



Original article

A qualitative exploration of people's experiences of pain neurophysiological education for chronic pain: The importance of relevance for the individual



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ARTICLE INFO

Article history:

Received 20 October 2014

Received in revised form

1 October 2015

Accepted 4 October 2015

Keywords:

Chronic musculoskeletal pain

Patient education

Qualitative

ABSTRACT

Pain neurophysiology education (PNE) is a distinct form of patient education in pain management. The aims of this study were to explore the experience of PNE for people with chronic pain and to gain insight into their understanding of their pain after PNE. This was a qualitative study, based on Interpretive Phenomenology Analysis, using individual semi-structured interviews to collect data. We recruited a purposive sample of 10 adults with chronic musculoskeletal pain (men and women; mean age 48 years; with a mean pain duration of 9 years) who had recently completed PNE delivered as a single 2-h group session. The interview transcripts were analysed for emerging themes. We identified three themes: perceived relevance for the individual participant; perceived benefits for the individual participant; and evidence of reconceptualisation. An interlinking narrative was the importance of relevance. Eight participants viewed the session as relevant and reported benefits ranging from a better understanding of pain, improved ability to cope with the pain, and some suggested improved levels of physical activity. Four of these participants showed evidence of reconceptualisation, which we describe as partial and patchy. Two participants reported no benefit and did not perceive the material delivered within PNE to be relevant to themselves. Relevance to the individual needs of a person with chronic pain may be a key factor in the success of PNE, and this is a particular challenge when it is delivered in a group situation.

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1. Background and context

Chronic musculoskeletal pain is a common long-term condition affecting 20% of people worldwide (Goldberg and McGee, 2011). Many people with chronic pain become disabled, resulting in a loss of identity, difficulty coping and a reduction in quality of life (Maniadakis and Gray, 2000). It is recommended that interventions that empower patients and encourage self-management should be utilised (Gifford, 1998; Frost et al., 2004; Turk and McCarberg, 2005). Education is an important component of this empowerment approach to pain management (Gifford, 1998). In principle, the better a person understands their condition, the better they will manage it.

Over the past 15 years a distinct approach to pain education, known as pain neurophysiology education (PNE), has emerged (Butler and Moseley, 2003; Clarke et al., 2011; Moseley and Butler, 2015). PNE aims to facilitate people to reconceptualise their pain as less threatening (Moseley, 2004; Van Oosterwijck et al., 2011). Pain reconceptualisation has been defined as shifting people's beliefs towards the understanding of four key points: 1) that pain does not provide a measure of the state of the tissues; 2) that pain is modulated by many factors from across somatic, psychological and social domains; 3) that the relationship between pain and the state of the tissues becomes less predictable as pain persists; and 4) that pain can be conceptualised as a conscious correlate of the implicit perception that tissue is in danger (Moseley, 2007).

The research literature describes a wide variety of formats in which PNE is delivered, with some studies using a single session lasting anywhere from 30 min to 4 h, while other studies report multiple sessions (Louw et al., 2011). The greatest total amount of education delivered (duration × frequency) was 8 h (Moseley, 2002) while the lowest was 30 min (Meeus et al., 2010).

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Predominantly, PNE has been delivered on an individual basis (Ryan et al., 2010), though group sessions have also been used (Moseley, 2003a,b; Pires et al., 2015). Some studies provided additional written information alongside the education session (Van Oosterwijck et al., 2013) while others did not (Meeus et al., 2010). Recent work has even suggested that PNE can be delivered, at least in part, online (Louw, 2014).

Early evidence supports the potential of PNE to contribute, alongside other methods, towards the reduction of pain and disability, although the evidence is limited because of the few studies that have investigated this intervention (Moseley, 2003a, 2004; Ryan et al., 2010; Clarke et al., 2011; Louw et al., 2011; Van Oosterwijck et al., 2011, 2013; Pires et al., 2015). There is evidence supporting claims that PNE, delivered in a variety of ways, can help to alter inappropriate beliefs, reduce catastrophizing and diminish fear, consistent with the claimed mechanism of reconceptualisation (Clarke et al., 2011; Louw et al., 2011; Van Oosterwijck et al., 2011). These findings are based on responses from self-report questionnaires, which while accepted as valid, do not have sufficient scope to explore the extent of reconceptualisation that is claimed to be central to PNE. Nor do they provide insight into people's perceptions of the experience of taking part in PNE, which is extremely important information in evaluating its clinical effectiveness.

Qualitative methods provide the opportunity to explore a person's lived experience (first-hand insights and perceptions from someone who has experience of the phenomenon of interest) to gain a deeper insight into their understanding of a phenomenon (Magilvy and Thomas, 2009). Qualitative interviews can explore issues in more depth than a questionnaire and help to uncover personal, often conflicting and complex beliefs that people can possess (Pope and Mays, 1995). Such an approach can allow exploration of the mechanisms by which an intervention works, facilitators of and barriers to the intervention, and identify potential opportunities to enhance it (Barbour, 2000). To date, there are no studies that have used qualitative methods to explore people's experiences as users of PNE.

The aims of this qualitative study, therefore, were to explore the experience of PNE for people with chronic pain and to gain insight into their understanding of their pain after PNE.

2. Methodology

2.1. Study design

This was a qualitative study using an approach based on Interpretive Phenomenology Analysis (IPA) that enabled a detailed exploration of the processes through which participants make sense of their own experiences (Brocki and Wearden, 2006). Ethical approval was granted by the Yorkshire and the Humber Health Research Authority of the National Research and Ethics Service (NRES) (REC reference: 12/YH/0409). The study was reported using the consolidated criteria for reporting qualitative research (COREQ) (Tong et al., 2007).

2.2. Participants and recruitment

Participants were patients attending an NHS Pain Clinic in a hospital in the North East of England for chronic pain management who had received PNE as part of their usual care. This study aimed to recruit 10 participants as the literature suggests that this is an appropriate number to facilitate a detailed interpretative account using an IPA framework (Smith et al., 1999; Reid et al., 2005; Brocki and Wearden, 2006).

Purposive sampling was used to ensure that the sample contained a mix of people for whom the research question was

significant (Smith and Osborn, 2008). The sought-after characteristics were men and women of a range of ages between 18 and 65 with recent completion of PNE. The sampling criteria excluded people if they did not have the capacity to give informed consent; if their pain was not musculoskeletal in nature i.e. post stroke or visceral pain; or if they did not have a sufficient level of English to take part in the interviews (We did not have sufficient resources to provide appropriate translation). Immediately after receiving a group PNE session as part of their usual care, those who were eligible for inclusion in the study were provided (by the administrative team in the pain clinic who were not members of the research team) with a participant information sheet and invited to indicate an interest to participate. The researcher (VR) then contacted everyone who had indicated interest in the study. In addition to the written information sheet the study was then verbally explained and those who wished to participate were recruited into the study. As neither the researcher responsible for contacting and interviewing the participants, nor the administrative staff responsible for providing the initial information to the participants, had any prior clinical contact with the participants or insight into their experience of PNE, this reduced the risk of sampling bias.

2.3. Procedure

PNE, based upon the manual *Explain Pain* (Butler and Moseley, 2003), was delivered to participants as part of their usual NHS care, within a group education setting, in a single, 2-h session. The groups contained a mix of participants in the study and others who were not participating. The participants had a range of pain conditions i.e. the groups were not specific to one particular pain condition such as back pain. The education was delivered in the same format that was used routinely in this clinic. This entailed using a combination of verbal communication, PowerPoint slides, prepared diagrams and free hand drawings. The delivery of the material was primarily didactic in nature using a standard lecture style format. Participants were encouraged to ask questions and occasional informal group discussions took place. No additional educational material was provided to the participants before or after the education. The physiotherapist delivering the education did not assess participants' current understanding of or beliefs about their pain before the education, nor did they familiarise themselves with their case notes to tailor the education to each specific situation. However, during the education when participants brought up their particular issues, the physiotherapist gave examples tailored to that participant.

The education was delivered by a member of the research team (RK), a senior physiotherapist with five years of experience working in chronic pain and four years of experience of delivering PNE. The therapist had previously completed an *Explain Pain* course run by the Neuro Orthopaedic Institute (NOI). The educational material contained stories and metaphors from the *Explain Pain* manual (Butler and Moseley, 2003). The biopsychosocial model, pain neuromatrix theory and central sensitisation were central parts of the education. Key messages such as "hurt does not equal harm" were emphasised and the role of psychosocial issues in the pain experience were considered. The role of the sympathetic and parasympathetic systems was discussed. The underlying neurophysiology of how pain related fears and anxieties impact upon the pain experience was also presented. Additionally, practical coping skills used within the *Explain Pain* manual (Butler and Moseley, 2003) such as pacing were discussed. Given the 2 h duration of the education it was not possible to include material from all chapters of the *Explain Pain* manual.

Two weeks after their PNE session, each participant took part in one individual face-to-face interview in a private room in the Pain

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