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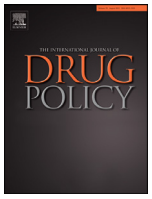

Research Paper

"We were all looking for the magic pill": A qualitative study of patient experiences using gabapentinoids for chronic pain

Amy G. McNeilage[a,b,*], Claire E. Ashton-James[b], Brett Scholz[a]

[a] School of Medicine and Psychology, College of Health and Medicine, Australian National University, Canberra, Australian Capital Territory, Australia
[b] Sydney Medical School, Faculty of Medicine and Health, The University of Sydney, Sydney, New South Wales, Australia

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ABSTRACT

Background: Gabapentinoid medications are increasingly being used in chronic pain management, yet very little is known about the experiences of those using them. The aim of this study was to address this gap in the literature by qualitatively exploring the lived experiences of patients using gabapentinoids for chronic pain.

Methods: Semi-structured interviews were conducted with 12 adults prescribed a gabapentinoid medication – either pregabalin or gabapentin – for chronic pain in Australia. Interviews were conducted in May 2022 via telephone or online video chat. Audio recordings of the interviews were transcribed verbatim, and data were analysed using reflexive thematic analysis. The Medication Adherence Model was used as a framework for synthesising the data and organising themes.

Results: For participants in this study, the initial decision to use gabapentinoids for chronic pain was driven by a level of desperation for pain relief, a perceived lack of pain management alternatives, and a belief that the medication was safer and easier to access than opioids. However, once using gabapentinoids, experiences varied considerably with some viewing the medication as effective and safe, and others viewing it as useless or harmful. Some participants expressed concern that they were not adequately informed by their prescribers about the risks of gabapentinoid use.

Conclusion: These findings emphasise the importance of patient-provider communication and taking a patient-centred approach to gabapentinoid prescribing and de-prescribing. Future qualitative research in this area should involve primary care providers to gain a better understanding of factors driving increased gabapentinoid prescribing in chronic pain management as well as barriers to patient education.

Background

Clinical guidelines recommend a multimodal approach to chronic pain treatment that prioritises non-pharmacological strategies (The Royal Australian College of General Practitioners, 2017). However, access to this care is severely limited due to lack of affordability, availability, and awareness (Hopkins, Degenhardt, et al., 2022; Pain Australia, 2019). Consequently, most Australians manage their chronic pain pharmacologically (i.e., with medication only) (Britt et al., 2015). Until recently, opioids were the mainstay of pharmacological pain treatment (Turk et al., 2011). However, given the limited benefits and considerable harms associated with long-term opioid therapy (Chou et al., 2015), opioids are no longer recommended as a first line treatment for chronic non-cancer pain (Therapeutic Goods Administration, 2020). Indeed, doctors are encouraged to taper patients with chronic pain off opioids or down to a safer dose (Therapeutic Goods Administration, 2020). It is within this context, when doctors are seeking safer alternatives to opioids, that gabapentinoid drugs – gabapentin (Neurontin) and pregabalin (Lyrica) – have made dramatic advancements into chronic pain management (Goodman & Brett, 2017). Over the last two decades, gabapentinoid use has more than tripled in the United States (Johansen, 2018), the United Kingdom (Montastruc et al., 2018), and Australia (Pharmaceutical Benefits Scheme, 2013, 2021). Indeed, pregabalin has overtaken opioids like oxycodone and codeine to become the most widely dispensed prescription pain medication in Australia (Pharmaceutical Benefits Scheme, 2021), despite only being approved for the treatment of neuropathic pain.

The huge growth in gabapentinoid use internationally has been attributed to an increase in off-label prescribing, particularly for non-neuropathic pain conditions (Goodman & Brett, 2017). For instance,

* Corresponding author at: Pain Management and Research Centre, Ground Floor, Douglas Building, Royal North Shore Hospital, St Leonards, NSW 2065, Australia.
E-mail addresses: brett.scholz@anu.edu.au, amy.mcneilage@sydney.edu.au (A.G. McNeilage), claire.ashton-james@sydney.edu.au (C.E. Ashton-James).

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research suggests the vast majority of gabapentinoids in the United States are prescribed off-label (Hamer et al., 2002; Zhou et al., 2019). Similarly, recent Australian studies estimate between 32% and 50% of gabapentinoids are prescribed off-label (Prior, 2021; Schaffer et al., 2021). This trend is concerning as systematic reviews have found low quality or no evidence for the efficacy of gabapentinoids in treating off-label conditions including chronic back pain (Chou et al., 2017; Enke et al., 2018; Shanthanna et al., 2017), chronic prostatitis (Aboumarzouk & Nelson, 2012), chronic pancreatitis (Gurusamy et al., 2016), and migraine (Linde et al., 2013). Even in neuropathic pain, where the evidence is strongest, only a minority of patients experience pain relief beyond placebo while many experience non-trivial side effects such as dizziness and sleepiness (Derry et al., 2019; Finnerup et al., 2015; Wiffen et al., 2017).

There are also growing concerns about gabapentinoid-related harms. Studies finding an association between gabapentinoid use and new or worsening suicidal ideation and behaviour are particularly troubling (Dreier et al., 2019; Molero et al., 2019). So too is the growing body of research indicating gabapentinoids can cause dependence and are increasingly being misused (i.e., used either without prescription or not as prescribed) (Evoy et al., 2021; Hägg et al., 2020). Indeed, there are reports of a withdrawal syndrome – involving insomnia, anxiety, sweating, and diarrhoea – associated with abrupt gabapentinoid discontinuation (Therapeutic Goods Administration, 2021). With opioid prescribing now declining, there are fears the rise in gabapentinoids could mark a shift from one class of problematic drugs to another (Goodman & Brett, 2017; Murnion & Conigrave, 2019).

In view of rapidly increasing prescribing of gabapentinoids for pain and emerging concerns about harms, it is necessary to gain a deeper understanding of patients' experiences of using gabapentinoids for chronic pain. Indeed, patient insights are crucial to improving treatment safety and outcomes (Doyle et al., 2013; Mohammed et al., 2016), and are now widely recognised as a critical component of healthcare policy and research (Braun & Clarke, 2019a). Although qualitative studies of gabapentinoid misuse have been conducted in prison and addiction treatment settings (Brennan & Van Hout, 2020; Buttram & Kurtz, 2020, 2021; Vickers Smith et al., 2018), the experiences of those prescribed gabapentinoids for chronic pain in the community have not been examined in depth. The aim of this study was therefore to explore patients' lived experiences of using gabapentinoids for the management of chronic pain.

Theoretical framework

Given there is little available literature on patient experiences of using gabapentinoids, this this study was informed by the Medication Adherence Model (Johnson, 2002), a conceptual framework for understanding the cognitive and behavioural processes that influence medication-taking in patients with chronic conditions. The Medication Adherence Model revolves around three core interrelated concepts: Purposeful Action, Patterned Behaviour, and Feedback. According to the model, patients make *intentional* decisions (i.e., Purposeful Action) to initiate, continue, modify, or cease medication based on perceived need, effectiveness, and safety. Once patients decide to take a medication, they establish medication-taking patterns (i.e., Patterned Behaviour) that are facilitated or impeded by access, routine, and remembering. Patients then use information, prompts, and events (i.e., Feedback) to evaluate their medication-taking which, in turn, influences their Purposeful Action and Patterned Behaviour. While the model has not yet been used in a chronic pain context, it has been found to have utility as a framework for understanding patterns of medication use for other chronic conditions such as diabetic kidney disease (Williams et al., 2008) and osteoporosis (Mazor et al., 2010). In these prior qualitative studies, researchers identified themes in their interview data and then categorised the themes according to the three core domains of the Medication Adherence Model.

Methods

Design

This study used an exploratory qualitative design with data collected using semi-structured interviews and analysed using reflexive thematic analysis (Braun & Clarke, 2006, 2019b). This approach was chosen for its potential to elicit rich and in-depth accounts of patients' lived experiences (Braun & Clarke, 2013; Rubin & Rubin, 2011). This study was broadly informed by a social constructionist epistemology, which assumes knowledge is inherently subjective and socially constructed, and that multiple realities can coexist (Burr, 2015). In line with this perspective, the study was interested in the meaning participants make of their experiences and not in whether their accounts reflect an objective truth. Ethical approval for the study was granted by the Science and Medical Delegated Ethics Review Committee at the Australian National University (Protocol: 2022/202).

Participants

Those eligible for the study included adults living in Australia who had either current or past experience using gabapentinoids (pregabalin and/or gabapentin) prescribed for chronic pain. Pregabalin and gabapentin are currently the only two gabapentinoids approved for clinical use in Australia (mirogabalin is approved in Japan; Deeks, 2019). An online recruitment strategy was chosen with the aim of reaching patients from diverse socioeconomic backgrounds, geographic locations, and varying levels of healthcare utilisation (i.e., not all from the same tertiary or primary care clinics). Twelve participants were recruited via a flyer shared on Twitter and Facebook using relevant hashtags (e.g., #chronic pain, #lyrica). The study flyer included a link to an online survey, which contained brief eligibility questions (i.e., age, country of residence, chronic pain status, history of gabapentinoid prescription) and asked potential participants to provide their preferred contact details. Those deemed eligible were then emailed comprehensive information about the study. Those deemed ineligible were provided with the reason for their ineligibility by automatic reply, were thanked for their interest in the study, and were provided with contact details of the research team if had any questions. Prior to taking part in the study, all participants gave oral consent to participate and for their de-identified data to be used in research publications. Participants were told that the aim of the study was to gain a better understanding of what it is like for people with chronic pain to use gabapentinoid medications. They were advised that they were under no obligation to answer interview questions and that they could withdraw from the study at any time without giving a reason. All participants were offered an AUD$20 online gift card in recognition of their time.

A convenience sampling strategy was used initially, with the first seven participants being recruited consecutively. However, there was a sudden influx of more than 50 expressions of interest after the flyer was shared on a community Facebook page. Given it was not feasible to interview all those interested, a purposive sampling approach was used for the remaining participants with the aim of yielding information-rich cases (Palinkas et al., 2015). Participants were targeted if, based on the details they shared on the Facebook post, their experiences appeared to differ from those already interviewed. A priori decisions about sample size have been criticised in qualitative research for often being poorly justified (Braun & Clarke, 2021b). Nevertheless, Braun and Clarke (2016; Braun et al., 2016) offer some guidance, suggesting that it may be difficult to identify patterns of meaning in a dataset with fewer than six participants but also that it may become increasingly difficult to capture the nuances within a dataset as the size of a sample increases. The sample size in this study was ultimately determined by the quality of data collected, as recommended by Braun and Clarke (2021b), and recruitment was terminated once a diverse range of in-depth experiences had been captured.

Table 1
Participant characteristics.

No.	Age, Gender	Location	Self-reported neuropathic pain	Pain duration	Gabapentinoid medication	Gabapentinoid duration
P01	74, M	Metropolitan, VIC	Yes	10 y	Pregabalin	10 y
P02	40, M	Metropolitan, ACT	Yes	10 y	Pregabalin	2 y 8 mo
P03	57, M	Metropolitan, QLD	Yes	7 y	Pregabalin	4 y
P04	49, M	Regional, TAS	Yes	8 mo	Pregabalin	6 mo
P05	28, F	Regional, VIC	Yes	4 y	Gabapentin	2 y
P06	52, F	Regional, NSW	Yes	40 y	Both	12 y*
P07	63, F	Regional, NSW	Yes	3 y	Pregabalin	1 y 4 mo
P08	47, F	Metropolitan, ACT	No	20 y	Pregabalin	2 y
P09	31, F	Metropolitan, VIC	Yes	17 y	Gabapentin	3 y
P10	32, F	Metropolitan, ACT	Yes	18 y	Pregabalin	8 y
P11	35, F	Regional, NSW	Yes	13 y	Both	10 y*
P12	25, F	Metropolitan, ACT	No	10 y	Both	5 y*

* Medication use was not continuousNote:

Data collection

Interviews took place between May 9, 2022 and May 31, 2022, and each participant was interviewed once. Interviews lasted between 22 and 46 min with an average of 33 min, which is consistent with previous interview studies with patients with chronic pain (Boutevillain et al., 2017; Crowe et al., 2010; Henry et al., 2019; Slat et al., 2021). Interviews were conducted either by phone (n = 4) or Zoom (n = 8) to minimise risks related to Covid-19, to facilitate participant preferences, and to limit geographical barriers and costs of participation (e.g., travel time). Given the exploratory nature of the study, interviews were semi-structured, allowing participants to determine which components of their story to emphasise. The interview guide was piloted with the first three participants and subsequently refined to maximise comprehension and relevance (see Appendix A for final interview guide). Interviews conducted during the piloting phase were retained in the study data as the overall focus of the interviews did not change.

To provide context to their experiences, participants were asked to self-report their demographic information, including age, gender, chronic pain condition, duration of pain, and geographic location (See Table 1). Reported reasons for being prescribed gabapentinoids included complex regional pain syndrome, fibromyalgia, surgically induced neuropathic pain, chronic graft vs host disease, tarsal tunnel syndrome, Ehlers-Danlos syndrome, chronic back pain, chronic neck pain, chronic pelvic pain, and chronic migraine. These reasons are not included in Table 1 to protect participant confidentiality. Although all participants had experience with gabapentinoids, six were no longer using the medication at the time of the interview.

Interviews were audio recorded using Zoom's recording function or, in the case of phone interviews, a digital voice recorder. They were later transcribed verbatim and de-identified by replacing participant names with numbers and removing identifying details. NVivo qualitative software was used to manage the data during analysis.

Data analysis

Braun and Clarke's six-phase process for reflexive thematic analysis was used (Braun & Clarke, 2006, 2019b). This method is ideally suited to areas of research where there is little existing literature (Braun & Clarke, 2006). All transcripts were read closely by the first author (A.M.) multiple times. Early impressions of similarities and differences across interviews were noted. Authors A.M. and B.S. separately coded an interview extract and compared their interpretations. The purpose of the comparison was not to reach consensus but to encourage self-awareness about the assumptions being made when interpreting data. Following this initial collaboration, A.M. independently coded the entire dataset. The initial coding process was inductive, meaning it was driven by the content of the data rather than a predetermined theory (Braun & Clarke, 2006). However, the Medication Adherence Model (Johnson, 2002) was then applied to organise codes into themes (i.e., themes were categorised according to the domains of the theory), and all themes aligned closely with one of the three primary domains of the theory (Purposeful Action, Patterned Behaviour, or Feedback). This is consistent with how the model has been used to guide the analytic process in prior qualitative studies (Mazor et al., 2010; Williams et al., 2008). Exemplar quotes were selected to enrich the description of themes and to demonstrate where the themes were embedded in the data. Data pertaining to the prevalence of themes was not sought, as themes are constructed in reflexive thematic analysis on the basis of relevance to the research objectives rather than prevalence within the dataset (Braun & Clarke, 2006).

Researcher reflexivity

The goal of reflexive thematic analysis is not to uncover objective facts but rather to engage deeply with the way the experiences, values, and training of the researcher influence their interpretations of the data (Braun & Clarke, 2021a). Conceptualisation of this study began when lead author A.M. was interviewing patients with chronic pain about their experiences of using opioid medications for a prior qualitative study conducted with C.A.J (McNeilage et al., 2022). Several participants in that study described negative experiences of using and discontinuing pregabalin. That prior experience may have shaped their expectations of the present study's findings. For example, they may have assumed that some participants would report adverse effects when using and discontinuing gabapentinoid medications. Furthermore, while the authors do not have lived experience of chronic pain or gabapentinoid use, they do have training in psychology and an interest in the psychosocial determinants of pain. Consequently, they may have been inclined to highlight psychosocial aspects of participants' experiences when interpreting the data. Author A.M. kept memos throughout the study about their evolving ideas, which they used to articulate and question the assumptions they were making. In addition, they met weekly with co-author B.S. and exchanged emails in between meetings to discuss reflexivity. None of the authors had a prior relationship with any participant.

Results

Six themes were constructed during the analytic process to represent core patterns of meaning across the dataset. As Fig. 1 illustrates, themes related either to the Purposeful Action or Feedback domains of the Medication Adherence Model. Although some data related to the Patterned Behaviour domain, there were no clear patterns of meaning. Summary descriptions of the sample in this section, using quantitative phrases such as 'almost all' or 'a few', are intended to provide the reader

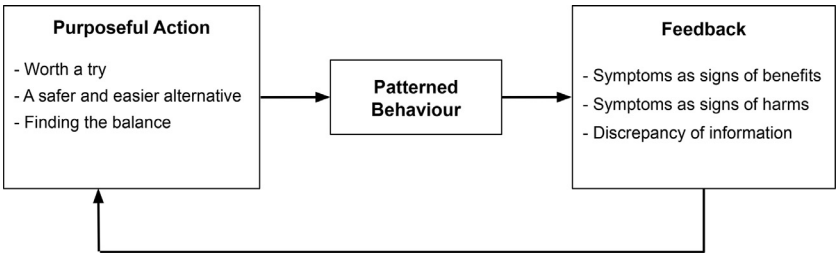

Fig. 1. Themes mapped onto domains of the mediation adherence model.

with context about this particular sample. They are not intended to suggest anything about the prevalence of these experiences among patients who take gabapentinoids for chronic pain in general.

Themes relating to the purposeful action domain

The Purposeful Action domain of the Medication Adherence Model represents the cognitive process of appraising reasons for and against taking a given medication. In line with the model, participants in this study described their decision-making process with reference to the perceived need, effectiveness, and safety of their gabapentinoid medication. Three themes related to the Purposeful Action process: 1) worth a try, 2) a safer and easier alternative, and 3) finding the balance.

Worth a try

When weighing up reasons for and against taking gabapentinoids, participants felt that, on balance, the medication was worth a try. This theme encapsulates the fact that the Purposeful Action of participants in this study was initially driven more by a desire for new treatment options than a perceived need for gabapentinoids specifically. As most had not heard of gabapentinoids prior to using them, they did not have strong expectations regarding effectiveness. However, participants explained that, prior to starting gabapentinoids, their pain had been poorly controlled and had diminished their quality of life:

> *"I would be pacing up and down the bathroom at night in tears in pain," Participant 03.*

> *"I was at the point where sometimes in the evenings I would nearly have to crawl to bed," Participant 07.*

Given this suffering, participants were desperate for relief, which created a state of mind where they were willing to give anything a try. This was coupled with the fact that participants had previously tried to manage their pain with various pharmacological and non-pharmacological strategies with limited success. For example:

"There were other things we tried to mitigate the pain… We tried low dose amitriptyline for a while... Then I did quite a long course of physio exercises and strengthening... I went to a podiatrist for quite some time … I also had several [cortisone] injections. They didn't really work," Participants 07.

As this extract demonstrates, participants had been repeatedly disappointed by the pain management strategies available to them. Because of this, they were open-minded about gabapentinoids when they were recommended by their doctor, reasoning that trying something new was preferable to maintaining the status quo (e.g., "I don't really decline many treatments. I'm pretty happy to give things a go," Participant 05). In this respect, their Purposeful Action was influenced by both frustration at the inadequacy of their existing pain management strategies and the glimmer of hope offered by a new approach (e.g., "We were all looking for the magic pill," Participant 11).

A safer and easier alternative

Another factor driving participant's Purposeful Action was the perception of gabapentinoids as safe and easy to access, particularly in comparison to opioids. Almost all participants had prior experience managing their pain with opioids. Many had either been weaned off opioids or were currently under pressure to do so. Although there were mixed feelings about the move away from opioids, there was generally an acceptance that the risks outweighed the benefits. For example:

"I do think there are still roles for opioids in chronic pain, but I do think, longer term, opioids are not a good result and therefore we do need to be looking more to the Lyrica and gabapentin and other options," Participant 06.

As this extract encapsulates, one of the main appeals of gabapentinoids was that they were thought not to carry the same risks as opioids. This was particularly the case with regards to the risk of dependence (e.g., "I thought it was in that class of drugs where it was an anti-depressant or something or like Panadol, a non-addictive drug," Participant 02). Participants perceived that their doctors also believed gabapentinoids were safer than opioids. Indeed, some explained they were switched from opioids to gabapentinoids in response to safety concerns about the former. For example:

"They were like 'okay, we need to put you on something a bit more long-term and less addictive'… so I just transitioned straight from [oxycodone] onto Lyrica," Participant 10.

In addition to being perceived as safer than opioids, gabapentinoids were perceived as easier to access (e.g., "I certainly don't seem to have had the troubles I've had with opioids with the admin and the crap that goes with that," Participant 06). Participants had found it was increasingly difficult to obtain and manage opioid medications due to regulatory changes such as the rescheduling of codeine from over-the-counter to prescription only and heightened restrictions around the frequency of dispensing (Campbell et al., 2019):

> *"I used to basically live off Nurofen Plus or Panadeine when you used to get it over the counter, but when they made it prescription only, I had to stop taking that," Participant 04.*

> *"[Tapentadol] was just too expensive and time consuming to get. I had to get a script every 28 days and I'd have to pay for that script every 28 days… it was just so frustrating and annoying," Participant 10.*

In contrast to the frustration around opioids described above, participants were relieved that gabapentinoids were not subject to the same scrutiny. This notion – that gabapentinoids were a desirable alternative to opioids – formed an influential part of participants' Purposeful Action, driving their decision to initiate and continue using the medication.

Finding the balance

Consistent with the Medication Adherence Model, the Purposeful Action process was recursive rather than static. Participants continually re-evaluated their decision to take gabapentinoids as they integrated Feedback (See 3.2. Themes relating to the Feedback domain). For some, Feedback reinforced their decision to use gabapentinoids. For others, it turned them off the medication. However, decisions around gabapentinoid use were never black and white, and the process of weighing up the benefits and risks was different for everyone. Some viewed side effects as a price they were willing to pay for pain relief, while others found side effects too much to bear even if they believed the medication was helping. The way in which side effects were evaluated depended on the priorities and psychosocial context of each participant. For instance,

brain fog was perceived as particularly problematic for Participant 05 who was studying at university. As a result, they made the difficult decision to discontinue their gabapentinoid medication, despite the fact it was alleviating some pain:

> *"I was about to fail my degree. I think that was like the last thing I had to lose with having this illness, my capacity to study and work in the field that I wanted to. It was absolutely crushing. I had experienced loss with working and friendships… I'm a lot better without it but the pain is a lot, lot worse… I never thought I'd have to make that decision with a medication."*

Others were deeply affected by side effects such as weight gain and hair loss because of the toll on their self-esteem (e.g., "You put on so much weight that you hate your body, you hate yourself," Participant 08) or impact on their identity (e.g., "I have this beautiful thick, curly, hair," Participant 11), while urinary retention made it difficult for a young participant to maintain friendships ("I didn't really want to go to the bathroom anywhere other than at home," Participant 12). On the other hand, Participant 04 was prepared to live with incontinence because their life-long battle with anxiety had come to an end while on gabapentinoids ("For the first time in my life I don't have a passenger of anxiety with me, which has actually been quite life changing"). Not only was the process of finding the balance different for each participant, but it often shifted over time in response to changes in their lives. For instance, Participant 09 was motivated to wean themselves off gabapentin after several years because they were hoping to become pregnant:

> "I didn't want to become pregnant and then suddenly have to cut all these medications out or worry about whether they have already done damage to the foetus."

The essence of this theme is that the Purposeful Action process was complex and dynamic, and that there was subjectivity to the risk-benefit analysis. There were trade-offs for using or not using the medication for all participants (e.g., "You definitely have to weigh up the pros and cons," Participant 05). At the end of the day, the decision depended on what was right for that person at that particular point in time.

Themes relating to the feedback domain

The Feedback domain of the Medication Adherence Model relates to information, prompts, and events that influence the decision-making process around medication-taking. For participants in this study, the primary sources of Feedback were captured by three themes: 1) symptoms as signs of benefits, 2) symptoms as signs of harms, and 3) discrepancy of information. This Feedback informed participants' perceptions of the need, effectiveness, and safety of their gabapentinoid, which in turn influenced their decisions about whether to continue, alter, or discontinue the medication (discussed in 3.1.3. Finding the balance).

Symptoms as signs of benefits

Participants constantly monitored bodily symptoms to determine whether they were benefiting from using gabapentinoids. Pain intensity in particular served as a salient source of Feedback for all participants. Some recalled that their pain improved soon after initiating gabapentinoids, which reassured them that the medication was working as intended. The reduction in pain that participants attributed to gabapentinoids was generally described as small but meaningful, allowing them to get through the day more comfortably (e.g., "It just takes the edge off," Participant 01; "It maintains a relatively better quality of life," P03). For instance, Participant 11 explained that a one-point reduction in pain on a zero to 10 scale could be "huge" in terms of the impact on function, while Participant 05 described a 5% reduction in pain as "quite big for me". In general, participants reported knowing their gabapentinoid was working because their pain re-emerged when they were due for a dose or missed a dose (e.g., "Occasionally I forget it because I'm old and I get distracted and I usually can tell when I've forgotten it because I start to get the pains coming back," Participant 07). In fact, some deliberately stopped taking their gabapentinoid for a brief period to test whether it was still needed and working. For example:

> "I went cold turkey for a couple of days to see what the background levels of pain would be without it. It was very uncomfortable, but it was worth knowing that I was still taking it for a reason, that there was still enough pain there that it justified taking the medication," Participant 03.

Others concluded that their gabapentinoid was ineffective given their pain appeared unchanged (e.g., "I wasn't convinced it was actually doing anything for me," Participant 09; "I didn't find it did much for me at all," Participant 11). Although pain was the main cue participants used to determine whether the medication was beneficial, some participants also attributed an easing of insomnia and anxiety to their gabapentinoid medication. Regardless, a reduction in unpleasant symptoms of any kind was a powerful form of Feedback and was generally interpreted as a sign that the medication was needed and effective.

Symptoms as signs of harms

The perceived harms associated with gabapentinoids were also informed by Feedback from symptoms, particularly those thought to be side effects or signs of withdrawal. Almost all participants reported experiencing undesirable side effects while taking gabapentinoids, which ranged from mild to severe in terms of the physical and psychological impact. Some participants described considerable deterioration to their quality of life as a result of side effects. For instance, Participant 08 recalled their time on gabapentinoids as "probably the worst time of my whole life" where they "basically did nothing for two years". Symptoms that participants described as side effects of gabapentinoids are listed in Table 2 along with exemplar quotes. The most commonly reported side effects included difficulties with memory and concentration, sleepiness, and weight gain. In fact, some participants lost their train of thought or muddled their words while being interviewed, which they pointed to as evidence of side effects. For example:

> "I looked it up because I wanted to get off it and I had all these people telling me stories like this is a nightmare blah blah blah … sorry, I've lost my thought… see this is what I mean. I get these brain blanks mid conversation… sorry, I've completely gone blank," Participant 02.

Participants also emphasised the extent of their side effects by recounting what they had been told by others:

> "My psych called it 'the gabapentin glaze'," Participant 05.

> "My partner even says to me now 'you're having a Lyrica moment'," Participant 08.

In addition to the negative side effects experienced while using gabapentinoids, some reported severe withdrawals symptoms when trying to come off the medication. Symptoms attributed to gabapentinoid withdrawal included anxiety, depression, diarrhoea, headache, loss of appetite, nausea, paranoia, psychosis, suicidal ideation, sweating, trembling, and vomiting. Some of these symptoms were themselves considered highly dangerous such as psychosis or suicidal ideation, whereas others were viewed as worrying signs they had become dependent on the medication ("I didn't realise how addicted to it I was until the prospect of coming off it came up," Participant 10). Participants who described their relationship to gabapentinoids as one of dependence had all been on high dose pregabalin (600 mg per day or more) for several years. They described the process of trying to come off gabapentinoids as "an absolute nightmare" (Participant 02), "torturing" (Participant 08), "horrendous" (Participant 10) and "disgusting" (Participant 11). Despite wanting to stop using their medication due to side effects or poor efficacy, these participants found it extremely difficult and distressing to do so. In this way, the Feedback from withdrawal symptoms informed their

Table 2
Side effects of gabapentinoids reported by participants.

Side effect	Quotes
Cognitive Impairment	"I basically just turned into a zombie," P02. "The worst brain fog you could ever imagine," P05. "You just cannot mentally focus on anything," P08.
Constipation	"It's also slowed down my bowels," P04.
Fatigue or Sleepiness	"It essentially put me straight to sleep for two weeks." P12.
Feeling Intoxicated	"I just felt stoned like when you smoke marijuana almost," P02. "I felt like I was extremely drunk," P08.
Hair Loss	"I was noticing that chunks were coming out when I was having a shower or brushing my hair," P11.
Incontinence	"I'm having a little bit of control issues with stopping myself from urinating," P04.
Increase Libido	"I would get really, really horny," P10.
Leg Swelling	"I ended up at [emergency] because my legs were so swollen," P06.
Mood Changes	"I was just angry, but you didn't even know what you were angry about," P08.
Muscle Spasms	"They're sort of tic spasms," P02.
Personality Changes	"It changes your self-esteem and personality," P08.
Reduced Libido	"It definitely has affected my libido. It's gone completely," P01.
Stroke	"They did the MRI and found out that I'd had a stroke," P08.
Suicidal Ideation	"The main thing is depression and suicidal thoughts," P02.
Urinary Retention	"I could be on the toilet for up to two hours waiting, trying to force myself to urinate," P12.
Weight Gain	"I put on 37 kilos," P08. "All up I think I put on 70 kilos from it," P10. "I put on about 10 to 15 kilos," P11.

perceived need for the medication as well as the perceived safety (e.g., "When I stopped after five days and I'm in bed crying and vomiting, I thought I've gotta keep taking them," Participant 02).

At the time of interview, Participant 02 had been trying to reduce their pregabalin dose for 12 months but had been unable to drop below 300mg per day without becoming severely depressed and suicidal. Although they felt trapped by dependence, they had not disclosed their troubles to their doctor for fear of being abruptly cut off from the medication ("I don't talk to them about it really because I'm scared that if I stop, I'm going to get that depressed"). Instead, they tried contacting drug and alcohol services but recalled being told the services did not treat gabapentinoid dependence ("Lots of detox places won't take you in for [pregabalin]"). They admitted to misusing their prescribed pregabalin – taking up to 1800mg (i.e., three times their prescribed dose) on occasion – and believed the medication had the potential for serious harm ("Two [friends] turned into complete drug addicts after [pregabalin]").

Despite these experiences, not all participants in this study reported dependence while using gabapentinoids. Indeed, some were able to wean themselves off gabapentin or low dose pregabalin without trouble (e.g., "It was actually one of the easier withdrawals I've ever had," Participant 05). Nevertheless, while some participants struggled to reduce their gabapentinoid use, Feedback suggesting gabapentinoids were more harmful than helpful generally motivated participants to stop using them.

Discrepancy of information

Many participants felt there was a discrepancy between what their doctor told them about gabapentinoids and what they learnt through informal information-seeking and their own experiences. This perceived discrepancy served as a source of Feedback informing their views about the efficacy and safety of gabapentinoids. To begin with, there was a strong feeling among almost all participants that they were not well informed about gabapentinoids from their prescriber. For example:

> "I was just put on it. There was no discussion about what it could cause, what it could do, did I want to take it, were there other options," Participant 08.

Many mentioned that the only detailed information they received when initiating gabapentinoids was the information leaflet provided by their pharmacist, which some acknowledged they did not read (e.g., "They give you the information sheet and this sounds bad but how many people actually read it?" Participant 11). Given the perceived absence of formal patient education, participants actively sought informational Feedback about gabapentinoids from informal sources, including the internet, media, family, friends, and peers. Indeed, they demonstrated a great deal of knowledge gained through informal information-seeking, including the history of gabapentinoids ("They were using them for epilepsy back in the day," Participant 03), as well as their approved uses ("It's really only designed for nerve pain," Participant 01), off-label uses ("It's sometimes prescribed for generalised anxiety disorder," Participant 04), side effects ("There are some side effects of depression and… anger," Participant 01), withdrawal syndrome ("It's not a medication you should stop cold turkey," Participant 07), and other risks ("I'm aware of the fatalities," Participant 07). However, when this information seemed to conflict with what their doctors had said or implied, participants felt uneasy or, in some case, angry. For example, some participants believed their doctor wrongly gave them the impression that gabapentinoids were safe:

"The first time I went to America because on TV there they're allowed to advertise and they were like 'don't drive vehicles, don't do this, don't do that' and I was like oh my god, nobody has told me this... They were saying 'don't sign contracts, don't make big life decisions' and I'm like, I'm living on this stuff, what's it doing? What am I making decisions about that I might not know about?" Participant 10.

Confusion also emerged from a perceived discrepancy in the opinions of different healthcare providers. Participants described being told that the medication was both effective and ineffective, safe and dangerous, or addictive and non-addictive. For example:

"I went to a doctor a month and a half ago at the hospital and he asked me what medications I was on. I said, 'Lyrica' and he said, 'what's that for?' and I said, 'pain' and he said, 'does it work?' and I said, 'I don't think so' and he said, 'That's what I've heard. You shouldn't be taking it," Participant 02.

Moreover, some felt their experiences with the medication did not align with what their doctor had told them. These perceived discrepancies led to feelings of uncertainty and frustration. For example:

"When my leg has a big flare up, my [general practitioner] still suggests Lyrica and I'm like why are you trying to give me something that made me nuts and have a stroke?" Participant 08.

This participant was one of several who were confused and suspicious about why they had repeatedly been offered gabapentinoids despite having had adverse reactions to the medication. In fact, Participant 03 felt doctors "almost push it on you", while Participant 08 believed

doctors were incentivised by pharmaceutical companies to recommend gabapentinoids ("[The] doctors get money if they prescribe their medications").

However, not everyone reported discrepancy of information. For example, one participant appreciated the fact their doctor was transparent about not always having the answers. They reported their doctor treated them like the expert when it came to their health, empowering them to do their own research and to collaborate in decision-making ("He told me 'Go home and research and bring to me your theories and let's look at them'," Participant 12). As a result, they felt respected and validated, which made them feel safe and in control with regards to their treatment choices. Yet, for those who felt there was discrepancy in the information they received from different sources, this was a powerful source of Feedback that undermined their motivation to use gabapentinoids as well as their trust in their doctor.

Discussion

For participants in this study, the initial decision to use gabapentinoids for chronic pain was driven a perceived need for pain relief, a perceived lack of pain management alternatives, and a belief that the medication was safer and easier to access than opioids. However, once using gabapentinoids, experiences varied considerably with some viewing the medication as highly effective and safe, and others viewing it as useless or harmful.

As previously discussed, access to high-quality chronic pain care is severely limited in Australia (Hopkins, Degenhardt, et al., 2022; Pain Australia, 2019). It is therefore unsurprising that participants in this study felt there were no good alternatives to using gabapentinoids. Indeed, prior research finds that most treatments for chronic pain do not work well on their own (Turk et al., 2011), while multimodal pain care tends to be costly and time-consuming with long waitlists (Pain Australia, 2019). Indeed, patient frustration at the lack of effective treatments for chronic pain is well documented in the qualitative literature and has previously been identified as a driver of persistent medication use (Frank et al., 2016; McNeilage et al., 2022; Penney et al., 2016). For the participants in this study who did not perceive any benefit from gabapentinoids, the medication was viewed as yet another disappointment in the 'chronic struggle' of managing persistent pain (Webster et al., 2023).

It is also understandable that the accessibility and safety of gabapentinoids was an important consideration for participants in this study. Many patients with chronic pain in Australia have experienced barriers to obtaining opioids in recent years due to regulatory changes (Hopkins, Campbell, et al., 2022), which has left some feeling abandoned and in want of alternative pain medications (McNeilage et al., 2022). In fact, several participants in this study reported that their doctor offered gabapentinoids as a replacement for opioids. This finding provides some preliminary support for the view that the recent rise in gabapentinoid prescribing may have been driven by doctors looking for ways to encourage patients to discontinue opioids (Goodman & Brett, 2017; Murnion & Conigrave, 2019).

Gabapentinoid dependence and misuse were reported by some participants in this study, adding to the growing body of evidence for the potential harms associated with these drugs (Evoy et al., 2021). This aligns with qualitative research examining gabapentinoid misuse in addiction settings, which finds that many of those misusing gabapentinoids have been prescribed the medication for pain (Brennan & Van Hout, 2020; Buttram & Kurtz, 2020, 2021; Vickers Smith et al., 2018). It may be important for clinicians to be aware of these previously undocumented concerns of people prescribed gabapentinoids for chronic pain, and it may be useful for future research to explore these potential impacts. Another important contribution of this study is the finding that pregabalin discontinuation was extremely challenging for some participants. Of particular concern is the reporting of serious psychiatric symptoms, such as suicidal ideation, paranoia, and psychosis during withdrawal. Gabapentinoid withdrawal, although acknowledged in the literature, has not been researched in large-scale studies (Ishikawa et al., 2021; Mersfelder & Nichols, 2016). However, severe psychological distress during withdrawal has been reported in case studies (Gundogmus et al., 2018; Naveed et al., 2018) as well as qualitative studies of gabapentinoid misuse (Al-Husseini et al., 2018; Brennan & Van Hout, 2020).

Given their negative experiences with the medication, some participants felt they were misled to believe gabapentinoids were safe, which undermined their trust in their doctor. This is not the first time tension between patients and doctors has been identified in the chronic pain literature (Matthias & Bair, 2010). Indeed, doctor-patient relationships in this context are notoriously fraught partly due to the invisibility and intractability of pain, the limited efficacy of available treatments, and the rise of pharmacovigilance (Zajacova et al., 2021). Qualitative research consistently finds patients with chronic pain feel distrusted, invalidated, and stigmatised in their interactions with healthcare providers (Bergman et al., 2013; Kenny, 2004; Upshur et al., 2010), particularly in conversations around prescribing and deprescribing (Dassieu et al., 2021; Haines et al., 2023; McNeilage et al., 2022; Parkes et al., 2022). This is unfortunate as the quality of the doctor-patient relationship has implications for patient outcomes (Kelley et al., 2014) .For instance, mutual trust is known to be an important predictor of medication adherence (Brown et al., 2016).

Finally, while the experiences described by participants in this study generally aligned well with the Medication Adherence Model, discussion relating to the Patterned Behaviour domain was lacking. Nevertheless, this in itself may be consistent with the theory as Patterned Behaviour is conceptualised as a behavioural domain, whereas the others are conceptualised as cognitive domains. Observational methods, such as experience sampling, may be more apt to detect patterns in behaviour than interview methods, which tend to elicit cognitions or reflections on behaviour.

Strengths and limitations

By using broad inclusion criteria, this study was able to capture the experiences of complex patients who are often excluded from clinical trials (i.e., those with comorbid pain and psychiatric conditions as well as those using multiple analgesic medications concurrently). Documenting the experiences of these patients is important as it has been argued that excluding complex patients from research can lead to an overestimation of medication benefits and an underestimation of harms (Ford & Norrie, 2016). Furthermore, by using a qualitative approach, this study sheds light on important contextual factors around medication taking that can be overlooked in large-scale trials. Nevertheless, there are several limitations to this study.

Although this study included a diverse sample of participants from across Australia, findings may not be transferable to healthcare systems overseas. For instance, the perceived need and perceived accessibility of gabapentinoids may differ in countries where medications are not government subsidised and universal healthcare is not available. While social media recruitment may have enabled access to a more geographically diverse sample, it is possible that those who volunteered to participate may differ in some meaningful ways from those who did not. For instance, they may have had more extreme positive or negative experiences of using gabapentinoids than the average patient. With that said, some participants did report relatively neutral experiences. Regardless, this study was designed to capture a broad range of experiences rather than the average experience. To understand how prevalent these experiences are in the community, studies in large, representative samples are required.

Unfortunately, it was not possible to accurately determine whether participants were prescribed gabapentinoids for neuropathic pain or off-label for other pain conditions. Although participants were asked directly about the reason for prescription, the answer was often not straightforward. For example, some were unsure which of their several

chronic pain diagnoses their gabapentinoid was prescribed for. Others reported experiencing neuropathic pain but did not report that as the reason for prescription. To complicate matters further, some participants reported pain conditions like chronic back or neck pain which can occur both with and without a neuropathic component (Treede et al., 2015).

Implications and future research directions

The findings of this study suggest that clinical decision-making around gabapentinoids needs to be both patient-centred and dynamic given the significant between- and within-patient variability in experiences. It is clear from this study that experiences of using gabapentinoids fall on a continuum from highly positive (i.e., well tolerated and helpful) to highly negative (i.e., poorly tolerated and harmful). Therefore, prescribers should tailor their approach to the preferences and experiences of individual patients. While there is a need for comprehensive clinical guidelines around the prescribing of gabapentinoids for chronic pain, the Faculty of Pain Medicine of the Australian and New Zealand College of Anaesthetists recommends they are only prescribed to patients with evidence of neuropathic pain and that they are discontinued when patients are not experiencing improvement in their functioning and quality of life (Faculty of Pain Medicine, 2018). Likewise, the Therapeutic Goods Administration (TGA) suggests gabapentinoids should be used for as short a period as possible, at the lowest effective dose, and that discontinuation should occur gradually over at least one week. The TGA also suggests clinicians check for history of substance use disorder before prescribing gabapentinoids and monitor patients closely during treatment for signs of dependence (Therapeutic Goods Administration, 2021).

It is worth noting that, although still primarily used for chronic pain, gabapentinoids are increasingly being prescribed off-label to manage other conditions such as anxiety disorders, insomnia, postoperative pain, and alcohol dependence and withdrawal (Ahmed et al., 2019; Buzsaki, 2018). Future research should investigate whether the experiences of patients using gabapentinoids in these contexts differ from the experiences of the participants in this study.

The findings of this study also indicate that patient perceptions of the need, effectiveness, and safety of gabapentinoids often change over time in response to feedback from symptoms and information-seeking. Therefore, prescribers should be flexible and willing to adjust their approach based on this feedback. This dynamic approach to decision-making requires regular appointments with open and ongoing dialogue between prescribers and patients. In particular, patients should be monitored for signs of poor efficacy, side effects, and dependence when using gabapentinoids for chronic pain. To shed light on factors influencing prescriber decision-making around the use of gabapentinoids, future qualitative studies should involve prescribers.

Furthermore, prescribers should be particularly sensitive to signs of worsening mood, given the risk of suicidal ideation identified in this study and suicidal behaviour identified in prior studies (Dreier et al., 2019; Molero et al., 2019). Patients may be particularly vulnerable to psychological distress during gabapentinoid dose reduction and discontinuation. Unfortunately, there is currently not good evidence for how best to manage withdrawal from gabapentinoid medications. A recent review of the literature found no randomised controlled trials comparing different tapering protocols or comparing tapering with abrupt cessation (Aindow et al., 2021). The development of evidence-based clinical guidelines for gabapentinoid tapering is an important avenue for future research.

The findings of this study also emphasise the importance of communication between patients and their prescribers about gabapentinoids. Not only did participants in this study feel they were poorly informed about gabapentinoids, but many were left confused and frustrated when the information their doctor gave them appeared to conflict with their own experiences or things they learnt from other sources. Qualitative research on opioid use in chronic pain management also finds that, despite actively seeking knowledge about their medication, patients often feel left out of decisions around prescribing (Haines et al., 2023). It is vital from both an ethical and safety perspective that patients have a comprehensive understanding of the medication they are prescribed (Redman, 2011). Future research should investigate potential barriers to patient education and shared decision-making about gabapentinoids in primary care.

Conclusion

Participants in this study reported a lack of alternative chronic pain treatments and concerns about opioid risks as the main reasons for initiating gabapentinoids. Some reported experiencing small but meaningful benefits from the medication, providing hope and enhancing their wellbeing. However, others reported unpleasant and even dangerous side effects, which exacerbated their suffering and worsened their quality of life. In particular, some participants described considerable distress when trying to withdraw from the medication. While participants empowered themselves through actively seeking information about gabapentinoids, many were disappointed and frustrated by perceived discrepancies or gaps in the information they received from healthcare providers. These findings emphasise the importance of taking a patient-centred approach to gabapentinoid research and clinical practice given the diversity in experiences. Future research should involve prescribers to explore factors driving gabapentinoid prescribing for chronic pain and to identify potential barriers to patient education. In addition, there is an urgent need for comprehensive clinical guidelines around the prescribing and deprescribing of gabapentinoids for chronic pain to better inform shared decision-making in this context.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

CRediT authorship contribution statement

Amy G. McNeilage: Conceptualization, Methodology, Investigation, Formal analysis, Data curation, Writing – original draft, Visualization, Project administration, Funding acquisition. **Claire E. Ashton-James:** Formal analysis, Writing – review & editing, Supervision. **Brett Scholz:** Methodology, Formal analysis, Writing – review & editing, Supervision.

Ethics approval

This research was approved by the Science and Medical Delegated Ethics Review Committee at the Australian National University (Protocol: 2022/202).

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