




# Exploring Pain Clinical Specialists' Perspectives on Opioid Optimization for Chronic Non-Malignant Pain in England

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**Background:** The use of opioids for chronic non-malignant pain (CNMP) offers limited efficacy and carries the potential for addiction. Healthcare professionals in both primary and secondary care settings face challenges when attempting to optimise opioid medications. There are limited studies that investigated the barriers and enablers to opioid reduction, cessation, and optimisation, specifically from a pain clinical specialist perspective.

**Objective:** This study explores pain clinical specialists' views on challenges in opioid prescription management—including optimization and tapering—and their interactions with patients and prescribers.

**Methods:** Participants were recruited through pain clinic, webinars Email outreach, and professional networks. Semi-structured interviews were conducted using a guide based on the Theoretical Domains Framework (TDF) with 11 pain clinical specialists (8 consultants and 3 pharmacists) from NHS England, out of 15 participants who initially expressed interest, recruited via professional networks. Thematic analysis employed Framework Approach with dual coding.

**Key Findings:** Eleven participants, comprising eight pain doctors and three clinical pharmacists, provided insights. Analysis revealed four key findings: (1) A paradigm shift away from long-term opioid therapy due to concerns about dependency and inadequate pain relief; (2) Strong preference for multidisciplinary, personalized treatment approaches; (3) Significant system-level barriers including care fragmentation and inadequate consultation time; (4) Critical need for enhanced clinician training and patient education programs.

**Conclusion:** Optimizing opioid use for CNMP requires fundamental changes to current practice, including implementation of integrated care pathways, extended consultation times, and comprehensive education initiatives. These findings provide evidence-based recommendations for improving pain management while reducing inappropriate opioid prescribing.

**Keywords:** opioid, chronic non-malignant pain (CNMP), theoretical domains framework (TDF)

## Background

Chronic non-malignant pain (CNMP) is defined by the International Association for the Study of Pain (IASP) as persistent pain lasting three months or longer, extending beyond the expected tissue healing period. Unlike cancer-related pain, CNMP typically originates from conditions such as fibromyalgia, osteoarthritis, or neuropathic disorders.<sup>1,2</sup> In the USA, more than 70,000 deaths linked to opioid overdoses—emphasizing the critical need to better regulate opioid prescribing, especially for chronic pain cases.<sup>3</sup> Conversely, evidence also suggests 44.5% of cancer patients still experiencing do not receive sufficient pain management, pointing to a dual challenge of over-prescription and under-treatment.<sup>4</sup>

In the United Kingdom (UK), over eight million individuals live with CNMP, with half experiencing depression and two-thirds unable to work.<sup>5,6</sup> Research utilizing UK primary healthcare data via the Clinical Practice Research Datalink (CPRD) revealed a surge in strong opioid prescriptions for CNMP between 2000 and 2021.<sup>7</sup> Tramadol's reclassification as a Schedule 3 controlled drug in 2014 introduced stricter prescribing rules, which contributed to a noticeable decline in its use and helped curb the overall rise in opioid prescribing in the UK.<sup>5,8</sup> For instance, a study by Chen et al reported a notable reduction in tramadol utilization and related mortality following the reclassification.<sup>8</sup> Yet, concerns persist over prolonged opioid use,

addiction, and related deaths.<sup>9</sup> National Health Service (NHS) England reported a substantial drop in opioid prescriptions over four years, albeit with a rise in low-dose prescriptions, signaling ongoing concerns.<sup>10</sup>

In the context of CNMP, medication optimization is crucial, representing a person-centered approach to safe and effective medication use for optimal patient outcomes.<sup>11</sup> Opioid dose optimization aims to achieve the maximum therapeutic benefit with the minimum effective opioid dose while minimizing risks and adverse effects. This involves preventing and mitigating problematic behavior related to opioid use, promoting adherence to prescribed regimens, and addressing issues like dose tapering or complete treatment cessation.<sup>12,13</sup> Healthcare professionals are responsible for reassessing medication usage among patients with multi-morbidities, ensuring clinical appropriateness, effectiveness, and safety.<sup>11</sup> This can be achieved through the understanding that opioid optimization is not a one-size-fits-all approach involving uniform reduction or cessation.

In the UK, General practitioner (GP)s serve as frontline providers for CNMP, conducting initial assessments and prescribing medications like non-opioids and mild opioids.<sup>14,15</sup> When specialized care is needed, referrals to pain clinics staffed with multidisciplinary teams occur. These clinics offer advanced CNMP treatment and personalized plans, complementing primary care provided by GPs.<sup>16</sup> Multidisciplinary Team (MDT) proves especially effective in patients using opioids to manage their CNMP, where coordinated care between prescribers, mental health specialists, and other healthcare providers support can safely reduce medication reliance while addressing underlying contributors to dependence.<sup>13</sup>

The involvement of multidisciplinary teams, including pain specialists, has been shown to be more effective in reducing opioid prescriptions and improving patient outcomes.<sup>13,17</sup> Pain specialists play a vital role in addressing patients with multifaceted issues that cannot be managed effectively in primary care settings. Patients referred to pain specialists typically experience more severe pain, which might necessitate higher doses of opioids or present greater difficulty in reducing or stopping opioid use.<sup>18</sup> Pain specialists tailor comprehensive treatment plans that address both the physical and psychological aspects of pain and opioid dependence, which are often intertwined in chronic pain patients.<sup>19</sup>

Exploring the perspectives of pain specialists is crucial because they possess in-depth knowledge and experience in managing complex pain cases. Their insights can inform better treatment protocols and policies aimed at optimizing pain management. Understanding their approaches and challenges can lead to improved patient care strategies and potentially reduce the incidence of opioid dependence and misuse.

## Study Aim

This study aims to explore pain specialists' perspectives on the challenges associated with optimizing, tapering or cessation of prescribed opioids, as well as their experiences in interacting with patients and fellow prescribers on opioid optimization and tapering.

## Ethics Approval

Ethical approval for this study was granted by the Ethical Committee (Wales REC 3), with REC reference: 20/WA/0232, Protocol number: RG\_19-160 and IRAS project ID: 270017. Written informed consent was obtained from all participants included in the study. Written informed consent was obtained from all participants, including permission to publish anonymized responses and direct quotes.

## Method

**Study Design and Conceptual Framework** The study utilized the Theoretical Domains Framework (TDF) Version 2 to guide the interviews and analyze data. TDF integrates 128 constructs from 33 behavior and behavioral change theories into 14 distinct domains, providing a robust tool for eliciting a comprehensive set of beliefs and facilitating detailed behavioral analysis<sup>16,19–21</sup> see [Table 1](#). The study design adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to ensure comprehensive and transparent reporting.<sup>22</sup> See [appendix](#).

## Inclusion Criteria

Participants were healthcare professionals (doctors, nurses, pharmacists, physiotherapists, psychiatrists) with at least one year of experience in pain management clinics in England, proficient in English, and aged 18 or older. To ensure

**Table 1** Mapping of Interview Schedule of TDF Domains

Domain	Content	Sample Questions
Knowledge	An awareness of the existence of something	What does opioid therapy optimization mean to you personally?
Skills	An ability or proficiency acquired through practice	In your experience, what approach do you find effective when working with challenging patients, especially those for whom you believe optimizing the use or withdrawal from chronic opioid therapy may be beneficial?
Social/professional role and identity	A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting	Could you share your personal experiences, attitudes, and beliefs regarding the long-term use of opioids for patients with chronic non-malignant pain (CNMP)?
Beliefs about capabilities	Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use	As a chronic pain specialist, what daily challenges do you personally face concerning the tapering of long-term opioid therapy, and how do you navigate these challenges?
Optimism	The confidence that things will happen for the best or that desired goals will be attained	How do you envision the future improvement of opioid use for managing CNMP?
Beliefs about consequences	Acceptance of the truth, reality, or validity about outcomes of behaviour in a given situation	From your perspective, what are the consequences of using or withdrawing from opioid therapy, and how do you believe these impact patients?
Reinforcement	Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus	What support or reinforcement from the healthcare system and regulatory bodies would you find helpful in optimizing opioid therapy for CNMP?
Intentions	A conscious decision to perform a behaviour or a resolve to act in a certain way	Are there any existing external incentives, such as NHS guidelines on deprescribing, that encourage you to focus on optimizing long-term opioid therapy for CNMP patients?
Goals	Mental representations of outcomes or end-state that an individual wants to achieve	Personally, is optimizing opioid use among CNMP patients one of your primary goals?
Memory, attention, and decision processes	The ability to retain information, focus selectively on aspects of the environment and choose between 2 or more alternatives	What, in your view, could help you and your colleagues focus on appropriate opioid prescribing, deprescribing, and assessment?
Environmental context and resources	Any circumstance of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviours	In your experience, are there specific circumstances or environmental factors that contribute to focusing on appropriate opioid prescribing, withdrawal, and assessment?
Emotion	A complex reaction pattern involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event	How do you personally handle the emotions involved in dealing with CNMP patients who demand opioid prescriptions or resist opioid tapering?
Social influences	The interpersonal processes can cause individuals to change their thought, feeling and behaviours.	How does patient satisfaction in your interactions affect your personal approach to prescribing, deprescribing opioids, or assessing patients?
Behavioural regulation	Anything aimed at managing or changing objectively observed or measured actions	When faced with your most challenging patients, what personal approach do you find effective in addressing their needs and concerns?

a diverse sample of pain management professionals and maximize the variety of views and experiences, the study team employed several recruitment strategies targeting these professionals.<sup>23,24</sup>

## Recruitment Methods

Three distinct methods were used to enhance participant numbers and recruit a variety of pain specialists. The first method involved collaboration with a pain clinic in the West Midlands, employing two pain doctors, two nurses, two physiotherapists, and one psychologist. Despite initial interest, participation was hindered by the timing of data collection, coinciding with the onset of lockdown, resulting in lost connections and lack of consent. The second method used a webinar on low back pain hosted by an academic center in the Northwest of England, attended by 93 pain doctors. This approach effectively reached a good number of doctors, reflecting the webinar's targeted audience. The third recruitment strategy involved sending emails about the study through a major pharmacy chain in the UK, with invitations disseminated to pain pharmacists via research team acquaintances. Efforts to recruit additional healthcare professionals like nurses, physiotherapists, and psychologists were less fruitful, highlighting a gap in available channels for reaching these specialists in pain management. The participants received the study package electronically, which included detailed information about the researcher, her background, and the purpose of the study, allowing them to understand all relevant aspects before participating.

## Data Collection

In-depth interviews were conducted to explore pain specialists' perceptions of opioid optimization for chronic non-malignant pain (CNMP) and solicit suggestions for interventions and strategies to improve opioid use among these patients.<sup>25,26</sup> The interview questions were designed based on a comprehensive review of relevant literature,<sup>27–29</sup> and insights from the study team's prior research.<sup>13,27</sup> Each question was tailored to address specific TDF domains, with open-ended questions and standardized prompts to ensure thorough exploration. Data collection was conducted from February to August 2021 through semi-structured interviews. Interviews were conducted via telephone from the researcher's home, adapted to be a quiet environment suitable for high-quality audio recording, in response to the COVID-19 lockdown restrictions. Only the researcher (AA) and the participants were present during the interviews; no one else attended. Each session lasted between 25 and 45 minutes and was audio-recorded for verbatim transcription. No follow-up interviews were conducted due to the attainment of thematic saturation, where no new themes or significant alterations in codes were identified after analyzing the last two interviews.<sup>30</sup>

## Data Analysis

Interviews were recorded on password-protected and encrypted devices to ensure data privacy and security, strictly adhering to the Data Protection Act 2018 (UK Government, 2018).<sup>31</sup> The recordings were transcribed verbatim by AA, who removed any identifying information to preserve participant confidentiality. The anonymized transcripts were subsequently imported into a Microsoft Word table for thorough analysis, employing both deductive and inductive methods to deepen the exploration of pain specialists' perspectives on opioid optimization. Transcripts were not returned to participants for comments or corrections. The thematic analysis commenced with open coding of each transcript line by line, creating code components that were then compared and grouped into categories and themes related to pain specialists' perceptions of opioid optimization for CNMP patients.<sup>32,33</sup> Each code was then classified under TDF domains to understand which themes were predominantly influenced by which domains.<sup>34</sup>

## Research Trustworthiness

AA conducted this study as part of her doctoral research at the University of Birmingham, where she received formal training in qualitative research methodologies, adhering to Lincoln and Guba's principles of trustworthiness – including credibility, transferability, dependability, and confirmability.<sup>35</sup> Credibility was enhanced by employing recognized research methods that have been validated in comparable studies.<sup>36</sup> Regular discussions about data analysis and coding in research team meetings further supported the study's credibility and dependability. Transferability was facilitated by detailed documentation of the findings, supported by direct quotes from interviews, allowing others to evaluate the applicability of the results to other contexts.

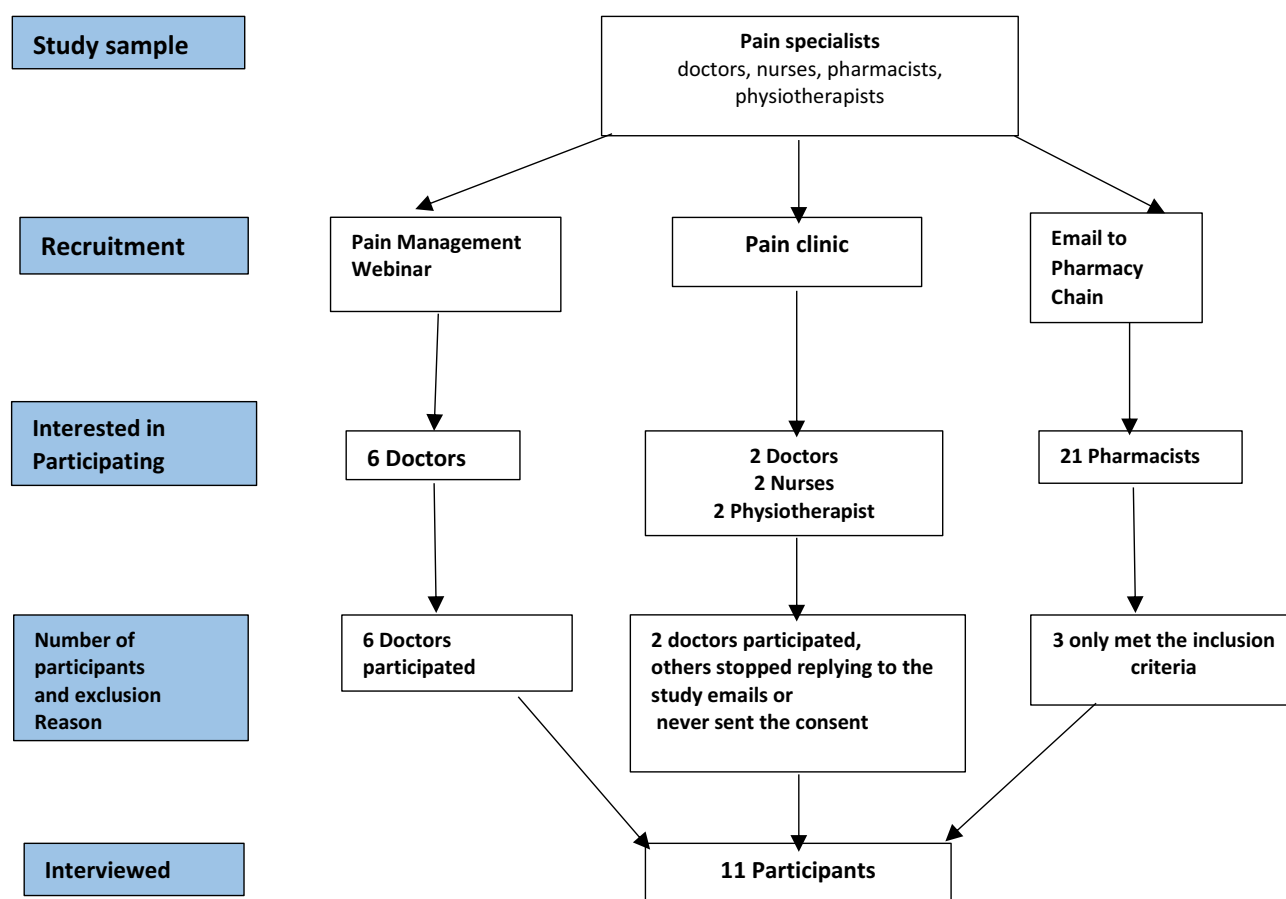
## Result

Fifteen participants contacted the researcher, but only 11 participants, consisting of 8 pain and anesthesia doctors and 3 clinical pharmacists. See [Figure 1](#).

The study involved 11 participants, consisting of 8 pain and anesthesia doctors and 3 clinical pharmacists. The doctors were distributed across Birmingham (3), Manchester (2), Hull (1), Wakefield (1), and Brierley Hill (1). All 8 doctors were male. In terms of age distribution, 1 doctor was between 25 and 35 years old, 5 were between 36 and 45 years old, and 2 were between 46 and 60 years old. Their experience in chronic pain management varied, with 1 having 1–5 years of experience, 1 having 6–10 years, 4 having 11–15 years, and 2 having over 20 years of experience.

The pharmacists were located in London (1), Coventry (1), and Hull (1). All 3 pharmacists were male. Two pharmacists were aged between 36 and 45 years, and one was aged between 25 and 35 years. In terms of experience in chronic pain management, one pharmacist had 1–5 years of experience, and two had 6–10 years.

The study systematically organizes its findings into themes, each aligned with the Theoretical Domains Framework (TDF), to explore the complexities of opioid management. The theme “Self-Perception and Evolving Trends in Opioid Optimization” is illuminated through quotes under the TDF domains of Knowledge, Professional Role and Identity, and Belief about Consequences, highlighting shifts in self-perception and professional practice. The “Embracing Advanced Approaches in CNMP Management” theme is tied to the TDF domains of Knowledge and Professional Role and Identity, advocating for personalized treatment strategies. The “Opioid Suboptimal Use and Optimization Complexity” theme, linked to the Environmental Context and Resources domain, emphasizes the need for enhanced resources. Lastly, the “Recommended Strategies for Opioid Optimization” theme is associated with the Behavioral Regulation and Environmental Context and Resources domains, underscoring strategies to improve opioid management practices. See [Table 2](#)



**Figure 1** Flowchart of the Study Sample Selection Process.

**Table 2** The Themes Map

Themes	Subthemes	TDF Domains
<b>Theme 1: Self-Perception and Evolving Trends in Opioid Optimization</b>	Specialized Knowledge	Knowledge and Professional Role and Identity
	Evolving Trends in Opioid Optimization- shift	Knowledge, Professional Role and Identity
	Limit efficacy of opioid use and Long-Term Opioid Use Consequences on patients	Knowledge, Belief about consequences
	Positive Cessation	Belief about consequences
<b>Theme 2: Embracing Advanced Approaches in CNMP Management</b>	Individualized Treatment	Knowledge and Professional Role and Identity
	MDT Approaches Holistic medicine	Professional Role and Identity
	Support for both patients and other clinicians	Knowledge, Professional Role and Identity
	Education for both patients and clinicians	Knowledge, Professional Role and Identity
<b>Theme 3: Opioid Suboptimal Use and Opioid Optimization Complexity</b>	The Influence of Past Opioid Prescribing on Current Clinical Practice	Environmental Context and Resources
	Fragmented Prescribing Practices	Environmental Context and Resources
	Patients Socio-Cultural Factors	Environmental Context and Resources
	Time constraints	Environmental Context and Resources
	The Broad Spectrum of Opioid Prescribers	Environmental Context and Resources
	The Lack of Standardized Criteria for Opioid Use and Cessation	Environmental Context and Resources
	UK welfare system Society	Environmental Context and Resources
<b>Theme 4: Recommended Strategies for Opioid Optimization</b>	Education for healthcare providers for patients	Behavioural Regulation
	Managing patients' expectations	Behavioural Regulation
	Addressing Underlying Issues and social support	Behavioral Regulation
	Formal, practical strategies	Behavioural Regulation

## Theme 1: Self-Perception and Evolving Trends in Opioid Optimization

The first theme, Self-Perception and Evolving Trends in Opioid Optimization, examines how pain specialists perceive their roles and the knowledge they apply to opioid management, highlighting a shift in opioid optimization perspectives and practices. Subthemes include Specialized Knowledge, Evolving Trends in Opioid Optimization, Limited Efficacy of Opioid Use, and Long-Term Consequences of Opioid Use on patients, all emphasizing the need for a deep understanding of both professional roles and the outcomes of opioid use. (See [Table 3](#)).

### Specialized Knowledge and Evolving Trends in Opioid Optimization

Pain specialists consider themselves uniquely equipped to manage chronic pain complexities, setting their expertise apart from other providers. This self-perception is rooted in their extensive and up-to-date specialized knowledge and experience. They view themselves as an elite group of physicians with a deeper understanding of chronic pain ([Table 3](#), Quote 1).

Additionally, they perceive themselves as guardians of patient safety and society, influencing their prescribing practices. Pain specialists emphasize the need to evaluate the broader effects of opioid therapy on both patients and the healthcare system ([Table 3](#), Quote 2). While acknowledging that opioids have a role in pain management, they stress the importance of using them responsibly to ensure that the benefits outweigh potential harms ([Table 3](#), Quote 3).

**Table 3** Self-Perception and Evolving Trends in Opioid Optimization

Subtheme	TDF Domain	Quotes
Self-Perception and Evolving Trends in Opioid Optimization	Knowledge and Professional Role and Identity, Belief about consequences	<ol style="list-style-type: none"> <li>1. “We are suddenly an elite group of physicians.... We know a bit about chronic pain, and others don’t” (Pain doctor: Participant 4)</li> <li>2. “We have to look into the bigger picture and see what are the other effects of the opioid on the person and what are the other burden opioid puts on the healthcare system as a whole”. (Pain doctor: Participant 7)</li> <li>3. “It has a role, but it’s like a knife, you have to use it responsibly” (Pain doctor: Participant 4)</li> <li>4. “The indications for prescribing opioids in CNMP are very limited based on scientific evidence”. (Pain pharmacist: Participant 2)</li> <li>5. “There has been a trend, especially among the young consultants like me, not to start patients on opioids”. (Pain doctor: Participant 4)</li> <li>6. “Optimisation these days predominately means stopping opioids”. (Pain doctor: Participant 5).</li> <li>7. “What helps is the opioid awareness guidance, which came out about five years ago”. (Pain pharmacist: Participant 2).</li> </ol>
Perception of the Role of Opioids	Knowledge Belief about consequences,	<ol style="list-style-type: none"> <li>8. “I know it’s not going to work long-term. ... some will be harmed, ... even die, either directly, or indirectly, because of the opioid, so that is the reason why I want to discourage them”. (Pain doctor: Participant 4).</li> <li>9. “I am yet to come across a patient who says, you know, after starting opioids, all my pain has gone” (Pain doctor: Participant 7).</li> </ol> <hr/> <ol style="list-style-type: none"> <li>10. “...the single most important actionable point with the opioid is sometimes you may need to stop opioid even if there’s no other alternative”. (Pain Pharmacist: Participant 2)</li> <li>11. “Most patients who come off opioids, ... I’ve had patients who I’ve been following up, say four years, three years, came down from massive doses, they’re extremely happy at the end of it”. (Pain doctor: Participant 9).</li> </ol>

## Perceived Role of Opioids in Chronic Non-Malignant Pain (CNMP)

Pain specialists perceive that opioids have a limited role in CNMP. They generally approach opioid use with caution and skepticism, rooted in awareness of the risks associated with prolonged use. Consequently, they minimize opioid prescriptions, particularly for non-cancer patients, and express hesitation in endorsing their long-term use (Table 3, Quote 4).

Many specialists, particularly younger consultants, are moving away from initiating long-term opioid therapy for CNMP due to recognized risks and limited efficacy (Table 3, Quotes 5–6). This shift is supported by updated opioid awareness guidelines and national directives, which promote safer prescribing practices. The focus is now on optimizing pain management through alternative methods, emphasizing evidence-based and patient-centered care to reduce dependency (Table 3, Quote 7).

Participants highlight risks associated with long-term opioid therapy, including immune system impairment, sexual dysfunction, and problematic behaviors (Table 3, Quote 8). They also note that opioids frequently fail to provide complete pain relief (Table 3, Quote 9). Many advocates for tapering and cessation, observing that patients who discontinue opioid therapy often experience improved quality of life and greater satisfaction with their pain management. (Table 3, Quotes 10–11).

## Theme 2: Embracing Advanced Approaches in CNMP Management

The second theme, Embracing Advanced Approaches in CNMP Management, focuses on personalized and multi-disciplinary strategies to enhance support and education for patients and clinicians. Subthemes include Individualized

Treatment, MDT Approaches to Holistic Medicine, and Education for Patients and Clinicians, stressing the importance of knowledge and professional identity in effective pain management. (See [Table 4](#)).

## Individualized Treatment and MDT Approaches

Pain specialists adopt advanced multimodal approaches based on personalized medicine, incorporating non-pharmacological methods aligned with National Institute for Health and Care Excellence (NICE) guidelines ([Table 4](#), Quotes 1–2). They emphasize tailoring interventions to patients' unique medical histories and continuously assessing responses ([Table 4](#), Quote 3).

While some specialists use standardized assessments, others prefer flexible, one-on-one discussions to gather necessary information for tailored treatment ([Table 4](#), Quotes 4–5). Participants also stress patient responsibility, encouraging active engagement in therapies such as exercise, psychological support, and physiotherapy ([Table 4](#), Quote 6).

## Therapeutic Alliance

Assessment and review form the basis of a therapeutic alliance, where specialists build trust, provide information, and support patients through treatment adjustments. They advocate for reducing medication reliance and reassure patients they are not alone in managing opioid cessation and pain ([Table 4](#), Quotes 7).

Specialists also support other healthcare providers, ensuring clear communication with general practitioners (GPs) on tapering strategies. This collaborative approach extends their advanced management strategies beyond the clinic ([Table 4](#), Quote 9).

**Table 4** Embracing Advanced Approaches in CNMP Management

Subtheme	TDF Domain	Quotes
Individualized Treatment MDT Approaches	Knowledge and Professional Role and Identity	<ol style="list-style-type: none"> <li>1. "Knowing a bit more always helps. I am always asking the question to myself, and this is individualized medicine — a lovely concept of individualized medicine, and it can be, it should be taught, I think, to everyone". (Pain doctor: Participant 9).</li> <li>2. "We work in an MDT ... two physios, a psychologist and myself, all at the same time". (Pain doctor: Participant 3).</li> <li>3. "In our practice, we treat the whole person, not just the symptoms". (Pain doctor: Participant 4).</li> <li>4. "There's no one strategy, you know, it has to be tailored depending on the condition and the patient" (Pain doctor: Participant 1)</li> <li>5. "I do a psychometric analysis of patients on coming into the service; we assess depression, anxiety, low mood and so on". (Pain Pharmacist: Participant 2).</li> <li>6. "I do not follow a questionnaire, but I have a flexible way of taking a history from the patient one to one, like [asking], do they [opioids] actually work?" (Pain doctor: Participant 4).</li> <li>7. "... the patient to take the onus of responsibility..., they need to exercise, they need to engage, they need to develop ... a sort of relationship with the pain, then the prescription of opioids becomes a secondary, or a less relevant", (Pain Pharmacist: Participant 11).</li> </ol>
<b>Therapeutic Alliance</b>	Knowledge and Professional Role and Identity	<ol style="list-style-type: none"> <li>8. "We will be with them, we will be supporting them, reassuring them that it's a journey and they're not going to go there on their own" (Pain doctor: Participant 8).</li> <li>9. "So, it's about getting them to realize that their life without the drug is much better than their life with it". (Pain doctor: Participant 4).</li> <li>10. "I write to the GP clearly to review the patient in one to two weeks, reduce [the opioid] and stop". (Pain doctor: Participant 3).</li> </ol>

### Theme 3: Opioid Suboptimal Use and Optimization Complexity

The third theme, Opioid Suboptimal Use and Optimization Complexity, addresses systemic factors influencing opioid prescribing, highlighting the need for improved resources and standardized practices. Subthemes include Influence of Past Prescribing on Current Practice, Fragmented Prescribing Practices, Patients' Socio-Cultural Factors, Time Constraints, and Broad Spectrum of Opioid Prescribers, categorized under Environmental Context and Resources. (See Table 5).

#### Influence of Past Opioid Prescribing on Current Practice

Past prescribing practices have led to significant challenges. Specialists note conflicts when opioids are withdrawn without addressing broader patient well-being (Table 5, Quote 1). Many patients were placed on high-dose or long-term

**Table 5** Opioid Suboptimal Use and Opioid Optimization Complexity

subtheme	TDF Domain	Quotes
The Influence of Past Opioid Prescribing on Current Clinical Practice	Environmental Context and Resources	<ol style="list-style-type: none"> <li>1. "Because the mistake that was originally made was to start the opioids without managing the whole person, and now you're taking the opioids away without managing the whole person, and that's where clinicians come into conflict with patients" (Pain doctor: Participant 5)</li> <li>2. "I started here six years ago. I inherited hundreds of patients from my predecessor ...and there were all kinds of pain-taking behaviour". (Pain doctor: Participant 3)</li> <li>3. "We are as badly affected as them, being brainwashed... with skewed results... on work by drug companies" (Pain doctor: Participant 8)</li> </ol>
Fragmented Clinical Practices and The Lack of Standardized Criteria for Opioid Use and Cessation	Environmental Context and Resources	<ol style="list-style-type: none"> <li>4. "Most of the time, the prescriptions are initiated in the community". (Pain doctor: Participant 7)</li> <li>5. "I think a lot of patients would not have opioid prescriptions early on. Usually they're put up by GPs" (Pain doctor: Participant 3).</li> <li>6. "When you say clinician, it is not just about that; I'm talking about, you know, anyone who is involved with medication, including pharmacy, including new nurse prescribers, so many people hold prescribing [power] for practice" (Pain doctor: Participant 7)</li> <li>7. "You get a cohort of patients who are already on really high doses, so the GPs refer them to us and say, can you help sort this patient out because they're on really high doses of opioids and I don't know what to do now", (Pain pharmacist: Participant 11).</li> <li>8. ". community pharmacist, the hospital pharmacist, ... there is not any interaction apart from the usual identification, identity and that's it. ... in general, they, the process is dry, and the nature of the process means that you are just dispensing, and that's all ..." (Pain doctor: Participant 7)</li> <li>9. "The prescription...and weaning is happening based on the whims and fancies of individual clinicians, rather than an agreed standard structure" Pain doctor: Participant 7).</li> <li>10. "They are developing guidelines, but one area has already developed their own and they are different to what everybody else is thinking and it's causing confusion ... the chances of patients moving to a different area is quite... likely, and if you are giving them a different message, it's quite difficult" (Pain pharmacist: Participant 2).</li> </ol>

(Continued)

**Table 5** (Continued).

subtheme	TDF Domain	Quotes
Time constraints	Environmental Context and Resources	<p>11. “There is pressure on clinicians to reduce the duration of the consultation, ... the number of consultations, or the number of meetings with the patient, and this makes it very difficult” (Pain pharmacist: Participant 2)</p> <p>12. “If I have an hour with a patient, I can start giving examples, giving stories, opening some literature, showing some graphics, statistics, leaflets etc. But if you are trying to deliver a message to a patient in 10 minutes, and that message is completely the opposite of what the patient wants to hear there’s definitely going to be a conflict” (Pain doctor: Participant 8)</p>
Patients Socio-Cultural Factors	Environmental Context and Resources	<p>13. “Social factors are very important... you know, education level, socio-economic level and there’s the psychological aspect... depression ... anxiety ... people who are psychologically broken” (rec4, pp5-6).</p> <p>14. “They would be having a history of these kinds of things and all these together make [anxiety or depression, cling to opioids] ... the classical patient where you are going to need a special clinic to start withdrawal” (Pain doctor: Participant 5)</p> <p>15. “I am now thinking more culturally more, in a wider cultural context, patients with a different background too, patients that come from different backgrounds, like Afro-Caribbean or Asia or ... etc, ... tend to have this idea of passive treatment, ... a bigger pill or a stronger pill or, or a big injection ...” (Pain doctor: Participant 7)</p> <p>16. “They’ve created a life around their opioid use and the pain...if you take that sickness role away, they may not get the attention and care they were getting before”. (Pain pharmacist: Participant 11)</p>
UK welfare system Society	Environmental Context and Resources	<p>17. “We are somewhat handicapped as a consequence of the society that we live in” (Rec3, p5).</p> <p>18. “We’re living in the UK, people have a facilitated disability, because they can go on benefits. Whereas in other societies, potentially, where there isn’t that system, people will continue to function despite feeling the pain” (Pain doctor: Participant 5)</p>

opioids by previous clinicians, exacerbating dependency issues (Table 5, Quote 2). Aggressive pharmaceutical marketing further contributed to overprescription, spreading misinformation (Table 5, Quote 3).

## Fragmented Clinical Practices and Lack of Standardized Criteria

Efforts to optimize opioid use are hindered by fragmented practices and inconsistent guidelines. Decisions often rely on individual judgment rather than evidence-based protocols, leading to variability in care (Table 5, Quotes 4–5). Poor coordination between GPs, specialists, and pharmacists complicates tapering (Table 5, Quotes 6–7).

The absence of standardized criteria for opioid initiation, tapering, or cessation creates confusion, particularly when patients relocate and encounter differing regional practices (Table 5, Quotes 8–9). Specialists advocate for cohesive, evidence-based guidelines to improve outcomes (Table 5, Quotes 10–11).

## Time Pressures

Systemic constraints, particularly limited consultation times (10–15 minutes), hinder thorough patient education and monitoring (Table 5, Quotes 12–13).

## Patients' Socio-Cultural Factors

Socio-cultural factors, such as education level, socio-economic status, and mental health conditions, influence opioid reliance (Table 5, Quotes 14–15). A passive patient mindset, where individuals expect “quick fixes”, complicates optimization (Table 5, Quotes 16–17).

## UK Welfare System

Some specialists attribute passive attitudes to the UK welfare system, which medicalizes common issues and facilitates dependency, contrasting with societies lacking such systems (Table 5, Quotes 18–19).

## Theme 4: Recommended Strategies for Opioid Optimization

The fourth theme, Recommended Strategies for Opioid Optimization, proposes practical enhancements for opioid management, categorized under Behavioral Regulation. (See Table 6).

### Education

Educating patients and clinicians about opioid risks and limited efficacy is critical (Table 6, Quotes 1–3).

### Consistent Messaging

Coordinated messaging across multidisciplinary teams (MDTs) improves optimization success (Table 6, Quotes 4–5).

### Managing Expectations

Setting realistic expectations about chronic pain and treatment alternatives reduces opioid reliance (Table 6, Quote 6).

**Table 6** Recommended Strategies for Opioid Optimization

subtheme	TDF Domain	Quotes
Holistic Education	Behavioural Regulation	1. “Spreading of knowledge to other clinicians...” Pain doctor: Participant 4). 2. “We need something to shake the beliefs of these people, these patients, statistics, information” (Pain doctor: Participant 8) 3. “If you give them the information, then they are very careful”. (Pain pharmacist: Participant 2)
Consistent Messaging	Behavioural Regulation	4. “Whatever it is, it needs to be repeated by the whole team” (Pain doctor: Participant 8) 5. “We work in an MDT ...we’re essentially giving them the same advice, from four different angles” (Pain doctor: Participant 3)
Managing Patient Expectations	Behavioural Regulation	6. “We always try to reduce expectations...14 million people suffer with chance pain and normalizing what they are feeling is very important” Pain doctor: Participant 4).
Addressing Underlying Issues and social support	Behavioral Regulation	7. “I discovered that the void needs to be filled with something else, and I actually spent a lot of time exploring the voids in their lives and finding replacements” (Pain doctor: Participant 3) 8. “If they fill that void, the opioid kind of comes out pretty easily” (Pain doctor: Participant 5)
Formal, practical strategies	Behavioural Regulation	9. “There are centers that go to more extreme measures, for example, measuring the opioid level in patients’ blood and urine” (Pain doctor: Participant 3) 10. “I think the patients need to know that if they are going to go a trial for two weeks, for example, that if it does not work, we will reduce them down and then stop them, you know... and then, if you do end up staying on them then we will continually monitor them, like, twice a year or something like that...” (Pain pharmacist: Participant 11)

## Social and Emotional Support

Addressing mental health and social disadvantages helps patients transition from opioid dependence (Table 6, Quotes 7–8).

## Formal, Practical Strategies

Suggested measures include national opioid registries, regular drug testing, and patient-prescriber contracts to ensure compliance (Table 6, Quotes 9–10).

## Discussion

This study investigates UK pain specialists' perspectives on opioid optimization for CNMP. The insights gathered highlight the importance of a balanced approach that considers both the therapeutic benefits and potential risks associated with long-term opioid therapy.

A key theme that emerged is self-perception and evolving trends in opioid optimization, where participants expressed confidence and pride in their management of CNMP. They emphasized that their extensive training and clinical experience significantly influence their decisions regarding opioid prescriptions. Pain specialists embraced an advanced approach that focuses on addressing patients' needs and adjusting opioid prescriptions based on comprehensive assessments of physical, psychological, and emotional factors.<sup>37</sup> They advocate for personalized and multidisciplinary approaches to pain management, emphasizing individualized treatment plans that incorporate non-pharmacological methods and adhere to NICE guidelines. This approach is consistent with literature emphasizing the need for ongoing risk-benefit analyses and recognizing the limited efficacy of opioids in managing CNMP.<sup>13</sup>

Pain specialists viewed the long-term opioid to have little benefit in the treatment of CNMP and are associated with significant side effects and use it only for limited cases after a comprehensive assessment.<sup>38</sup> This perspective aligns with the findings many studies, where GPs and pain specialists also considered opioids as a last resort for CNMP management.<sup>17,26</sup> Pain specialists' viewpoints are based on scientific evidence and clinical experience to guide opioid use in CNMP. Studies show limited long-term benefits but significant risks—addiction, overdose, and functional decline.<sup>39</sup> A prospective study involving 45 patients undergoing elective detoxification from prescription opioids found that 83.3% of participants reported enhanced overall health status six months post-detoxification. Additionally, 97.7% experienced a significant reduction in pain levels, with an average decrease of 4.51 points on the Visual Analogue Scale (VAS).<sup>40</sup>

Another theme focused on the impact of past suboptimal opioid prescribing and the complexities of treating CNMP, especially for patients with psychological issues. Challenges such as the involvement of multiple prescribers without cohesive criteria lead to inconsistent patient care. Fragmented prescribing practices, a lack of standardized guidelines, and system fragmentation, as well as inconsistent clinical decisions and poor coordination between general practice, specialist hospitals, and other services, hinder CNMP patient care. These issues, documented in UK healthcare literature, predominantly affect those with complex bio-psychosocial needs.<sup>41</sup>

One of the challenges highlighted in this study is the knowledge gap among GPs and other healthcare professionals regarding CNMP and opioid optimization in handling complex cases. This finding aligns with studies from the UK and USA, which revealed that GPs and primary care providers often felt helpless and dissatisfied with their ability to manage chronic pain patients.<sup>28</sup> This lack of confidence may be due to insufficient CNMP education and training in undergraduate medical school, as highlighted in research from Europe and the USA.<sup>28</sup> Meanwhile, pharmacists in this study are viewed as underutilized, with their role often limited to medication dispensing. Community pharmacists in Alenezi et al mentioned that, despite their efforts to communicate prescription concerns to doctors, they rarely receive responses.<sup>29</sup>

The final theme addressed strategies recommended by participants to optimize opioid use for CNMP patients, advocating for a more nuanced and patient-centered approach. They stressed the importance of providing comprehensive education to healthcare providers, patients, and stakeholders to improve understanding and management of opioid use in CNMP. Enhanced ongoing education for healthcare professionals is crucial to address knowledge gaps in pain management. Also, effective pain education for patients can reduce anxiety, misuse of medications, and enhance patient satisfaction.<sup>42,43</sup> Another strategy recommended by the pain specialists are managing patients' expectations. Studies report that patients often expect complete

relief from pain, while in reality, most pain interventions, including opioids, reduce pain by about 30% on average.<sup>44,45</sup> Patients often express dissatisfaction when their expectations are unmet, underscoring the importance of managing them. Managing patient expectations and providing social and emotional support are crucial components of effective optimization strategies.<sup>44</sup>

## Limitations

This study had several limitations. The relatively small sample size means the findings might not reflect the full range of experiences or views in the wider population. Future research involving a larger and more varied group would help strengthen and build on these results. Additionally, the study consisted exclusively of men, which may limit the generalizability of the findings.

## Implications for Practice

The findings of this study have several implications for clinical practice. Enhancing collaboration among health professionals, including GPs, pain specialists, and clinical pharmacists, is essential for optimizing opioid use. This can be achieved by developing specific guidelines to facilitate effective communication among all professionals involved in the treatment and follow-up of patients.<sup>46</sup> Despite the study's limitations, it underscores the need for ongoing education and training for healthcare professionals, ensuring they are well-informed about the latest guidelines and best practices to enhance the safety and efficacy of opioid use in chronic pain management.

The importance of a multidisciplinary approach to pain management is highlighted. Healthcare providers should collaborate closely within MDTs to deliver consistent messages and comprehensive care plans to patients. This collaborative approach can address fragmented opioid prescribing practices and improve patient outcomes.

## Further Research

Future research should include a larger and more diverse sample of healthcare professionals, exploring the perspectives of female pain specialists and pharmacists, as well as other healthcare providers involved in opioid optimization. Further studies should investigate patient-centered care and education for both healthcare providers and patients about prescribed opioids for CNMP. Enhanced collaboration among healthcare professionals in assessing and supporting patients, and developing interventions based on the perspectives of CNMP patients and all involved healthcare providers, is necessary. Understanding patients' perceptions and preferences regarding advice from different practitioners, such as GPs versus pain specialists, is also essential.

## Conclusion

This study provides insights into UK pain specialists' perspectives on opioid optimization for CNMP. The findings emphasize the importance of personalized and multidisciplinary approaches, specialized knowledge, and a cautious approach to opioid prescribing. Addressing the challenges of fragmented care and ensuring ongoing education and collaboration among healthcare providers can enhance the optimization of opioid use and improve patient outcomes.

## Data Sharing Statement

All data generated or analyzed during this study are included in this published article.

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The authors report no conflicts of interest in this work.

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