

## Pain Management Programmes: are they worth it?

Pain management programmes (PMPs), which can be delivered virtually or in person, aim to equip patients with techniques to help manage their pain and maintain their daily activities. I was fortunate enough to attend a PMP, whilst on my General Practice placement in Ayrshire, Scotland. Through experiencing this, I participated in activities, including acupuncture and meditation, allowing me to further understand the diverse skills provided by PMPs. Following a group of patients throughout their journey with the PMP, gave me a deeper understanding of how these programmes are designed, how they work with pharmacological therapies, and how individual patients felt the PMP had benefited them.

I was interested to discover that NICE currently do not make a recommendation in favour of PMPs.<sup>1</sup> From current literature, PMPs have demonstrated small clinical benefits in both physical function and pain intensity.<sup>2</sup> Despite this, NICE made a recommendation that, due to the complexity of the variables, further research was unlikely to add benefit to current evidence. In this essay, I will explore the rationale behind PMPs, the evidence for the optimum design, and which patients may benefit most from a PMP.

A pain management programme is an intervention which aims to educate participants on the multifactorial nature of chronic pain and how these factors impact everyday aspects of their lives. They are commonly delivered in groups, allowing participants to interact and connect with one another, enabling the sharing of experiences and advice. Whilst the majority of PMPs are delivered in groups, there is also the possibility to deliver this intervention on an individual level, if that is thought to be more beneficial for individual patients.<sup>3</sup> For example, if a patient experiences severe anxiety in group settings, it may not be suitable for them to attend a group PMP, and either an individual PMP or a smaller group one may be more suitable. Most PMPs are designed to give the participants knowledge on pain physiology, psychology, and self-management strategies. They are designed to be most effective when used alongside other interdisciplinary methods, including pharmacological and physiotherapy, helping to treat each patient holistically.

It is important to highlight to patients at the beginning, that PMPs are not designed to cure pain, but rather, to learn how to live with their pain and still maintain their daily activities and enjoy life.

Chronic pain can be defined as pain lasting longer than 3 months. It has a huge impact on not just the individual suffering the pain, but also their friends, family, and the economy if time off work is needed. Chronic pain affects every aspect of patients' lives, from sleeping and getting dressed, to concentrating in work, and socialising with friends. In 2016, it was thought that just under 28 million adults in the UK were affected by chronic pain.<sup>4</sup> This number is likely to increase as our population continues to age and given that COVID has the potential to cause long term pain, this number may increase significantly. Given these facts, it is vital that as a healthcare provider, we are equipped with the knowledge needed to know the best management strategies and when to refer patients.

Although there are pharmacological treatments available for chronic pain, given the potential side effects and dependence risk, especially with opiates, the latest NICE guidelines have advised to avoid many of these medications for the management of chronic pain.<sup>5</sup>

Alternative management strategies are being explored by many patients, and the skills provided by PMPs have proved helpful to many in coping with their pain.

PMPs are focussed on the biopsychosocial model<sup>6</sup> aiming to explore the multifactorial nature of chronic pain. They aim to educate patients on biological causes of pain and help them have a basic understanding of the physiological aspects causing chronic pain. They also explore the psychological factors influencing chronic pain, including depression and anxiety, which are common in those suffering with chronic pain. By encompassing these with the social factors influencing chronic pain, including time off work, caring for family, and managing activities of daily living, it helps ensure patients are treated holistically and are

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empowered with the knowledge to make decisions about their care. By considering all aspects of the biopsychosocial model<sup>7</sup>, as shown in figure 1, it can be seen that each category interacts with one another and all have an influence on the chronic pain experience. As demonstrated, each category overlaps with one another, highlighting how each aspect of patients' lives impacts another. For example, a patient may be genetically predisposed to getting a disease which causes pain, this in turn leads to low mood, which results in them taking time off work, which causes stress, which then worsens their pain, and the cycle continues. PMPs provide patients with this information, which allows them to understand how changing certain aspects of their lives may help their pain. From speaking to patients with chronic pain, a common theme that they have experienced, is that they felt healthcare providers did not believe that their pain was severe, or they felt that they were being told it was 'all in your head'. If patients don't feel listened to, they will disengage with services, potentially making their pain worse. From speaking with patients, I have realised how vital it is to ensure they know they I believe they are in pain and want to help, which is something I've taken into my own practice when seeing patients and something I saw the PMP explore excellently.

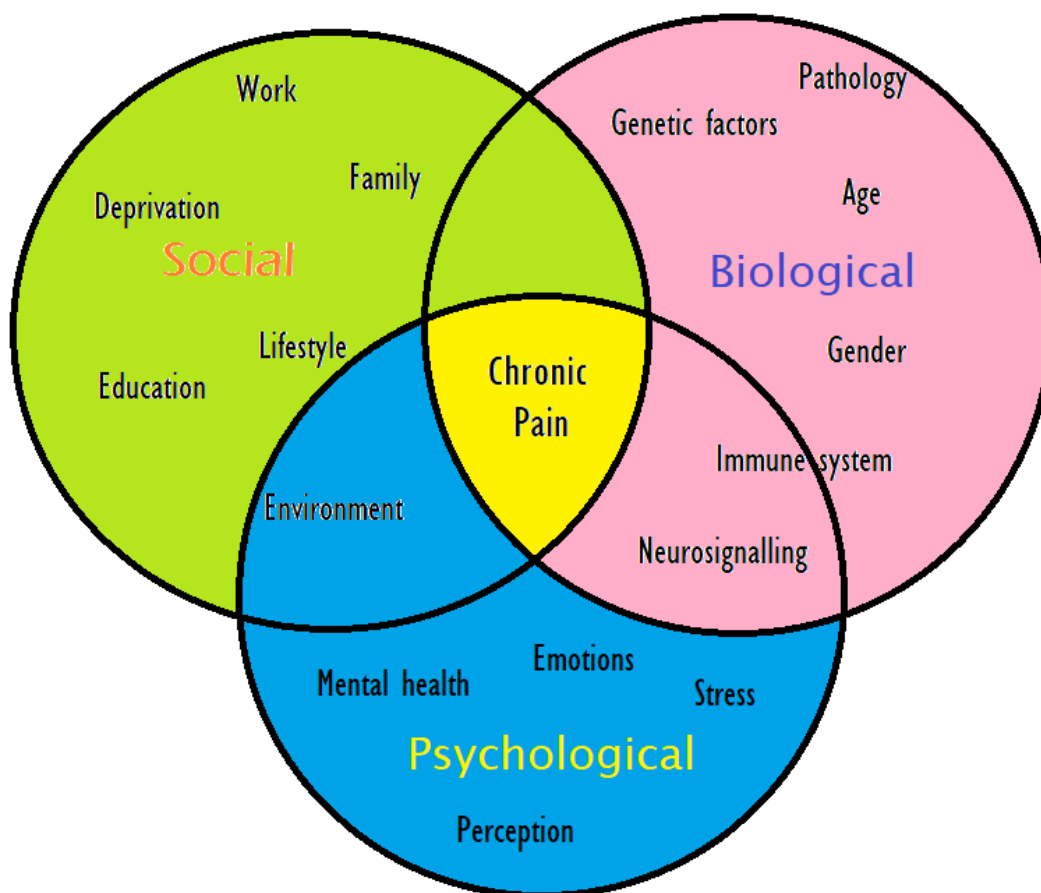


Figure 1 showing the Biopsychosocial model for chronic pain

PMPs can be classed into 3 groups: early intervention based on risk, standard PMPs and intensive PMPs.<sup>8</sup> Each group aims to directly and indirectly change the way participants think and behave when it comes to their pain.

One method commonly used within PMPs is the cognitive and behavioural method. Included in this, is Cognitive Behavioural Therapy, which aims to identify, analyse, and modify the impact distressing and negative beliefs have on the experience of chronic pain. CBT has been shown to have the largest positive impact on chronic pain out of all the psychological

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therapies,<sup>9</sup> when compared with active control. However, this benefit was seen as small and the benefit over the active control was not found to continue in the follow up. I found this particularly interesting, as when I attended a PMP on my GP placement, one of the main apprehensions that participants had at the end of the programme, was how they would continue to use the skills and techniques they had acquired during the CBT sessions in the course, when they were no longer regularly doing so in a group. From the data analysed, it suggests that perhaps a maintenance CBT online resource or group session at regular intervals may help maintain the benefit shown during the programme, however, this would need to be on an individual basis and commitment assessed to ensure this is cost effective.

Acceptance and Commitment Therapy is another method used in PMPs. It aims to use different psychological strategies to become more comfortable with living with negative thoughts and pain. There is no high quality evidence to support ACT vs active control<sup>10</sup> but there are smaller studies which show promising results.<sup>11</sup> Interestingly, variations were seen on the effectiveness of ACT depending on the aetiology of the chronic pain, with fibromyalgia showing the most promising results for ACT benefit. This needs to be considered in patients when considering if a PMP delivering ACT is likely to be beneficial.

Graded exposure and graded activity are two other methods used in PMPs. They are both similar in that they both aim to decrease patient disability by assessing certain behaviours. Graded activity aims to positively encourage exercise levels and continually enhance activity levels using a quota system, whereas graded exposure involves exposing patients to situations they are fearful of, in the aim of reducing catastrophising and fear-avoidance when it comes to exercise.<sup>12</sup> There are a limited number of RCTs on this, however, those that have been conducted have demonstrated that, when combined with methods to improve depression and anxiety, graded exposure has a good clinical outcome.<sup>13</sup> PMPs often combine these methods, meaning they are more likely to be successful than just attending one of these resources on its own.

Mindfulness is another skill which is taught and practised in PMPs. It involves allowing participants to become comfortable and aware of the thoughts they experience, allowing them to disengage from negative behaviours or habits when experiencing these thoughts. There is evidence that this helps decrease pain catastrophising, allowing participants to continue their daily activities without necessarily reducing the pain level.<sup>14</sup> I was fortunate to participate in this activity during the PMP I attended and through this, I learnt about the techniques involved and how different individuals respond. Before recommending meditation to a patient, it is vital to assess the patient holistically to assess how they may respond to this intervention. From what I observed, based on participants pre-conceptions surrounding mindfulness, those that were sceptical regarding its effectiveness, tended to do less well than those that were positive and open minded about the process. Whilst not specific to PMPs, there are multiple apps available to help participants with meditation and mindfulness strategies at home, and many of the participants I met found these very helpful to continue practising in their own time, and found they then got more benefit from the group sessions. Mindfulness strategies also have the added benefit of helping promote healthy sleep routines. This can then also have positive benefits in coping with chronic pain and improving mood, all of which are linked to how we experience pain.

Physical activity is a key part of pain management.<sup>15</sup> Graded physical activity has been shown to be effective in the management of chronic pain conditions, such as fibromyalgia.<sup>16</sup> When physical activity programmes are delivered in the context of a PMP, there is particular emphasis on developing the individual skills and mindsets needed to continue this activity once the PMP has finished, to enable long term benefits. In chronic pain, a huge challenge when exercising, is overcoming the initial fear of acutely worsening the pain or causing damage to painful areas. PMPs aim to educate participants on the long term benefits of exercise and provide participants with the knowledge to make informed decisions and feel

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more comfortable knowing exercise is safe for them. There are many different styles of physical activity delivered by PMPs, which depend on the type of chronic pain. For example, chronic pain caused by a previous injury is likely to respond differently to certain exercises when compared with chronic pain from fibromyalgia. It is in this circumstance, that PMPs demonstrate how well they assess each individual holistically. The type of activity can include aerobic, strength and balance, flexibility, yoga and tai chi, all of which have demonstrated good effects in terms of physical function and quality of life.<sup>15</sup>

Alternative medicine also has the opportunity to be utilised by PMPs depending on local resources. I was fortunate to participate in acupuncture when I attended a PMP. Although mostly studied in patients with fibromyalgia, the use of acupuncture has been proven to be effective in the management of chronic pain, with significant differences noted at both 10 weeks and 12 months post treatment in those that had acupuncture vs sham.<sup>17</sup> When speaking to participants, a lot of them described how shocked they were that the acupuncture had helped and they had also been given techniques to use at home which had proven beneficial.

Where the PMP is delivered depends on the individual patient and the local services available. PMPs can be delivered as an outpatient or inpatient service and can be professional led or a combination of professional and peer led. The greatest benefit is seen in professional interdisciplinary led PMPs, with less success shown for peer led programmes.<sup>18</sup> The higher the intensity of the PMP does not always equal greater success. Each individual patient needs to be assessed and assigned an intensity of a PMP. If a patient is assessed to have challenging aspects to their pain or history, a more intense programme may be beneficial. The British Pain Society states that as a minimum requirement, PMPs must have 36 hours of engagement,<sup>19</sup> with evidence that fewer hours than this reduces the effectiveness of the programme. Figure 2 shows the vital design of PMPs, as shown in the British Journal of Anaesthesia.<sup>8</sup>

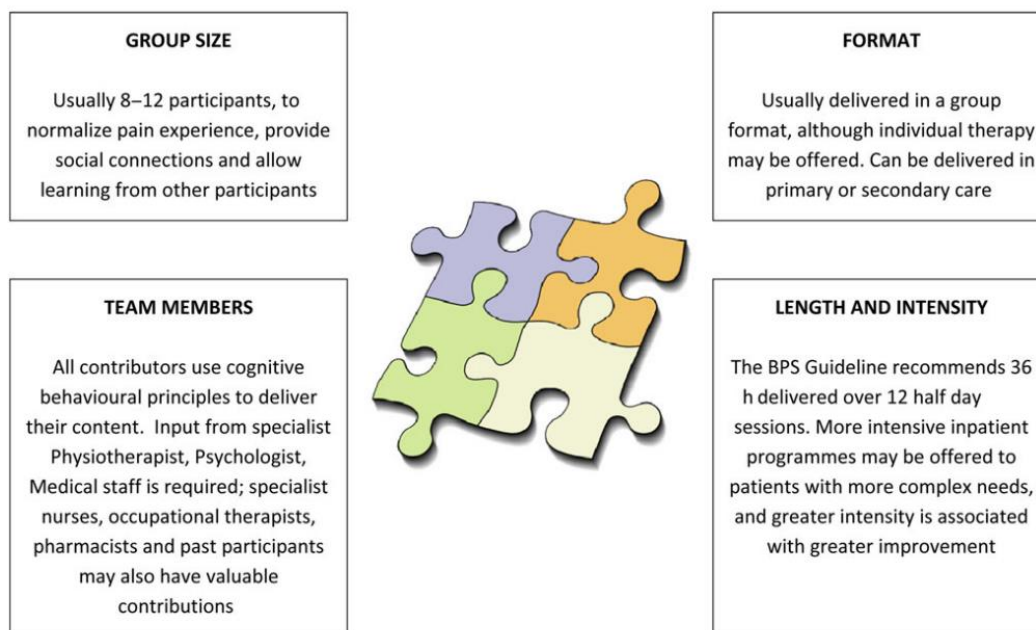


Figure 2 showing the design of PMPs as shown in BJA 2016.

It can be challenging to assess how successful a PMP has been, given that there are so many clinical outcomes. A PMP needs to have set domains that can be measured at both the beginning and end of the programme, for example, by asking participants to complete a questionnaire. These domains being assessed include mental wellbeing, physical activity

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levels, social interactions, work status, any medical changes brought about by the programme and overall quality of life.<sup>20</sup>

The majority of RCTs assessing the evidence for PMPs, involve participants with fibromyalgia. There is evidence in favour of PMPs for people with fibromyalgia<sup>21</sup> when delivered by trained healthcare professionals and involving a range of interdisciplinary techniques, including education, physical activity, breathing techniques and relaxation. Another study focussing on fibromyalgia,<sup>22</sup> but this time involving patients with low education levels, also demonstrated positive results in favour of PMPs. In similarity with the previous study, the mean age for participants was approximately 49 years and the individuals had been living with pain for an average of 11 years. This raises the question of are individuals of this age group, and who have been living with pain for this long, more likely to engage in PMPs than younger or older patients who have had pain for a shorter duration. There is also evidence that PMPs, when coupled with pharmacological management, have a significant difference in improving physical functioning, when compared with pharmacological treatment alone.<sup>23</sup> This highlights the importance of utilising different management strategies together to accumulate clinical benefits and should be considered for patients with chronic pain.

Although fibromyalgia is the most frequently studied condition, there is also evidence for the benefit of PMPs in other chronic pain conditions. For example, a study evaluating a PMP for chronic MSK knee pain, has also demonstrated a benefit after a 6 week PMP.<sup>24</sup> Similarly, PMPs have demonstrated an improvement in function and self-management of pain in people with chronic non-cancer pain.<sup>25</sup>

There are some limitations in the studies. For example, one study only included participants that had consulted their doctor for chronic widespread pain in the previous year.<sup>26</sup> This raises the question of are these individuals more likely to engage with the PMP, and hence make it appear more successful. This highlights the need to assess each patient individually before recommending a PMP, to assess how likely they are to fully engage and experience benefits from this. When compared with starting medication, there are less risks associated with PMPs as they avoid the potential side effects of medication and also help promote healthy living for participants overall health.

Due to the nature of PMPs, it is difficult to blind participants and very challenging to control variables, due to the complex nature of chronic pain. This makes the quality of evidence provided by the trials lower, and in turn makes it difficult to say with certainty how beneficial PMPs are for improving chronic pain, with some trials showing inconsistent results. It is also challenging to compare trials with one another, as all PMPs differ slightly in the number of participants, length of programme and the activities included.

In the most successful study designs, the PMPs were delivered by trained interdisciplinary professionals and involved a range of different management techniques. They were also found to be most successful the longer the PMP ran for and showed benefit when the number of participants were kept small.

In conclusion, PMPs have been shown to have a clinical benefit when delivered by trained multidisciplinary professionals delivering both physical and psychological components.<sup>27</sup> When deciding when to refer to a PMP, a holistic approach is necessary based on individual patient factors. The risk of harm from PMP can be seen as low,<sup>18</sup> and so if the patient is motivated to engage in the programme, a PMP is worth considering to improve the patient's chronic pain experience.

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