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**Designing a primary care pharmacist-led review for people treated with opioids for persistent pain: A multi-method qualitative study**

Woodcock, C.<sup>1</sup>, Cornwall, N.<sup>1</sup>, Dikomitis, L.<sup>2</sup>, Harrisson, S.A.<sup>1,3</sup>, White, S.<sup>4</sup>, Helliwell, T.<sup>1,3</sup>, Knaggs, R.<sup>5,6</sup>, Hodgson, E.<sup>7</sup>, Pincus, T.<sup>8</sup>, Santer, M.<sup>9</sup>, Mallen, C.<sup>1,3</sup>, Ashworth, J.<sup>1,3</sup>, Jinks, C.<sup>1</sup> on behalf of the PROMPPT research team

Charlotte Woodcock<sup>1</sup>, ORCID iD: 0000-0002-1388-7857 (corresponding author)

Nicola Cornwall<sup>1</sup>, ORCID iD: 0000-0003-2207-859X

Lisa Dikomitis<sup>2</sup>, ORCID iD: 0000-0002-5752-3270

Sarah A Harrisson<sup>1,3</sup>, ORCID iD: 0000-0002-1304-3443

Simon White<sup>4</sup>, ORCID iD: 0000-0003-0096-251X

Toby Helliwell<sup>1,3</sup>, ORCID iD: 0000-0003-3987-6045

Roger Knaggs<sup>5,6</sup>, ORCID iD: 0000-0003-1646-8321

Eleanor Hodgson<sup>7</sup>, ORCID iD: 0009-0006-4887-6214

Tamar Pincus<sup>8</sup>, ORCID iD: 0000-0002-3172-5624

Miriam Santer<sup>9</sup>, ORCID iD: 0000-0001-7264-5260

Christian D Mallen<sup>1,3</sup>, ORCID iD: 0000-0002-2677-1028

Julie Ashworth<sup>1,3</sup>, ORCID iD: 0000-0002-8978-335X

Clare Jinks<sup>1</sup>, ORCID iD: 0000-0002-3407-2446

1. Centre for Musculoskeletal Health Research, School of Medicine, Keele University, Keele, Staffordshire, ST5 5BG, UK

2. Centre for Health Services Studies and Kent and Medway Medical School, University of Kent, Canterbury, Kent, CT2 7NS, UK

3. Midlands Partnership University NHS Foundation Trust, Haywood Hospital, High Lane, Burslem, Stoke on Trent, Staffordshire, ST6 7AG, UK

4. School of Pharmacy and Bioengineering, Keele University, Keele Staffordshire, ST5 5BG, UK

5. Division of Pharmacy Practice and Policy, School of Pharmacy, University of Nottingham, NG7 2RD, UK

6. Primary Integrated Community Services Ltd, Nottingham, United Kingdom, Nottingham, UK

7. Leek Health Centre, Fountain Street, Leek, ST13 6JB, UK

8. Department of Psychology, University of Southampton, Southampton, SO17 1BJ, UK

9. Primary Care Research Centre, University of Southampton, Southampton SO16 5ST, UK

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1 **Abstract**

2  
3 **Background**

4 Opioids are frequently prescribed for persistent non-cancer pain despite limited  
5 evidence of long-term effectiveness and risk of harm. Evidence-based interventions  
6 to address inappropriate opioid prescribing are lacking.

7  
8 **Aim**

9 To explore perspectives of people living with persistent pain to understand barriers  
10 and facilitators in reducing opioids in the context of a pharmacist-led primary care  
11 review, and identify review components and features for optimal delivery.

12  
13 **Design and setting**

14 Primary care multi-method qualitative study.

15  
16 **Method**

17 Adults with experience of persistent pain and taking opioids participated in semi-  
18 structured interviews (n=15, 73% female) and an online discussion forum (n=31).  
19 The Theoretical Domains Framework (TDF) provided a framework for data collection  
20 and thematic analysis, involving deductive analysis to TDF domains, inductive  
21 analysis within-domains to generate subthemes, and subtheme comparison to form  
22 across-domain overarching themes. The behaviour change technique taxonomy v.1  
23 and motivational behaviour change technique classification system were used to  
24 systematically map themes to behaviour change techniques to identify potential  
25 review components and delivery features.

26

27 **Results**

28 32 facilitator and barrier subthemes for patients reducing opioids were identified  
29 across 13 TDF domains. These combined into six overarching themes: learning to  
30 live with pain, opioid reduction expectations, assuming a medical model, pharmacist-  
31 delivered reviews, pharmacist-patient relationship and patient engagement.

32 Subthemes mapped to 21 unique behaviour change techniques, yielding 17  
33 components and 5 delivery features for the proposed PROMPPT review.

34

35 **Conclusion**

36 This study generated theoretically-informed evidence for design of a practice  
37 pharmacist-led PROMPPT review. Future research will test the feasibility and  
38 acceptability of the PROMPPT review and pharmacist training.

39

40 **Keywords**

41 Pharmacists, Opioid Analgesic, Chronic Pain, General Practice, Qualitative  
42 Research

43 **How this fits in**

44 There is a need to develop evidence-based primary care interventions to address  
45 overprescribing of opioids for persistent non-cancer pain. Best practice guidance  
46 recommends the regular review of patients prescribed long-term opioids for  
47 persistent non-cancer pain, and advises gradual reduction of opioids if treatment  
48 goals are not met. This study identified facilitators of and barriers to patients  
49 reducing opioids in the context of a pharmacist-led review in primary care. The  
50 findings were mapped to behaviour change techniques to inform the design of a  
51 practice pharmacist-led review for patients prescribed opioids for persistent pain  
52 (PROMPPT review) for testing in a feasibility study, ahead of a full-scale randomised  
53 controlled trial.

54

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## Introduction

Persistent pain, or pain lasting 3-months or longer and not caused by cancer, affects around 43% of UK adults, with 10-14% reporting disabling pain that is moderately to severely limiting.<sup>1</sup> Opioid prescribing for persistent pain has increased markedly during the last 20 years,<sup>2,3</sup> despite a lack of evidence for long-term effectiveness and growing evidence of harms.<sup>4,5</sup>

Best practice guidance recommends regular review of patients prescribed long-term opioids for persistent pain, and gradual reduction of opioids if treatment goals are not met.<sup>6,7</sup> Most opioid prescribing for persistent pain occurs in primary care and general practitioners (GPs) report barriers to routinely reviewing patients, citing a lack of training, resources, and time.<sup>8</sup> There has been a recent expansion in pharmacists working in GP practices in UK primary care. Practice pharmacists' expertise in medicines optimisation should make them well-placed to review patients prescribed opioids for persistent pain.<sup>9-12</sup>

This study forms part of a larger research programme called PROMPPT (**P**roactive clinical **R**everview of patients taking **O**pioid **M**edicines long-term for persistent **P**ain led by clinical **P**harmacists in primary care **T**eams). The programme aims to develop a proactive primary care review for patients prescribed opioids for persistent pain (called 'PROMPPT review' herein) delivered by practice pharmacists (called 'pharmacist' herein).

Intervention development is a dynamic and iterative process based on evidence and understanding of the target behaviour of reducing opioids.<sup>13-15</sup> Although previous research identifies potential patient barriers to reducing opioids (e.g., benefits of opioids outweigh risks,<sup>16</sup> fear of increased pain,<sup>17</sup> lack of effectiveness of non-pharmacological options<sup>18</sup>), there is limited evidence within the



80 context of primary care. Using a person-based approach,<sup>15</sup> this study aims to: (a)  
81 identify barriers and facilitators to people with persistent pain reducing opioids in the  
82 context of a pharmacist-led review in primary care (i.e., PROMPPT review), (b) to  
83 use this information to identify potential components for a PROMPPT review, and (c)  
84 to determine key features for its optimal delivery.

85

86

## METHOD

### 87 **Design**

88 A multi-method qualitative study comprising of interviews and an online discussion  
89 forum was conducted. Qualitative data collection and analysis was informed by the  
90 Theoretical Domains Framework (TDF).<sup>19</sup> The TDF is used for developing theory-  
91 informed interventions and has 14 domains to identify facilitators and barriers of  
92 behaviour change.<sup>20</sup> TDF domains are linked to behaviour change techniques  
93 (BCTs)<sup>14,21</sup> and provide a systematic approach for identification of potential  
94 PROMPPT review components through mapping to BCT taxonomies.<sup>14,22</sup>

95

### 96 **Semi-structured interviews (September 2019 – October 2019)**

97 Adults (>18 years) prescribed any opioid analgesic for ≥6 months for persistent pain  
98 were recruited from two GP practices in the West Midlands, UK. To gain wide-  
99 ranging perspectives, patients were purposively sampled according to gender and  
100 strength of opioid medicine (weak, intermediate, strong) based on published  
101 categorisation for prescribed analgesics in primary care (please see Table 1).<sup>23</sup>

102 Interview guides, informed by the TDF were drafted with public contributors  
103 and aimed to explore experiences of persistent pain, pain management strategies

104 (including opioids), and views on a proposed PROMPPT review (see Supplementary  
105 Topic Guide 1).

106 Interviews were conducted by NC (female) in-person or via telephone,  
107 according to participant preference, and digitally audio-recorded. Recruitment  
108 stopped when data saturation had been reached.<sup>24</sup> Participants were aware they  
109 would be interviewed about their regular medicines and what is important to them to  
110 help design a pain medication review. Participants were offered a £10 voucher to  
111 thank them for their contribution to the study.

112

113 Table 1. Categorisation of patients by opioid strength based on a hierarchy of  
114 analgesic potency arising from a consensus study of UK general practitioners<sup>23</sup>

115

<b>Weak</b>	<b>Intermediate</b>	<b>Strong</b>
Co-codamol 8mg/500 mg	Codeine 30mg	Morphine
Co-codamol 15/500 mg	Co-codamol 30mg/500mg	Oxycodone
Codeine 15mg	Dihydrocodeine 30mg	Fentanyl
Codeine 20mg	Buprenorphine patch ≥15mcg/hour	Tapentadol
Co-dydramol 10mg/500mg	Buprenorphine SL 400mcg	Diamorphine
Co-dydramol 20mg/500mg	Tramadol >37.5mg	Hydromorphone
Dihydrocodeine 20mg	Pethidine	Dipipanone
Co-proxamol 32.5mg/325mg	Pentazocine	Dextromoramide
Tramadol 37.5mg/500mg	Meptazinol	
Buprenorphine patch 5 or 10 mcg/hour		
Buprenorphine Sublingual 200mcg		

116

117

118

119 **Online discussion forum (*October 2019 – December 2019*)**

120 Adults (>18 years) with experience of opioids for persistent pain were invited to  
121 register and contribute to a bespoke online discussion forum via posters (electronic  
122 and paper) displayed in GP practices, pain services, community pharmacies across  
123 the West and East Midlands and Wessex in the UK, as well as via online posts and  
124 paid advertisements using social media (Twitter (now called X), Facebook). The  
125 online discussion forum was developed by the research team using Discourse,<sup>25</sup> in  
126 conjunction with patient and public user testing.<sup>26</sup>

127 Ten topics for discussion were published on the forum over 11 weeks (see  
128 Supplementary Topic Guide 2). The first six topics were generated by the research  
129 team, guided by TDF domains and input from public contributors. The four remaining  
130 topics drew on preliminary themes identified from interview data and stakeholder  
131 discussions with patients, pharmacists, general practice managers, general  
132 practitioners, practice nurses, physiotherapists, psychologists and addiction  
133 specialists. Each topic opened with an audio-visual animation to introduce the main  
134 question for discussion, below which participants could post comments and  
135 questions, and react to other participants' responses. There was also a 'Community  
136 Hang Out' page where participants could discuss additional topics. The discussion  
137 forum was moderated at regular intervals between 8am and 10pm, Monday to  
138 Sunday, to ensure ethical guidelines were upheld. Discussion threads were  
139 facilitated by CW (female), providing prompts and probes to explore participant posts  
140 in greater depth and invite other participants into the discussion. Facilitation was  
141 supported by regular meetings with LD (female) and discussions with the wider  
142 research team.

143 Research team members collecting data were experienced post-doctoral  
144 qualitative researchers. None of the research team knew the participants prior to  
145 their involvement in the study.

146

#### 147 **Data preparation and analysis**

148 Interview recordings were transcribed verbatim, anonymised and checked for  
149 accuracy. Discussion forum posts were anonymised, and forum user IDs replaced  
150 with de-identifying codes.

151 A three-phase analysis process examined the data for facilitators and barriers  
152 to reducing opioids and valued intervention delivery features for a PROMPT review.  
153 First, deductive analysis of the data was conducted where text segments were coded  
154 and indexed to relevant domains of the TDF framework. Researchers with expertise  
155 in applied health research (CJ), psychology (NC, CW), pharmacology (SW) and  
156 general practice (TH) independently completed this deductive process for at least  
157 one of three transcripts following initial stages of framework analysis<sup>27</sup> of  
158 familiarisation (i.e., reading and re-reading of transcripts), coding (i.e., identifying  
159 segments of text relevant to the research question), and indexing segments of text to  
160 TDF domains (i.e., organising codes to relevant domains). Meetings were held to  
161 discuss analytical decisions with additional viewpoints from two clinical academics  
162 specialising in pain management (JA, SH) to ensure no one disciplinary perspective  
163 dominated.<sup>28</sup> Following discussions, a refined framework<sup>20</sup> was used by three  
164 researchers (NC, EH, CW) to deductively index remaining data with regular meetings  
165 to ensure a robust approach. NVivo software was used to aid data management.  
166 Second, data segments indexed to each TDF domain were inductively analysed to  
167 generate domain-specific subthemes. Third, subthemes were compared and related

168 subthemes brought together to form overarching themes.<sup>28,29</sup> These inductive  
169 analytical phases were carried out by CW with regular critical discussion with CJ and  
170 presented to the wider research team.

171

## 172 **Theory based mapping to behaviour change techniques**

173 Facilitator and barrier subthemes were used to identify BCTs for the PROMPPT  
174 review. This process drew on the taxonomy of behaviour change techniques  
175 (BCTTv.1)<sup>22</sup> and the classification system for motivational behaviour change  
176 techniques (MBCTs).<sup>30</sup> BCTTv.1 links to TDF domains via expert consensus<sup>21</sup> and  
177 provides a common terminology for identifying an intervention's 'active ingredients'  
178 for change. MBCTs are underpinned by self-determination theory<sup>31</sup> that states  
179 intrinsic motivation to engage with an intervention depends on perceived fulfilment of  
180 three universal basic psychological needs of autonomy (e.g., decision to reduce  
181 opioids is self-endorsed), competence (e.g., feel in control and confident in making  
182 an opioid reduction), and relatedness (e.g., feel accepted, respected and sense of  
183 connectedness with the pharmacist supporting an opioid reduction).<sup>30</sup>

184

## 185 **Patient and Public Involvement (PPI)**

186 Members of Keele University School of Medicine's PROMPPT Research User Group  
187 (RUG), with lived experience of persistent pain, contributed to the design of data  
188 collection methods. For interviews, PPI members identified topics to guide interview  
189 questions (e.g., attitudes towards opioids, experiences of medication reviews). For  
190 the discussion forum, PPI members advised on participant recruitment and  
191 engagement strategies as well as design features of audio-visual animations.

192 Members also tested the forum's usability prior to data collection.<sup>26</sup> The GRIPP2  
193 short form checklist was completed for reporting PPI.<sup>32</sup>

194

195

## RESULTS

196 From 120 study invitations, 22 consent to contact forms were received requesting  
197 further study information. 17 reply forms agreed to arrange an interview, from which  
198 15 interviews were conducted in-person or by telephone according to participant  
199 preference (mean length of 37mins). 31 participants posted a total of 160 comments  
200 to the online discussion forum. Comments ranged in length between 19 and 2,143  
201 words. See Table 2 for demographics.

202

203 Table 2. Participant demographics

204

### People living with persistent non-cancer pain

#### Interviews (n = 15)

	Age range (mean) years	Opioid strength			Total
		Weak	Intermediate	Strong	
<b>Gender</b>					
Male	55-83 (68.75)	1	1	2	4
Female	54-87 (70.73)	2	4	5	11
All	54-87 (70.20)	3	5	7	15

205

206 *Note.* Opioid strength based on published categorisation for prescribed analgesics in  
207 primary care<sup>23</sup>

208

209

210 Six overarching themes, grouping 32 subthemes across 13 TDF domains, were  
211 identified and describe the complex interaction of facilitators and barriers to reducing  
212 opioids in the context of a pharmacist-led review in primary care namely, learning to  
213 live with pain, opioid reduction expectations, assuming a medical model, pharmacist-  
214 delivered reviews, pharmacist-patient relationship, and patient engagement (see

215 Table 3 and Supplementary Tables 3 and 4).

217 Table 3. TDF domains, facilitator and barrier subthemes, and overarching themes for  
 218 patients reducing opioids in the context of a PROMPPT review

TDF Domain	Subtheme	F <sup>a</sup>	B <sup>b</sup>	Overarching theme
Knowledge	Knowing about and managing pain	✓	✓	
Behavioural regulation	Self-regulating pain management	✓	✓	
Environmental context and resources	Accessible evidence-based resources	✓		Learning to live with pain
Social influences	Social support	✓	✓	
Social/professional role and identity	Changing identities	✓	✓	
Goals	Live better with pain	✓		
Knowledge	Knowing about reducing opioids	✓	✓	
Behavioural regulation	Monitoring for quick effectiveness of opioid reduction	✓	✓	
Beliefs about capabilities	Unable to cope with an opioid reduction		✓	
Beliefs about consequences	Consequences of reducing opioids	✓	✓	Opioid reduction expectations
Intentions	Intention to reduce	✓	✓	
Emotions	Anxious about reducing opioids		✓	
Reinforcement	Avoid withdrawal		✓	
	Reduce if potential benefits perceived	✓		
Social influences	Prescribed by healthcare professional		✓	Assuming a medical model
Reinforcement	Opioids are necessary		✓	
	Left on repeat prescription		✓	
Knowledge	Pharmacist knowing about and managing pain within primary care	✓		Pharmacist review delivery
Skills	Patient-centred shared decision-making	✓		
Social influences	Patient-clinician relationship	✓	✓	Pharmacist-patient relationship
	Supportive point of contact for pain management	✓		
Knowledge	Patient knowledge of PROMPPT review	✓		
Environmental Context and Resources	Accessibility of a PROMPPT review	✓	✓	Patient engagement
Beliefs about capabilities	Able to discuss experiences of pain, medicines, and management	✓		

Beliefs about consequences	Wide-ranging benefits	✓	
	PROMPPT review concerns		✓
Intentions	Provide a pharmacological solution		✓
	Intention to engage in a PROMPPT review	✓	✓
Goals	Find a pharmacological solution		✓
	Increase understanding of pain and medicines	✓	
Optimism	Optimistic a PROMPPT review will be helpful	✓	
	Uncertain of personal relevancy of a PROMPPT review		✓

219 a = facilitator. b = barrier.

220

221 *Learning to live with pain*

222 'Learning to live with pain' reflects the (often long) journey many people have  
 223 experienced in learning how to best manage, and live with, pain. Participants said  
 224 their care involved multiple healthcare professionals (e.g., general practitioner,  
 225 physiotherapist, pain consultant, clinical psychologist) with varying degrees of  
 226 satisfaction. Many spoke of exploring different pharmacological options, prescribed  
 227 and non-prescribed, to find out what best suits them. For some, the strength of their  
 228 opioids escalated over time, or modes of administration altered.

229 *It has taken me all the years since my injury to find a pain routine that works*  
 230 *for me. But it still involves Tramadol. My dose has never increased, nor have*  
 231 *I had to change painkillers, but I did have to switch to modified release to try*  
 232 *and stop the peaks and troughs. (ODF [online discussion forum] 12)*

233 Such comments suggest 'pain routines' develop over time and encompass  
 234 constant monitoring and responding to fluctuating pain levels. Despite these  
 235 routines, participants told us they 'don't like' (*I [interview] 01, 02, 04, 12, 15, 20, 22*)  
 236 or even 'hate' (*ODF20, 31, 39*) taking their medicines and some questioned their



237 effectiveness. These negative perceptions of opioids were discussed in relation to  
238 experiencing adverse side effects (e.g., constipation, fatigue), learning about long-  
239 term risks (from healthcare providers, the news, or scientific articles), and not  
240 wanting to rely on medication. Despite these views, the belief opioids are a  
241 necessary part of pain management prevails:

242 *I don't want to have them. I've never been a person that wants to take*  
243 *pills...but I know I've got to. I've accepted that I have to. (I03)*

244 In conjunction with opioids, many participants talked about trying non-  
245 pharmacological approaches for pain management including physical activity classes  
246 (e.g., tai chi, yoga), self-directed activity (e.g., walking), physiotherapy exercises,  
247 soothing strategies (e.g., hot showers, hydrotherapy), and complementary therapies  
248 (e.g., arnica, magnesium). Participants spoke about the value non-pharmacological  
249 strategies have in compensating for, or replacing the role of, medication as well as  
250 having additional psychological and social benefits.

251 *...walking has been very important for both physical and mental health. Yoga*  
252 *is awesome. Ballet is great fun. And the social aspects are great as well.*  
253 *(ODF05)*

254 Participants, whose journey involved stopping opioids, spoke of changes to  
255 their knowledge of pain, acceptance of its persistent nature, finding new (non-  
256 pharmacological) ways to manage pain, and understanding what this means for their  
257 sense of self. For example, one participant explained 'due to the nature of my health  
258 my outlook on the world is vastly different to the norm' (ODF24). Participants told us  
259 making changes to how they manage their pain was sometimes challenging but was  
260 made possible by drawing on multiple resources (e.g., mobile apps, online  
261 information from credible sources, trusted healthcare professionals, social support).

262

263 *Opioid reduction expectations*

264 Participants' expectations of reducing opioids seemed to vary. Some participants  
265 said their opioids helped manage their pain and questioned the reason for reducing.  
266 One participant said, 'don't fix if it's not wrong' (I15). Some participants shared failed  
267 attempts to reduce opioids experiencing 'crisis in withdrawal' (ODF05) and voiced  
268 concerns that any reduction would lead to compromised functionality and  
269 deterioration of other health conditions.

270 *every time I leave it off I'm just in that much pain it isn't worth it, it's either*  
271 *have a life or not have a life. (I07)*

272 In contrast, participants willing to reduce opioids anticipated potential benefits  
273 (e.g., less adverse side-effects). Nevertheless, these participants also expressed  
274 anxieties around the process. Some told us they had been taking opioids 'so long'  
275 (I04) reducing was an unknown and they feared not having anything else for their  
276 pain or suffering withdrawal. Participants expressed caution and told us if they  
277 perceived pain to worsen they would reinstate their opioids.

278 *if I reduced it and it wasn't working, then you just start taking it again don't*  
279 *you? (I22)*

280 Some participants who had reduced opioids spoke about (sometimes  
281 surprising) positive outcomes (e.g., less pain, improvements to quality of life),

282 *I started reducing my morphine.....when I had dropped to 90mg, I noticed I*  
283 *was in less pain.....! I continued.....maybe a bit quicker than I should have*  
284 *because I was excited. (ODF02)*

285 These quotes highlight how participants might closely monitor how reducing  
286 opioids impacts pain and how this may affect engagement with a tapering process.

287

288 *Assuming a medical model*

289 Some participants appeared to adopt a medical model for managing pain whereby  
290 their focus was on seeking pain relief, primarily through prescribed medication.

291 Several participants told us opioids were necessary as they had been recommended  
292 by healthcare providers, provided some pain relief, and there seemed to be no  
293 alternative. One participant said they were 'stuck' (I19) with opioids, and others said  
294 they had 'no choice' (I02, 22) but to continue them.

295 Interactions with healthcare professionals also seemed to reinforce this  
296 pharmacological model as one patient recounted being told they would 'always have  
297 to rely on drugs' (I02). Where medicines were left on repeat prescription this was  
298 viewed by some as a sign to continue their use.

299 *at the moment the hip pain has gone but I'm still on a repeat prescription for*  
300 *this co-codamol so I take it (I09)*

301 In contrast, participants who adopted a more holistic view of pain  
302 management viewed opioids on repeat prescriptions as a consequence of inactivity  
303 by the medical profession. One participant told us 'you're just left' (I11) and another  
304 expressed that 'chronic pain patients are left to linger and slowly deteriorate by the  
305 medical system' (ODF05).

306

307 *Pharmacist-delivered reviews*

308 Participants told us that pharmacists delivering PROMPPT reviews needed up-to-  
309 date knowledge about persistent pain, the physical and psychological impact of pain  
310 and its appropriate management. Participants recognised pharmacists' expertise in

311 medicines but felt knowledge around non-pharmacological interventions, support  
312 services and resources was also key.

313 *Up to date and sustained development of their knowledge of pain*  
314 *management and routes they can use to resources that support patients.*  
315 *(ODF06)*

316 Drawing on previous experiences, participants offered examples of what they  
317 would find off-putting or prefer not to happen in a PROMPPT review, for example  
318 when processes felt externally imposed, patients felt like a nuisance, with no  
319 opportunity to explain what living with pain is like for them. Instead, participants  
320 expressed a preference for a person-centred collaborative approach where  
321 pharmacists are 'prepared to listen' (I04), 'use the information they're getting from  
322 [patients]' (I15), and come to 'an agreed outcome or goal' (ODF37).

### 324 *Pharmacist-patient relationship*

325 Participants highlighted the importance of the pharmacist-patient relationship.  
326 Previous negative interactions with healthcare professionals left participants feeling  
327 misunderstood, disbelieved and stigmatised with one participant saying their  
328 'confidence and trust in medics has been destroyed' (ODF05). Instead, participants  
329 wanted to 'build up a rapport' (I14) with healthcare professionals based on trust,  
330 empathy and compassion, but recognised that developing rapport can take time and  
331 depends on continuity of care. Other reported facilitators of forming good patient-  
332 pharmacist relationships included pharmacists having more time than GPs, being  
333 recommended by trusted individuals (e.g., GP, friends or family) and patients  
334 informed about pharmacists' expertise and qualifications.

335

336 *Patient engagement*

337 Participants told us about facilitators for engaging in a PROMPPT review and include  
338 knowing the purpose of the review, having confidence to discuss experiences of  
339 pain, and holding positive outcome expectations (e.g., an opportunity to discuss and  
340 alleviate any concerns about their medicines). Several participants expressed  
341 optimism that a review would be helpful, provide an opportunity to discuss their pain,  
342 learn more about their condition and medication, and lead to improvements in pain  
343 management, pain relief, psychological wellbeing and quality of life.

344 *I think it would achieve peace of mind...and emotionally I think it would be*  
345 *good...to be able to get it off your chest and talk to somebody who knows and*  
346 *who understands (I13)*

347 Some participants felt patients may not engage with the review if they  
348 believed it was a money-saving exercise, or in knowing alternative medications do  
349 not exist might consider the review as having little to offer.

350 *We know GPs meet to discuss patients on pain medication, as I was warned*  
351 *by one in my practice that the head GP...[they were] bringing me up as an*  
352 *example of who costs too much (ODF57)*

353 Participants also spoke about the importance of making the PROMPPT  
354 review accessible and fit-for-purpose. Some participants could not always get to their  
355 GP practice due to relying on others for travel or because pain made travelling  
356 difficult. They felt flexible delivery of PROMPPT reviews (e.g., in-person or remote)  
357 was desirable. Participants highlighted difficulties getting appointments and lack of  
358 time in appointments as other potential barriers to address.

359

360 **PROMPPT review components and delivery features**

361 Drawing on the TDF domains and subthemes within each overarching theme, we  
362 identified 21 behaviour change techniques (10 BCTs and 11 MBCTs), guided by  
363 expert consensus where available,<sup>21</sup> to address barriers and facilitators for reducing  
364 opioids, and optimise delivery, of the proposed PROMPPT review (see  
365 Supplementary Figures 1 & 2).<sup>14,22,30</sup> All TDF domains were included in this process  
366 except *Social/professional role or identity*, for which experts could not reliably  
367 allocate BCTs during a consensus rating exercise meaning no BCTs were  
368 recommended for supporting change in this domain.<sup>21</sup> Translation of BCTs and  
369 MBCTs into PROMPPT review components and delivery features was discussed  
370 with the research team.

371

## 372 Discussion

### 373 Summary

374 This study provides theoretically grounded qualitative evidence informing the  
375 development of a pharmacist-led review within primary care (PROMPPT review), to  
376 support opioid tapering, where appropriate, for patients with persistent pain. Six  
377 overarching themes representing key considerations for developing the PROMPPT  
378 review were generated namely: learning to live with pain, opioid reduction  
379 expectations, assuming a medical model, pharmacist-delivered reviews, pharmacist-  
380 patient relationship, and patient engagement. From these findings, we used  
381 established behaviour change technique taxonomies (BCTTv.1<sup>22</sup> and MBCT  
382 classification system<sup>30</sup>) to identify potential PROMPPT review components and  
383 delivery features.

384

### 385 Strengths and limitations

386 A key strength of this study is its robust systematic approach in using an  
387 established theoretical framework, by a multidisciplinary research team, to  
388 understand the views of people living with persistent pain of a new review in the  
389 context of primary care. This rigorous process is important to ensure comprehensive  
390 consideration is given to the attitudes, beliefs, and needs of those who an  
391 intervention is intended for, in order to identify intervention components and delivery  
392 features that seem most acceptable and feasible.<sup>15,33</sup> This approach provides a  
393 framework for guiding the analysis of future evaluations and implementation of the  
394 PROMPT review using identified facilitators and barriers within TDF domains  
395 across overarching themes.

396 Another main strength of this study was the multi-method approach that  
397 provided people living with persistent pain different options for participation. The  
398 inclusion of a bespoke online discussion forum provided an alternative, innovative  
399 method of data collection,<sup>26</sup> allowing participants to participate at a time and place  
400 most comfortable for them.<sup>34</sup> Flexibility of participation is particularly important for  
401 those with chronic conditions, where unpredictable symptoms can be a barrier to  
402 participating in research.<sup>35</sup> Another benefit of the discussion forum was in reaching  
403 people who had successfully stopped taking opioids. Including these voices is often  
404 more difficult than those currently seeking treatment and identifiable through medical  
405 records<sup>36</sup> yet they provide important insights into potential facilitators for reducing  
406 opioids.

407 A further strength of the study was the extensive role of PPI in the  
408 development and design of the online discussion forum.<sup>26</sup> PPI user testing  
409 suggested the platform was accessible, easy to navigate and use. In future, it may

410 be beneficial to also involve PPI during the process of data collection and contribute  
411 to facilitation strategies of participant online discussions as well as analysis.

412 One limitation of the study is a lack of consideration of how patients'  
413 experiences in any specialist services they access for persistent pain may impact  
414 their perception of the PROMPPT review. Another weakness of this study is the  
415 limited information collected about participant characteristics. For the interviews only  
416 gender, age, and opioid strength was collected. We decided not to systematically  
417 collect demographic information of online discussion forum participants to promote  
418 anonymity; an important factor for feeling empowered online, reducing feelings of  
419 vulnerability and facilitating opening up and posting of comments.<sup>37</sup> Although we  
420 documented participants' gender when this was volunteered in forum posts, limited  
421 demographic information means that conclusions cannot be made about the diversity  
422 of perspectives and the extent to which voices from seldom heard or underserved  
423 communities were included. It was hoped the discussion forum would overcome  
424 barriers (e.g., minimise researcher-participant power in-balance)<sup>38</sup> and the extent to  
425 which this was achieved, however, cannot be assessed.

426

### 427 **Comparison with existing literature**

428 Previous research has explored patient facilitators and barriers to opioid tapering.  
429 For example, qualitative research and syntheses have reported that patients believe  
430 there is no alternative to opioids,<sup>29</sup> take opioids reluctantly,<sup>39</sup> and view them as both  
431 a salvation and a curse.<sup>40</sup> Our study echoes these findings and suggests people  
432 perceive opioids as a necessary part of established pain routines and, for some, as  
433 an enabler for living better with pain. This study considers such barriers within and  
434 across broader overarching themes that summarise multiple relating domains of



435 influence such as patient beliefs, availability of resources, and social factors. For  
436 example, the overarching theme of *learning to live with pain* encapsulates personal  
437 journeys of finding acceptable ways to live with pain and establish pain management  
438 routines, which often include opioids. The involvement of opioids in these routines is  
439 strengthened when patients *assume a medical model* for pain management and hold  
440 negative *opioid reduction expectations*. These learning journeys and associated  
441 beliefs are reminiscent of 'pain stories'. Previous research indicates the importance  
442 of respecting and validating patient pain stories, connected beliefs and associated  
443 emotions, when a potential change to pain management is to be broached.<sup>41</sup>

444 Previous research underlines the importance of the patient-clinician  
445 relationship for discussions around persistent pain and reducing opioids as there is  
446 potential for disagreements.<sup>42</sup> Our study identified the *pharmacist-patient relationship*  
447 as a facilitator of meaningful discussions around pain management, particularly  
448 when pharmacists are skilled in active listening, expressing empathy and  
449 compassion. Although some of these behaviours overlap with principles of shared  
450 decision-making, Matthias and colleagues' argue that shared decision-making can  
451 be delivered with a narrow focus (e.g., discussing pros/cons, risks/benefits of  
452 opioids) and does not always emphasise an environment of care, concern, and  
453 mutual trust.<sup>43</sup> Many participants in our study did not know their practice pharmacist.  
454 This may present a challenge for *pharmacist-delivered reviews* and it is likely the  
455 development of a therapeutic *pharmacist-patient relationship* needs to be supported  
456 to promote *patient engagement*.

457

458 **Implications for practice**

459 This study provides a theoretical and systematic person-based approach to  
460 identifying potential components and delivery features for a pharmacist-led  
461 PROMPPT review using evidence about facilitators of and barriers to patients  
462 reducing opioids. Since this work was completed, NHS England has published  
463 medicines optimisation guidelines for dependence-forming medicines in the form of a  
464 framework for action.<sup>44</sup> Structured medication reviews (SMRs) are a key part of this  
465 framework and practice pharmacists are likely to lead SMRs. Proposed components  
466 and delivery features for the PROMPPT review are consistent with these  
467 recommendations. For example, the proposed delivery feature 2 'pharmacist adopts  
468 a person-centred approach using shared decision-making skills' (see Supplementary  
469 Figure 2) reflects action 1 of the framework: Personalised care and shared decision  
470 making.

471 The proposed components and delivery features for a PROMPPT review were  
472 taken forward for co-designing an intervention with key stakeholders taking into  
473 account the context of primary care and findings from our other intervention  
474 development work about potential acceptability of PROMPPT.<sup>33</sup> Findings from this  
475 study also highlight potential training needs for practice pharmacists and informed  
476 guiding principles for the PROMPPT review. Future research will: (1) consider how  
477 pharmacists deliver the PROMPPT review to support patient engagement,  
478 confidence, and motivation to make a change; (2) test the feasibility and acceptability  
479 of delivering the PROMPPT review in practice; (3) evaluate its clinical and cost  
480 effectiveness in a cluster randomised controlled trial.

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**Competing interests**

No competing interests to declare.

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