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### Insecure attachment style is associated with chronic widespread pain

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#### ABSTRACT

Individuals with "insecure" adult attachment styles have been shown to experience more pain than people with secure attachment, though results of previous studies have been inconsistent. We performed a cross-sectional study on a large population-based sample to investigate whether, compared to pain free individuals, subjects with chronic widespread pain were more likely to report insecure adult attachment style. Subjects in a population-based cross-sectional study completed a self-rated assessment of adult attachment style. Attachment style was categorised as secure (i.e., normal attachment style); or preoccupied, dismissing or fearful (insecure attachment styles). Subjects completed a pain questionnaire from which three groups were identified: pain free; chronic widespread pain; and other pain. Subjects rated their pain intensity and pain-related disability on an 11 point Likert scale. Subjects (2509) returned a completed questionnaire (median age 49.9 years (IOR 41.2-50.0); 59.2% female). Subjects with CWP were more likely to report a preoccupied (RRR 2.6; 95%CI 1.8-3.7), dismissing (RRR 1.9; 95%CI 1.2-3.1) or fearful attachment style (RRR 1.4; 95%CI 1.1-1.8) than those free of pain. Among CWP subjects, insecure attachment style was associated with number of pain sites (Dismissing: RRR 2.8; 95%CI 1.2-2.3, Preoccupied: RRR = 1.8, 95%CI 0.98-3.5) and degree of pain-related disability (Preoccupied: RRR = 2.1, 95%CI 1.0-4.1), but not pain intensity. These findings suggest that treatment strategies based on knowledge of attachment style, possibly using support and education, may alleviate distress and disability in people at risk of, or affected by, chronic widespread pain.

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#### 1. Introduction

Adult attachment style is a psychological representation of self and others, determined by early childhood experiences of relationships with primary caregiver(s) [4]. Attachment style is considered to be a stable trait throughout adult life, determines how individuals relate to each other and is linked to strategies for managing threatening situations [4]. Bartholomew and Horowitz [1] proposed four sub-types of adult attachment style: one "secure" attachment style (characterized by a positive model of self and other in a relationship), and three insecure styles: "fearful" (negative model of self and other), "preoccupied" (negative model of self, negative model of other), and "dismissing" (positive model of self, negative model of other).

Recently, there has been increasing recognition of the importance of adult attachment style in the experience of pain [26,31]. Insecure attachment in healthy populations is associated with

hypochondriacal beliefs [40], hypervigilance to pain [23], increased pain-related fears [23], reduced pain threshold [27] and poor pain coping [23,26]. Among subjects with chronic pain, insecure attachment has been linked to more negative appraisals of pain [6,28], increased pain perception and disability [24], increased psychological distress [6,29], impaired coping with pain [27] and greater healthcare utilisation [6]. These findings suggest that individuals with insecure attachment are more likely to develop pain, and once pain has developed they are more likely to perceive it as more intense, disabling and distressing. However, the data are equivocal with reports of no relationship between attachment style and pain intensity [6,27,29].

Small population sizes, varying classifications of pain and recruitment from highly specialised pain centres, such as pain rehabilitation services, may explain the inconsistency of results. Furthermore, since attachment style influences how individuals interact with healthcare services [7,17,30], reliance on patient samples for the study of the association between pain and attachment style, may introduce a selection bias that could amplify or attenuate the true association of attachment with pain experience.

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The findings of a large, population-based study investigating the associations between attachment style and the experience of pain are reported here. Subjects with chronic widespread pain (CWP) were studied since it has been demonstrated previously that (1) CWP has a high prevalence in the general population, (2) it is possible to identify cases using self-rated assessments, and (3) there is a strong association of CWP with psychological and social factors [11,21]. By recruiting subjects from the general population it was intended that any selection bias associated with studying patients actively seeking healthcare was reduced. The following hypotheses were tested (1) compared to pain-free individuals, those with CWP would be more likely to report insecure attachment and (2) among individuals with CWP, those with insecure adult attachment style would report more intense pain, more pain sites, and more pain-related disability than those with secure attachment style.

#### 2. Method

#### 2.1. Participants

Subjects aged between 25 and 65 years, registered at one of three general practices in the north-west of England, who had previously participated in a postal survey [14] were mailed a questionnaire. (All participants gave permission for further contact.) Of the 3950 subjects mailed, 2509 subjects returned a completed questionnaire. After adjusting for those who had moved (N = 501, 12.7%) or died (N = 11, 0.3%) and therefore could not receive a questionnaire, the response rate was 73% (see Fig. 1). The mean age of participants was 49.0 ( $\pm 10.2$ ) years and 1482 (59.2%) were female.

#### 2.2. Procedures

Subjects were mailed a questionnaire which assessed pain status, attachment style and demographic factors. A cover letter was included that introduced the study. All subjects provided written consent to participate in the study. To avoid inappropriate mailings the study team were notified of all subjects who had either died or changed address. An additional check compared the address of subjects who had not responded to the questionnaire held by the general practice to that held by the Local Authority on a publicly

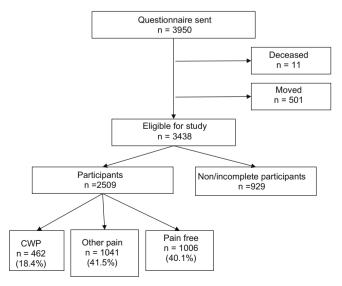


Fig. 1. Flowchart showing participation rates.

accessible database. It was assumed that subjects had changed address when these did not match. The study was approved by the local NHS Research Ethics Committee.

#### 2.3. Measures

#### 2.3.1. Demographic information

Subjects were asked to report their age, gender and which one of five categories of marital status (single, married/cohabiting, separated, divorced, widowed) applied to them.

#### 2.3.2. Pain status

Subjects were asked to report if they had any ache or pain in the last month which had lasted for one day or longer. Subjects responding positively were asked to indicate on four line drawings of body manikins (front, back and sides) the site(s) where they experienced this pain. For coding purposes the body manikins were split into 10 regions, as illustrated in Fig. 2. Subjects with pain were asked to answer a further question that determined the chronicity of their pain symptoms: "Have you been aware of this pain for three months or longer?" Subjects who answered positively to this question were classified as having chronic pain. These methods are routinely used to determine the location and duration of pain [10,16]. Using the information on pain status, CWP was classified using the definition in the American College of Rheumatology (ACR) criteria for fibromyalgia [41]. These require that pain must have been present for at least three months and be present in two contra-lateral areas of the body, above and below the waist and in the axial skeleton. Based on these criteria subjects were categorised into 3 groups (i) pain free, (ii) "other pain" (i.e., subjects reporting pain but which did not satisfy the criteria for CWP) and (iii) CWP.

Participants were also asked to rate the intensity of their pain on an 11-point Likert scale ranging from 0 "no pain" to 10 "pain as bad as it could be", and their pain-related disability (how much the pain had interfered with their day to day activities) on an 11-point Likert scale (ranging from 0 "no interference" to 10 "unable to carry out activities)".

#### 2.3.3. Assessment of adult attachment style

Subjects completed an assessment to identify their predominant adult attachment style, taken from the Relationship Questionnaire developed by Bartholomew and Horowitz [1]. Subjects were provided with four short paragraphs, each describing a prototypical attachment style as it applies to close adult peer relationships and were asked to select which of the four paragraphs best described the predominant characteristics of their adult relationships (for brevity, the continuous items from the Relationship Questionnaire were omitted). Using this questionnaire subjects' attachment style was categorised as secure (a positive model of the self and the other in a relationship), preoccupied (negative model of the self but a positive model of the other), fearful (negative model of both the self and other), dismissing (positive model of the self but a negative view of the other) [13].

#### 2.4. Statistical analysis

Mann–Whitney U test and  $\chi^2$ -analyses were used to examine differences between the three pain groups (i.e., pain free, CWP and other pain) in age, gender and attachment style.  $\chi^2$ -Analysis was also used to examine the relationship between attachment style and marital status. Multinomial regression analysis was used to examine the association between attachment style and pain status. The model was adjusted for age and gender. The referent category was the pain free group. Results are reported as relative risk ratios (RRRs) with 95% confidence intervals (CIs).

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