you for their participation.

Measures

Participants were asked to (1) report demographic measures, (2) complete a short questionnaire about their clinical contacts and workload, and then (3) describe their responses to clinical vignettes.

Demographic questions

Participants were asked to complete standard demographic questions about participant age, gender, professional discipline, length of time qualified, current work setting and time in the present work setting. Additionally, participants were asked about the typical patients they see in their setting regarding symptoms (i.e., chronic pain or mental health), how many patients they see on average a week, and their referral pathways. Please see Table 2 for the full version of the survey completed by participants.

Vignettes

A vignette methodological approach was selected for its efficacy in examining complex situations [23] and enhancing the comprehension of sensitive and challenging experiences faced by healthcare professionals.[24,25] Vignettes are frequently used to investigate attitudes, beliefs, perceptions and norms,[26] such as eliciting responses from healthcare professionals regarding the reaction to an upset child resisting a medical procedure [27] and examining ethical issues surrounding social work.[28]

The vignettes depicted four scenarios of adolescents who experienced either chronic pain or mental health symptoms, chronic pain symptoms with further development of mental health symptoms or, finally, mental health symptoms with the further development of chronic pain symptoms (see Table 3). The authors chose not to randomize the vignettes to avoid the potential presentation of the co-occurring symptom vignettes in succession. The focus of these scenarios was chosen carefully with clinical input from pediatric pain specialists, who provided feedback on the vignette designs to ensure that all vignettes were an appropriate length and were an authentic depiction of the four "types" of adolescents that were being targeted and presented in this specific order: an adolescent who initially experienced pain symptoms and developed mental health symptoms, an adolescent who experienced pain symptoms only; an adolescent who initially experienced mental health symptoms who then developed additional pain symptoms; and finally adolescent who experienced mental health symptoms only. The authors did not enlist patient and public involvement (PPI) in the design of this study; however, they will enlist PPI help when disseminating the findings of this research.

Table 2
Participant Survey.

Participant Questions	Participant Response
We know many young people experience chronic pain; we are really interested to hear your thoughts about this.	
In your typical working week, how many young people do you see with only chronic pain symptoms?	1–34–67–10More than 10 per week
Thinking about the young people you meet with only chronic pain, what would you say is the most frequent type of pain experienced (e.g., headache, abdominal pain).	Free text:
Which services do you signpost (refer) young people with chronic pain to? Please write N/A if you do not signpost.	Free text:
We know a number of young people experience mental health symptoms. We are really interested to hear your thoughts about this	
In your typical working week, how many young people do you see with only mental health symptoms?	1–34–67–10More than 10 per week
Thinking about the young people you meet with more severe mental health symptoms, what would you say is the most prevalent mental health symptom/condition they experience?	Free text:
Which services do you signpost (refer) young people with more severe mental health symptoms to? Please write N/A if you do not signpost.	Free text:
We know that a number of young people experience both chronic pain and mental health symptoms. We are really interested to hear your thoughts about this.	
Which services do you signpost (refer) young people with both chronic pain and mental health symptoms to? Please write N/A if you do not signpost.	Free text:

Note. Aside from the questions in the table, participants were asked to confirm their age, gender, professional discipline, professional title, how long they have been qualified, their current workplace and the time in the current position.

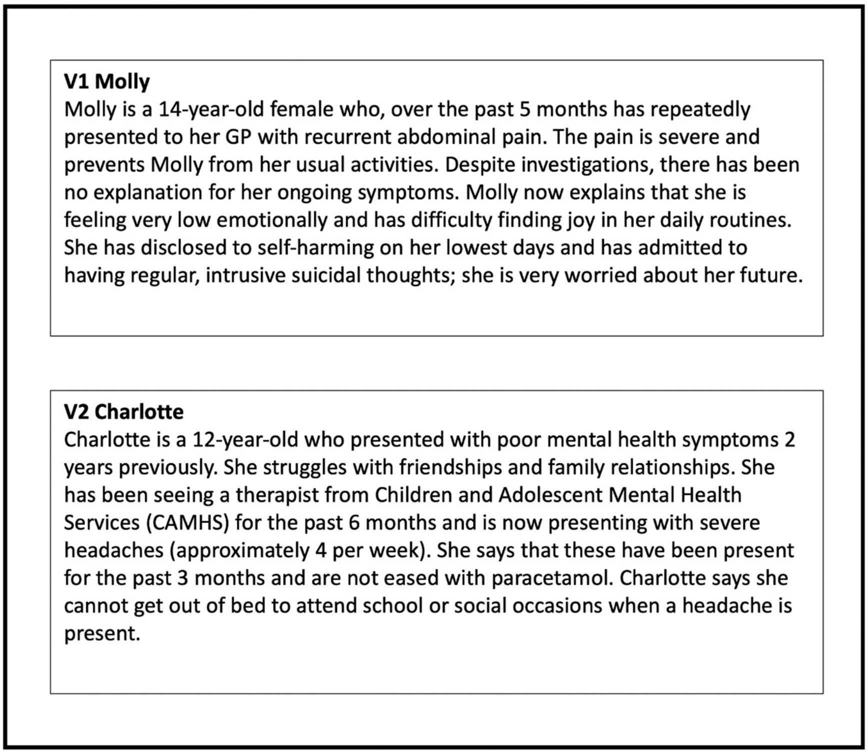
Table 3
Description of adolescents' symptoms depicted in the vignettes.

Vignettes	Symptoms
[a]Molly	Pain and mental health symptoms
Jack	Pain
[a]Charlotte	Mental health and pain symptoms
Connor	Mental health

Note.
[a] Vignettes analysed in this study

In accordance with the research question of this study, the authors focused only on participants' responses to the two vignettes that depict adolescents with co-occurring chronic pain and mental health symptoms, although the participants did respond to all four vignettes. Vignettes were presented in a specific order for all participants; (1) Molly who experienced pain and subsequently developed co-occurring mental health symptoms; (2) Jack who experienced chronic pain following an injury; (3) Charlotte, who experienced mental health symptoms and subsequently developed pain and (4) Connor, who experienced mental health symptoms. Unfortunately, as we elected to only include responses to the vignettes with co-occurring symptoms (Molly and Charlotte), participants only responded to female gender scenarios. For a detailed overview of all vignettes and questions, see the protocol on the Open Science Framework available at https://osf.io/qe6w4/. The two vignettes used in this study can be found below in Fig. 1.

After reading each vignette, the participants were asked to respond



V1 Molly

Molly is a 14-year-old female who, over the past 5 months has repeatedly presented to her GP with recurrent abdominal pain. The pain is severe and prevents Molly from her usual activities. Despite investigations, there has been no explanation for her ongoing symptoms. Molly now explains that she is feeling very low emotionally and has difficulty finding joy in her daily routines. She has disclosed to self-harming on her lowest days and has admitted to having regular, intrusive suicidal thoughts; she is very worried about her future.

V2 Charlotte

Charlotte is a 12-year-old who presented with poor mental health symptoms 2 years previously. She struggles with friendships and family relationships. She has been seeing a therapist from Children and Adolescent Mental Health Services (CAMHS) for the past 6 months and is now presenting with severe headaches (approximately 4 per week). She says that these have been present for the past 3 months and are not eased with paracetamol. Charlotte says she cannot get out of bed to attend school or social occasions when a headache is present.

Fig. 1. Two vignettes depicting adolescents with co-occurring pain and mental health symptoms used in this study.

to a range of open-text questions. For this study, the questions included in the analyses are as follows:

1) **"***What are your thoughts about the challenges/barriers to treating (Molly/Charlotte)?"*
2) "*Is there anything you would like to add about anything we've discussed or anything else that you would like to share with me about your experience of treating young people with chronic pain and/or mental health symptoms?"*

Data analysis

The data analyses was conducted using NVivo 12 software.[29] Vignette data were analyzed using inductive reflexive thematic analysis.[30] Reflexive thematic analysis is a theoretically flexible approach to qualitative analysis which aims to generate and analyze patterns across data.[31] With a focus on generating semantic and latent meanings of the data, the authors engaged with the six stage approach to conducting inductive reflexive thematic analysis (RTA) as outlined by Braun and Clarke.[30,32] The reflexive focus of RTA enables authors to actively and analytically engage with the data deliberately and reflectively whilst being aware of their researcher's subjectivity and personal interpretation,[33] effectively becoming an "active agent in the production of knowledge".[34] The critical realist position informed the analytical approach, allowing the authors to acknowledge the context and the interpretative engagement of the research.[35] The six-phase process of analysis [33] was followed with an awareness that these guidelines are unidirectional. Phase 1: The authors first familiarized themselves with the dataset. This immersive process was conducted with hard copies of the response data and then electronically using NVivo 12.[29] Brief thoughts and annotations were noted about the responses and any insights. Phase 2: Coding was conducted by systematically working through each participant's response, at first on a semantic level, with later thorough passes producing more conceptual or latent codes. Phase 3: The authors generated initial themes by gathering codes with shared patterned meaning. The construction of 'candidate themes' were developed whilst being mindful of the data, the research questions and the authors personal knowledge and insights to describe shared broad meanings. Phase 4: The phase of developing and reviewing the candidate themes with the entire dataset to assess the fit was conducted multiple times by merging and revising some and discarding others. Phase 5: The themes were refined, defined, and named to ensure that the core framework surrounding each theme was clearly defined to tell the story about the data. Phase 6: Writing was an analytical process during all phases of this approach. Saturation is not appropriate when using RTA,[36] thus have not been discussed in this paper.

Establishing quality in qualitative research

To ensure quality across the study process and findings, the authors carefully considered methodology and epistemology throughout the research process. First, credibility was considered, which assesses the alignment between the represented data and the participant perspectives, which determines the accuracy of the findings.[37] To ensure credibility, the authors recruited from a variety of clinical disciplines, included verbatim quotations and held regular discussions surrounding the analytic processes of coding and theme generation. These practices also achieved the assessment of confirmability, which requires that the analysis be grounded in the data through examination of an audit trail.[37]

Second, transferability and dependability were considered in the study by including detailed information about the research processes and a clear contextual background of the participants.[37] Additionally, to establish rigor, a reflexive journal was maintained to document reflexive notes throughout the study and analytical process. Reflexivity was further demonstrated by acknowledging the authors active roles as white, trained clinicians and researchers with an interest in pain. All authors work in a university setting and have a Ph.D. in psychology, with the exception of S. Bateman who was a Ph.D. candidate at the time of the study, and J.G.G who is also a clinical psychologist (D Clin Psy), working in a clinical setting at a specialist pain center. The authors particularly noted their positions as psychologists and parents, and how these perspectives influenced their engagement with and interpretation of the data.[33] To ensure openness, trustworthiness, and quality across the research, the first author S. Bateman developed the initial codes and themes and regularly met with co-authors A. Jordan and A. Caes to discuss the analytical interpretations and the generation of further codes and themes. The final themes included the involvement and agreement of all co-authors.[35,38]

Results

The authors generated two major themes using inductive reflexive thematic analysis of the dataset. Theme (1) 'tangled threads' describes clinicians' perspectives concerning how treatment of adolescents who experience co-occurring pain and mental health symptoms is often complicated by the adolescent's prior interactions with clinicians and the level of parental engagement. Theme (2) 'The difficult to pursue integrated approach' describes how disconnected service provision is a barrier to effective treatment for adolescents who experience co-occurring pain and mental health symptoms. Themes are presented below and accompanied by clinician quotations as exemplars of the authors interpretation of the data. All clinician identities have been anonymized to maintain participant confidentiality through participant numbers.

Theme 1: tangled threads

This theme is centered around the idea that clinicians need to dedicate time to validating the adolescent's experiences and 'unpicking' the adolescent's often negative previous clinical encounters when assessing an adolescent for the first time.

"She is likely to have been disbelieved previously by health professionals" (Psychologist, Specialist Pain Centre, Vignette Charlotte).

Such negative and invalidating clinical encounters were presented as individual experiences, yet when considered together, they form a complex mix of different yet connected experiences, or 'tangled threads'. These tangled threads shape adolescent (and parent) expectations for future clinical encounters. In many instances, mistrust was central to the expectations around the clinical encounter. This mistrust is neatly described by P4, who identifies how: "*Previous difficulties engaging with health professionals and others* i.e.*, not believed, lack of trust from Molly towards others"* are key harmful factors to consider as they can complicate the clinical encounter and treatment provision (Participant 4, Psychologist, Specialist Pain Centre, Vignette Molly). Acknowledging the complexity of these many isolated yet similar experiences, clinicians perceived a need to 'disentangle' these individual experiences to build trust with the adolescent and move forward with treatment for their co-occurring pain and mental health symptoms.

Clinicians perceived the existence of such a previous 'tangled thread' to act as a barrier to treating adolescents. In addition to building trust with the adolescent, clinicians felt compelled to 'unravel' challenges associated with the previous clinical encounters, as expressed by participant 7: *"Likely complex history that would take time to untangle"* (General Practitioner, general practice, vignette Charlotte). Such challenges include an overreliance on adopting a medically orientated approach, before being able to manage the adolescent's co-occurring symptoms.

"*The biggest challenge I see when first seeing patients with Molly's presentation is that focus has often been on finding the physical cause that would lead to medical management. Often physicians explain a lack of findings as "there's nothing wrong" or that the symptoms are purely psychological. Unfortunately, this is also a bias that is evident from referring physicians who may have assumed a behavioral cause of pain rather than thoroughly assessed the headache disorder"* (Participant 8, Psychologist, Specialist Pain Centre, Vignette Molly).

Importantly, clinicians described how the negative experiences of previous clinical encounters often resulted from misunderstandings by other clinicians surrounding pain and mental health symptoms, leading to incorrect assumptions about the adolescents' symptoms. *"I would be wary of making a psychosomatic interpretation [of Charlottes' symptoms], but mindful that other professionals (health and education) will probably do so, without understanding or evidence"* (P1, Psychologist, Specialist Pain Centre, Vignette Charlotte). These misunderstandings were regarded as potentially serious, especially when chronic pain and mental health symptoms were treated as separate issues or 'threads', when a more integrated treatment approach is required to acknowledge the duality of symptoms and their impact on the adolescent.

"We often neglect to really acknowledge that while we are focused on treating pain and symptoms, mortality associated with chronic pain and mental health are related to suicide and drug overdose, and unfortunately we rarely capture those links when we focus only of pain or mental illness, rather than seeing them as potentially related issues, death by suicide and/or drug overdose are" (P8, Psychologist, Specialist Pain Centre, further comments).

Clinicians perceived the 'inaccuracies around the adolescents' previous treatment to be due to a lack of broader clinician knowledge surrounding co-occurring pain and mental health symptoms. Whilst perceived as a criticism of other clinicians, participants in this study acknowledged the challenges associated with effectively managing co-occurring adolescent chronic pain and mental health settings in certain health settings, such as general practice. "*Marked functional impairment, mood disorder, pain that is difficult to manage by the GP [General Practitioner]"* (P40, Consultant - Pain, Anesthesia, Specialist Pain Centre, Vignette Molly).

For clinicians, the idea of working with 'tangled threads' extended beyond considering the impact of previous clinical encounters to considering the role of others in the adolescent's life and how they may impact and further complicate the adolescent's treatment for co-occurring pain and mental health symptoms. One focus was that of parents, highlighting the central role that parents can play in working effectively with adolescents to manage their co-occurring symptoms or, if not fully accepting of their child's treatment program they may confound matters further tangling the threads.

"*In a 12-year-old, engagement of parents with a rehabilitation and treatment agenda will be essential. If parents are not engaged with the attempt to achieve behavioural activation and psychological treatment with Charlotte, then individual treatment will never succeed"* (P1, Psychologist, Specialist Centre for Pain, Vignette Charlotte).

While clinicians identified how working collaboratively with family members could mitigate potential treatment barriers, they also identified how preconceived parental ideas around their adolescent's symptoms could negatively impact the collaborative working relationship between the adolescent, parent, and clinician. Such experiences could further complicate the clinical experience and leave the adolescent more mistrustful and confused. "*The family perspective may present a challenge, for example if the family remain diagnosis/investigation/medical treatment focused"* (P24, Psychologist, Tertiary Hospital, Chronic Pain and Rheumatology Specialists, Vignette Molly). Whilst sometimes perceived as a barrier to treatment, some clinicians focused on embracing the support of parents to help with 'untangling the threads' to facilitate the treatment of the adolescents. This is articulated by P8 who describes how they "*often turn to parents to assist in coaching and supporting strategies"* (P8, Psychologist, Specialist Centre for Pain, Vignette Charlotte).

In sum, this theme demonstrates how clinicians' perceptions of the challenges and barriers to treatment of co-occurring symptoms in adolescents are characterized by multiple competing 'tangled' threads or factors. These include a need to unpick the prior experiences of the adolescent with various clinicians and the adolescent's family perceptions towards their symptoms. These experiences further 'tangle the threads' and must be carefully pulled apart to enable the adolescent to proceed with treatment.

Theme 2: the difficult-to-pursue integrated approach

This theme considers how clinicians perceive co-occurring pain and mental health symptoms as creating competing priorities for the adolescent regarding required treatment and, subsequently, the clinician who treats the adolescent. Clinicians perceived that treatment was often more challenging due to typical separate assessments and management of pain and mental health symptoms. Clinicians acknowledged the need for, and challenges associated with, adopting a more integrated treatment approach. A critical barrier to treatment that clinicians describe is the complex interactions between these co-occurring symptoms and how this interaction is often difficult for adolescents to understand, as described by Participant 26: *"Due to longevity and chronicity of poor mental health, she may be difficult to buy in that it will not be a "quick fix""* (Nurse Practitioner, Specialist Pain Centre, Vignette Charlotte).

This lack of understanding of the intertwined nature of pain and mental health symptoms can interfere with the adolescent's ability to participate in treatment and hinder their ability to establish meaningful objectives in their lives. This is described by Participant 15 who describes how: "*Her [Molly's] potential psychological symptoms might interfere with her participation in treatment or her ability to carry over outside of session since it seems like she is hopeless and depressed"* (Physiotherapist, Sub-acute Rehabilitation Hospital, Vignette Molly).

Clinicians expressed challenges in addressing the competing priorities of pain and mental health symptoms within the existing healthcare system. As described by participant 25: *"Mental health issues are always a complicating factor in treating pain as there are usually multifactorial contributions to school/social avoidance"* (Physiotherapist, Specialist Pain Centre, Vignette Charlotte). Within the confines of the current healthcare system, clinicians expressed how separate specialized care would be necessary for each aspect of the adolescents' dual symptoms. In contrast, the ideal approach would involve integrated care which is currently unavailable. Consequently, given the current nature of isolated care provision, a choice is required regarding which symptoms to prioritize for treatment, either pain or mental health. This is especially the case when the mental health issues are severe and would interfere with treatment for their pain: "*The self-harm and intrusive suicidal thoughts (depending on the severity of these) could present as barriers to treatment of her [Molly's] chronic pain and the focus may be more on this initially"* (Participant 3, Physiotherapist, Specialist Pain Centre, Vignette Molly). Furthermore, mental health symptoms were anticipated to create difficulties with engagement in pain-focused treatment: "*If she [Molly] is very depressed and suicidal then she would struggle to engage with active pain rehabilitation and this would need to be addressed first"* (Participant 2, Physiotherapist, Specialist Pain Centre, Vignette Molly).

When electing to prioritize treatment for mental health rather than pain symptoms, clinicians acknowledged that prioritizing treatment of mental health symptoms may substantially delay any pain treatment and subsequently negatively impact adolescent functioning. Hence, clinicians strongly advocated for a clinical approach that provides more integrative care to managing pain and mental health symptoms. For instance, Participant 36 stressed the importance of multidisciplinary treatment: "*I would expect her [Molly's] abdominal pain will not improve without also addressing her mood symptoms"* (Psychologist, Specialist Pain Centre, Vignette Molly). However, even for clinicians who work within specialist multidisciplinary services (e.g., pain management), the duality of pain and severe mental health symptoms was perceived as a hindrance to treatment.

"Further, her [Molly's] participation in a functional rehabilitation approach may be challenging in the context of significant depression or anxiety, which may require more targeted intervention" (Participant 37, Psychologist, Specialist Pain Centre Vignette Molly). An explanation for these findings is that whilst multidisciplinary pain teams typically include psychologists who are trained in addressing mental health symptoms associated with pain their expertise may not extend to other severe mental health conditions. The 'Molly' vignette may indeed depict this scenario and reveal a systems-level-barrier, where adolescents with chronic pain who are actively endorsing suicidal ideation may need a higher level of care than once-a-week outpatient psychotherapy. As described below by Participant 8, clinicians within a specialist setting often do not have sufficient wider training to offer a truly integrative treatment approach that treats both pain and mental health symptoms. Such a lack of knowledge is a barrier to effective treatment for co-occurring symptoms.

"*We are also sometimes too quick to say that the existing mental health team can handle both, when they may not have any background in pain, headache disorders, or explaining or treating pain. I have seen a number of case formulations when a specific pain disorder was seen as a manifestation of a psychological issue, rather than addressing the pain itself*" (Psychologist, Specialist Pain Centre, Vignette Charlotte).

Clinicians in this study described how a key facilitator for providing a more integrated approach to treating pain and mental health is communication. However, clinicians reported a lack of or poor communication between pain and mental health services. "*Communication between medical and psychiatric services is often suboptimal and this can hamper treatment both ways, especially if patients receive mixed messages"* (Participant 11, Rheumatologist, District Hospital, Vignette Molly).

Despite the challenges of isolated care provision, it remains preferable to having no care at all. This is particularly important given that a significant hurdle in the existing care pathway is the difficulty in accessing suitable and timely services, as described by P5: "*Very poor access to acute CAHMS / psychological support in ED. Often end up with unnecessary and inappropriate admissions to facilitate treatment"* (P5, ED Consultant, District General Hospital, further information). Particularly for adolescents who experience co-occurring symptoms, the substantial challenges of accessing mental health support were viewed by numerous clinicians as having adverse effects on the well-being of the adolescents and their symptoms. Moreover, clinicians acknowledged that this difficulty could be potentially challenging to the service provider's treatment plans, as described by P31: "*If her [Molly's] low mood is the result of other factors rather than coping with pain then CAMHS referral can be a lengthy process which may be a challenge to the success of our MDT teamworking approach to chronic pain"* (P31, Clinical Nurse Specialist, Tertiary Care Centre-Children's Hospital, Vignette Molly).

A considerable challenge clinicians face is the extended delay in assessing and treating adolescents' mental health symptoms which may result in prolonged treatment periods. For 24% of young people in England the delay for an initial mental health assessment, following referral, is currently over 12 months.[39] This extended delay in accessing treatment further contributes to the fragmented and non-integrated nature of care for adolescents with co-occurring symptoms as expressed by Participant 17: "*The threshold for CAMHS is so high now in many parts of the UK, the children in your vignettes may struggle to get access to mental health support, unless a tier 2 or primary care service is available*" P17, Psychologist, Specialist Centre for Mental Health, further information.

To summarize, this theme identifies how adolescents who experience co-occurring pain and mental health symptoms require an integrated approach towards their care to maximize functioning, yet such an approach is lacking. Separate service settings provide structured and discipline-specific professional treatment for adolescents with a specific set of single symptoms. However, when the adolescent's symptoms co-occur, adolescents often fail to fit neatly into the separate services available. Clinicians perceive such an isolated approach as challenging for both the adolescents with co-occurring pain and mental health symptoms as well as the clinicians who treat them.

Discussion

This qualitative study explores clinician perceived challenges concerning assessing and treating adolescents with co-occurring chronic pain and mental health symptoms. Findings highlight multiple challenges, including the impact of adolescents' previous clinical encounters. Clinicians emphasize the need to rebuild trust with the adolescent and address distress caused by previous clinical encounters. Clinicians attribute this past distress to a lack of experience or knowledge of co-occurring symptoms in fellow clinicians. This finding aligns with existing research which has demonstrated links between symptom invalidation, increased physical and psychological impairment and toxic stress, advocating for reconceptualizing living with pain as a potential source of toxic stress.[40–42] Additionally, results showed that clinicians reported insufficient access to comprehensive treatment, knowledge, and training for managing co-occurring symptoms. They stressed the need for a more integrated approach with tailored interventions to improve communication and mitigate harm.

Whilst few studies have examined co-occurring pain and mental health research, studies with a singular focus on chronic pain or mental health, have shown that young people and their parents report mistrust in clinical encounters, which can drive uncertainty and distress.[40,43] Clinicians who work in chronic pain settings appreciate the need to gain the trust of children and families so that they may be perceived as credible.[44] The present research is congruent with the evidence base, highlighting the importance of clinician validation of pain and associated experiences in young people.[44] The present study findings demonstrate clinicians' awareness of the importance of establishing trust with adolescents (and parents) prior to treatment. This awareness is important as gaining the trust of patients improves patient satisfaction and outcomes in adults with chronic pain.[45] Moreover, a lack of trust from patients can lead to adverse social and health outcomes.[46] Interestingly, findings form this study highlighted that clinicians lacked confidence in the ability of previous clinicians to fully understand the adolescents' co-occurring symptoms and their ability to provide appropriate advice. Whilst mistrust between clinicians and patients has been previously documented,[40,47] this is the first study to document clinicians' mistrust in skills employed by their fellow clinicians. This mistrust may arise from clinicians doubting the communication skills of referring or community providers who lack specialized training in chronic pain or experience in a multidisciplinary pain setting, affecting their ability to educate patients about the relationship between pain and mental health. The authors suggest that future research focus on examining the specific concerns related to clinicians' skill sets in treating co-occurring pain and mental health symptoms. This focus is crucial for developing training solutions to mitigate concerns surrounding clinician skills, ensuring that clinicians can rely on their colleagues and that patients receive the appropriate care.

A key finding of this study is the need for clinicians to adopt an integrated approach to treating adolescent pain and mental health symptoms. While interdisciplinary pediatric focused pain clinics with psychologists on staff exist, their limited availability fails to meet the growing demand, leaving many young people with chronic pain without access to specialist care. Participants described how the majority of service settings are presently equipped to treat single symptoms of pain or mental health symptoms, and although these may be managed effectively, the duality of pain and mental health symptoms complicates treatment options. This petition for an integrated approach is not new [16] and is congruent with previous research recommendations that have also been made with chronic pain research [48,49] and mental health research [50,51] separately. Given the current study findings, which highlight the need for integrated care across co-occurring pain and mental health services, there is a growing and urgent need to prioritize and implement these recommendations. Aside from the impact on the individual and clinicians, when we consider the impact of co-occurring mental health symptoms on physical health, there is a substantial cost to health services (e.g., the health care cost for patients (mixed age range) with co-occurring mental health symptoms and physical illness estimated between £8 billion and £13 billion in England [52]), which could be reduced by implementing an integrated approach. Understanding the specific challenges clinicians face highlights critical areas for improvement in treating co-occurring pain and mental health symptoms, i.e., improved (medical) education and suggesting potential transformations to service provision. One suggestion is the development of an integrated approach to treating co-occurring symptoms of pain and mental health. Such an approach might involve the integration of specialist staff from mental health settings, i.e., psychiatrists and psychologists, to be placed in established specialized pain centers.

Similarly, pain specialists could be embedded into mental health settings, providing improved access to pain expertise and intervention. Encouraging results from Simons and colleagues [53] highlight the positive impact of integrated treatment for pain and fear at a rehabilitation day hospital in the Boston Children's Hospital. Additionally, the transdiagnostic approach, which targets common mechanisms across co-occurring conditions, might be helpful in the development of integrated treatment.[54–56] Successful case studies using this approach target common mechanisms across co-occurring pain, anxiety, and depression symptoms,[57,58] suggesting further development could help treat a wider variety of mental health symptoms. A conceptual model developed to explore mutually maintaining factors associated with co-occurring pain and depression by Soltani et al [6] demonstrates the potential benefits of integrated approaches and supports similar approaches for pain and co-occurring mental health symptoms. Further suggestions include the novel solution of providing integrated care in primary care settings, e.g., providing pain and mental health specialists in General Practice. Another suggestion is to provide a "fast track" referral system between departments in hospital settings, rather than waiting for the primary care doctor to re-refer, i.e., between physiotherapists and mental health departments or from mental health to pain specialists, of course, there may be additional healthcare costs involved. Implementing these integrated care strategies could also minimize costs and enhance treatment options and outcomes for adolescents with co-occurring symptoms.

The study has limitations, notably its focus on clinicians treating adolescents aged 11–19, which may limit the applicability of findings to other age groups. Second, clinicians responded to case study vignettes which were completed asynchronously, thus, there were no opportunities for participants to elaborate on their answers or clarify issues. Third the vignettes were not randomized. Due to the different conditions in each of the scenarios, it was felt that participants should be presented with different hypothetical symptoms for each vignette, to avoid the presentation of the two co-occurring vignettes in sequence. Consequently, participants may have provided a greater level of detail for the first presented vignette (Molly). Additionally, by removing the single symptom vignettes for this study, unfortunately both male gender scenarios were removed. Despite analyzing the removed data to ensure that no new insights were present, the data did not progress to the stringent thematic analyses' procedure, therefore the authors cannot rule out any impact of this decision on the findings. Future research should include a mixed gender to uncover any differences in treatment of males and female adolescents. Moving forward, to ascertain the accuracy of the findings in clinical settings, the authors recommend that future studies occur in clinical settings and include individuals involved in those clinical encounters (e.g. adolescents, parents, clinicians). Finally, limited information was collected on participant's background. Whilst the authors demonstrated that challenges are geographically universal through recruitment of clinicians from a wide geographical area, they acknowledge that they did not collect information on participants' racialized identity, financial status, rurality, sexual orientation or gender diversity (other than to ask if they were male or female). Consequently, it is unknown if clinician-specific characteristics could influence the alliance and connection between patients and clinicians or affect the clinician's responses to the vignettes. Future studies should refer to the important work being conducted by Hood and colleagues [59] to ensure the IDEAA guidelines (Inclusion, Diversity, Equity, Anti- racism, and Accessibility) are considered. Additionally, the authors acknowledge that the clinician's perceived challenges may be exacerbated across different geographical regions. For example, the USA's privatized health care system may further impede those adolescents without access to insurance or in financial hardship. While the United Kingdom offers access to state-funded healthcare, there are still substantial delays in accessing support. Whilst this study focused specifically on the challenges and barriers to assessment and treatment of adolescents with co-occurring pain and mental health symptoms, future research should explore how researchers can work with clinicians to identify some ways in which they can support adolescents to flourish in the context of living with co-occurring symptoms.

Despite these limitations, the study findings highlight a need to develop a more integrated clinical approach to treating adolescents with co-occurring pain and mental health symptoms. This finding is important in terms of reducing treatment waiting times and improving trust between adolescents and clinicians, to improve functioning and outcomes for adolescents with co-occurring pain and mental health symptoms. Such an approach will require improving clinicians' education concerning treating chronic pain and mental health symptoms in this age group.

Authors contributions

This study was designed by S. Bateman, A. Jordan and L. Caes. The data were analyzed by S. Bateman, A. Jordan and L. Caes and the results were critically examined by all authors. S. Bateman had a primary role in preparing the manuscript, which was edited by A. Jordan and L. Caes. All authors have discussed the results and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

Study Pre-registration statement

The protocol for this study is available on the Open Science Framework available at https://osf.io/qe6w4/.

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Declaration of Competing Interest

The authors declare no conflicts of interest.

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This work was undertaken by the named authors of the manuscript. The views expressed within this report are those of the authors.

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Data availability

The anonymized data that support the findings of this study are available from the corresponding author upon reasonable request.

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