Defensive high-anxious individuals with chronic back pain demonstrate different treatment choices and patient persistence

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ABSTRACT

The aim of this study is to determine whether the experience of, and response to chronic back pain was different for defensive high-anxious individuals than other personality types (defensive high-anxious, high-anxious, repressor and low-anxious). Participants ($n = 111$) were recruited from a heterogeneous sample of individuals who had reported back pain within the last 6 months. Self-report measures of trait anxiety and defensiveness were used to determine personality type. In addition, pain, treatment history, disability, depression and satisfaction with treatment were recorded. Despite reporting similar levels of pain to other personality groups, defensive high-anxious individuals reported significantly greater disability and depression ($p < 0.01$). Of the defensive high-anxious individuals, 92% sought more than one intervention. In comparison, repressors predominantly self-managed their pain with only 10% utilising more than one intervention. Surprisingly, there were no differences in treatment satisfaction between the four groups. The present study suggests that personality type is an important factor influencing patients' treatment options, with defensive high anxious individuals substantially more likely to seek multiple interventions and remain within the care system. The present study provides a basis for future research into the role of personality type in the management of chronic pain.

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1. Introduction

Back pain is one of the most prevalent injuries in the general population with, in Britain, an annual prevalence rate of 30–40% and a lifetime prevalence of 70–80% (Walsh, Cruddas, & Coggon, 1992). Typically, symptoms of acute low back pain improve within approximately 6 weeks for 70–90% of cases: whereas, in chronic back pain, 4–7% are not able to return to work within 6 months and account for approximately 75% of the medical and social costs of the condition (Maetzel & Li, 2002). Back pain has obvious effects on the individual, but there is also a significant impact on the economy through medical care costs and lost productivity (NICE, 2009a).

Over recent years, there has been considerable interest in the role of psychosocial factors in the response to and management of chronic back pain (Linton, 2000; Woby, Roach, Urmston, & Watson, 2007). It has been well established that anxiety has an impact upon pain perception and treatment outcome (Bair et al., 2013; Bair, Wu, Damush, Sutherland, & Kroenke, 2008; Kroenke

et al., 2013). Anxiety and defensiveness (social desirability) have been shown to influence the way patients respond to treatment and health outcomes within a chronic illness population (Myers, 2010; Phipps & Steele, 2002; Prasertsri, Holden, Keefe, & Wilkie, 2011), however, little is known about the combination of anxiety and defensiveness in a population with chronic musculoskeletal pain.

Weinberger, Schwartz, and Davidson (1979) identified four personality groupings that show different emotional reactions and behaviours when confronted with stressful situations: high-anxious (HA); defensive high-anxious (DHA); low-anxious (LA); and repressor (REP) types. The taxonomy of the four profiles is based on individuals' self-report of trait anxiety and defensiveness. DHA individuals report high trait anxiety and high defensiveness; high-anxious individuals report high trait anxiety and low defensiveness; repressors report low trait anxiety and high defensiveness; and low-anxious individuals report both low trait anxiety and defensiveness. Based on Weinberger et al. (1979) classifications, Eysenck (1997) proposed the four-factor theory of trait anxiety, which suggested that the emotional experience of anxiety depends on the processing of four sources of information. There are two main assumptions within the theory that serve to influence the processing of the four sources of information. First,

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individual differences in trait anxiety and defensiveness affect the operation of attentional and interpretive biases that serve to either magnify or minimise the processing of emotion relevant stimuli. Secondly, these cognitive biases are affected by the prevailing level of state anxiety. Specifically, the effect of these biases becomes greater as state anxiety increases. According to the four-factor theory, the emotional experience of anxiety is the consequence of the processing of the following four sources of information; (i) the individual's immediate cognitive appraisal of the environment as threating; (ii) the negative cognitions that arise about possible, future events (e.g. worries); (iii) the individual's interpretation of their own behaviour; (iv) the attention to and interpretation of the individual's physiological activity.

The four-factor theory makes the following prediction linked to Weinberger et al. (1979) four personality groups. High-anxious individuals are predicted to exhibit both attentional and interpretive biases that amplify potential threat and lead them to interpret ambiguous stimuli as threatening. In contrast, repressors have opposite attentional and interpretive biases, which lead them to direct attention away from threatening information and interpret ambiguous stimuli as non-threatening. In low-anxious individuals, no such biases are assumed to operate. The cognitive biases of defensive high-anxious individuals have not been adequately de-scribed in the literature although are often assumed to be similar to those of high-anxious individuals. However, the relatively high prevalence of defensive high anxious individuals in pain manage-ment programmes (Lewis, Fowler, Woby, & Holmes, 2012) suggests that there may be an important interaction of defensiveness and anxiety and a different pattern of cognitive biases for this group.

Repressor and defensive high-anxious individuals are rare in the general population (Myers, 2010), however, Creswell and Chalder (2001) found that 46% of Chronic Fatigue Syndrome patients were classified as defensive high-anxious, compared with only 17% of the control population. Lewis, Fowler, et al. (2012) also identified a high proportion of defensive high-anxious individuals within a group of patients referred to an active rehabilitation pro-gramme for chronic back pain. Based on Eysenck (1997) theory, it could be that defensive high-anxious individuals are more likely to interpret their pain in a negative manner as a result of their cogni-tive biases which predispose them to attend to and interpret stim-uli as threatening and thus present for treatment more frequently than repressors. With chronic back pain or Chronic Fatigue Syn-drome, repressors may be able to avoid their pain and self-manage treatment, an option not available for conditions with a more clearly defined diagnosis and treatment pathway.

Derakshan, Eysenck, and Myers (2007) proposed a vigilance–avoidance theory (VAT) of threat processing specifically character-istic of repressor individuals. The VAT suggests that when repres-sors experience a self-relevant threat, there are two stages of processing; the first is a rapid, vigilance stage that involves auto-matic and non-conscious processes, reported to take up to 500 ms (Calvo & Eysenck, 2000). The second stage is avoidance, this is a more consciously controlled and strategic process aimed at threat avoidance. Repressors' use of an avoidant attentional bias depends on their cognitive appraisal of the situation. They will pri-marily engage in vigilance followed by avoidance when exposed to self-relevant threats, such as threats to their psychological or phys-ical well-being (Derakshan et al., 2007). In addition, research has found repressors protect their self-esteem by biased recall of fewer negative self-relevant memories (Ashley & Holtgraves, 2003).

These attentional and memory biases appear likely to influence the interpretation of pain and disability. Heightened vigilance to potentially threatening symptoms is expected to capture the atten-tion of high-anxious and defensive high-anxious individuals. In addition, as a consequence of interpretive biases, they are more likely to interpret ambiguous sensory events as threatening. In relation to these predictions, we would expect defensive high-anx-ious participants to continue to highlight their pain and interpret it as both serious and threatening. Previous research has found a strong association between anxiety and various markers of pain and treatment success (Viggers & Caltabiano, 2012). In this study, we propose that the combination of trait anxiety and defensiveness could influence the way individuals interpret and respond to their chronic pain.

The overall aim of this study is to further the understanding of how anxiety and defensiveness interact to influence the experience of, and response to, back pain. More specifically, the study aims to determine whether treatment options and satisfaction in individu-als with chronic back pain differ across the four personality groups. We hypothesise that: (1) defensive high-anxious individuals would report greater levels of pain and disability compared to the other three personality types; (2) defensive high-anxious individuals would seek more treatment options and be less satisfied with their treatment compared to the other three personality types and; (3) the majority of repressors would self-manage their back pain com-pared to using any other treatment option.

2. Method

2.1. Procedure

To investigate the hypothesised link between personality traits and the experience of chronic back pain, a cross-sectional study de-sign was employed. Participants were told that the purpose of the study was to determine whether differences exist in the way indi-viduals interpret and respond to stresses among individuals with a history of back pain. The study received approval from the Depart-mental Ethics Committee at Manchester Metropolitan University. Participants completed a booklet of questionnaires taking approx-imately 15–20 min. Participants received the questionnaire by email or post, completed it within their own time and returned it to the experimenter.

2.2. Participants

Participants were recruited from a heterogeneous population of target shooters and hockey players who were chosen because of the high prevalence of back pain in these groups. Approximately 500 questionnaires were distributed, of which 111 (22%) partici-pants who had reported suffering back pain in the past 6 months responded. Fifty-seven participants (mean age = 46.6; SD ± 15.1 years) were used in the final analysis based on tertiary splits (set at 33% and 66%) on the trait component of the State and Trait Anxiety Inventory (STAI) (Spielberger, Gorssuch, Lushene, Vagg, & Jacobs, 1983) and the Marlowe-Crowne Social Desirability Scale (MC-SDS) (Strahan & Gerbasi, 1972) (Table 1). Percentile splits set at 33% and 66% were chosen over median splits to ensure the extremes were taken on each scale and the four groups differed in both trait anxiety and defensiveness. Repressors (n = 10) re-ported higher than 8 on the MC-SDS and lower than 29 on the STAI; low-anxious (n = 15) individuals reported lower than 5 on MC-SDS and lower than 29 on the STAI; defensive high-anxious (n = 14) individuals reported higher than 8 on MC-SDS and higher than 40 on the STAI; high-anxious (n = 18) individuals reported lower than 5 on the MC-SDS and higher than 40 on the STAI.

2.3. Measures

2.3.1. Personality type

To assess defensiveness and to discriminate repressor individu-als from low-anxious individuals and defensive high-anxious from