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Subclinical psychosis and pain in an English national sample: The role of common mental disorders

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ABSTRACT

Background: Information on the association between subclinical psychosis and pain is scarce, and the role of common mental disorders (CMDs) in this association is largely unknown. The aim of the current study was to therefore assess this association in the general population using nationally representative data from England.
Methods: Data for 7403 adults aged ≥ 16 years were used from the 2007 Adult Psychiatric Morbidity Survey. Five forms of psychotic symptoms were assessed by the Psychosis Screening Questionnaire, while pain was assessed in terms of the level of its interference with work activity in the past four weeks. The Clinical Interview Schedule Revised (CIS-R) was used to assess anxiety disorders, depressive episode, and mixed anxiety-depressive disorder (MADD). Participants with probable or definite psychosis were excluded. The association between psychotic symptoms and pain was assessed by ordinal and binary logistic regression analysis.
Results: When adjusted for confounders other than CMDs, psychotic symptoms were significantly associated with pain [e.g., the OR (95%CI) for the severest form of pain (binary outcome) was 1.78 (1.11–2.85)]. However, this association was no longer significant when CMDs were controlled for in most analyses. Anxiety disorders and depressive episode explained 34.8%–47.1% of the association between psychotic symptoms and pain, while this percentage increased to 62.7%–78.0% when the sub-threshold condition of MADD was also taken into account.
Conclusions: When coexisting psychotic symptoms and pain are detected, assessing for anxiety and depression (even at sub-threshold levels) may be important for determining treatment options.

1. Introduction

Manifestations of psychotic symptoms such as hallucinations and delusions that do not reach the clinical threshold in terms of the level of distress they cause or in requiring treatment are regarded as subclinical psychosis or as psychosis-like experiences (Murphy et al., 2012). While the prevalence of schizophrenia in the general population is known to be about 1%, a systematic review of population-based studies found that the median prevalence of subclinical psychotic experiences was 5.3% (interquartile range 1.9%–14.4%) (van Os et al., 2009). There is now robust evidence that subclinical psychosis is associated with various adverse health outcomes such as suicidal behavior (Koyanagi et al., 2015), sleep problems (Koyanagi and Stickley, 2015a), increased health service use, and various chronic physical conditions (Moreno et al., 2013). This suggests that psychotic symptoms without a clinical diagnosis may be common in the general population, and that they may be having a negative impact on population health and well-being.

Despite increasing research on the negative health outcomes of subclinical psychosis, as yet, there has been little research on its association with pain. Physical conditions such as arthritis, back and neck problems, headache, angina, diabetes, oral health problems, and injuries have been reported to be more common in subclinical psychosis (Moreno et al., 2013; Nuevo et al., 2011; Oh and DeVylder, 2015; Saha et al., 2011), and these conditions may contribute to a higher risk for pain. Furthermore, a very high proportion of people with subclinical psychosis have other psychiatric comorbid conditions such as anxiety and depression, with one study reporting that 57%–80% of adolescents with psychosis-like experiences had a diagnosable non-psychotic psychiatric disorder (Kelleher et al., 2012). This has led some researchers to suggest that psychosis-like experiences may be a non-specific reflection of a wider array of non-psychotic mental disorders. In terms of the present study, this may be important as anxiety and depression are strongly associated with pain (Bair et al., 2003; Gureje, 2008). For instance, according to an earlier review article, about 65% of patients with depression complain of pain, and 5%–85% of patients with pain conditions have depression (Bair et al., 2003). Furthermore, in a global population-based survey

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conducted in 17 countries (N = 85,088), chronic back/neck pain was associated with 2–3 times higher odds for generalized anxiety disorder, panic disorder/agoraphobia, social phobia, PTSD, and major depressive episode (Demyttenaere et al., 2007), while another study using the same dataset found that the coexistence of depression and anxiety was associated with higher odds for back/neck pain, chronic headache, and multiple pains compared to non-comorbid depressive or anxiety disorder alone (Scott et al., 2007). This suggests that there is a particular need to assess the degree to which other mental disorders contribute to the association between subclinical psychosis and pain given the high degree of overlap between non-psychotic mental disorders and subclinical psychosis or pain. This information is also necessary to determine treatment options for patients with both pain conditions and psychotic symptoms.

We have previously reported that psychotic symptoms are associated with severe pain regardless of a psychosis diagnosis even after adjustment for anxiety symptoms and depression using community-based data from >200,000 individuals in 44 low- and middle-income countries (LMICs) (Koyanagi and Stickley, 2015b). However, in that study, we were unable to fully explore the effect of potential confounders or mediators such as drug use or stressful life events due to a lack of data, while the data on mental disorders were also limited. Apart from our earlier study, we are not aware of any other studies specifically on this topic and it is therefore not known whether the observed associations might have been context-specific. Thus, given the scarcity of studies on psychotic symptoms and pain, as well as the fact that common mental disorders (CMDs) such as anxiety and depression are known to be associated with both psychotic symptoms and pain, the aims of the current study were: (1) to assess the association between psychotic symptoms and pain in the English general adult population; and (2) to assess the degree to which this association can be explained by comorbid CMDs.

2. Methods

2.1. The survey

This study used data from 7403 people who participated in the 2007 Adult Psychiatric Morbidity Survey (APMS). Full details of the survey have been published elsewhere (Jenkins et al., 2009; McManus et al., 2009). Briefly, this was a nationally representative survey of the English adult population (aged ≥ 16 years) living in private households. The National Center for Social Research and Leicester University undertook the survey fieldwork in October 2006 to December 2007 using a multistage stratified probability sampling design where the sampling frame consisted of the small user postcode address file, while the primary sampling units were postcode sectors. Participant information was obtained through face-to-face interviews where some of the questionnaire items were self-completed (with the use of a computer). Sampling weights were constructed to account for non-response and the probability of being selected so that the sample was representative of the English adult household population. The survey response rate was 57%. Ethical permission for the study was obtained from the Royal Free Hospital and Medical School Research Ethics Committee. All participants provided informed consent before their inclusion.

2.2. Variables

2.2.1. Pain (dependent variable)

The question on pain came from the SF-12 questionnaire (Ware et al., 1996). The specific question was "During the past four weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?" with answer options not at all, a little bit, moderately, quite a bit, and extremely. This variable was used as both an ordinal outcome variable and also as a dichotomous outcome variable (extremely vs. all other options).

2.2.2. Psychotic symptoms (independent variable)

The Psychosis Screening Questionnaire (PSQ) was used to obtain information on the presence of five types of psychotic symptoms (hypomania, thought control, paranoia, strange experiences, and auditory hallucinations) in the previous 12 months (Bebbington and Nayani, 1995). After the main probe question, for each type of psychotic symptom, follow-up questions were asked to determine how severe the symptoms were. In order to capture psychotic symptoms that could be considered clinically relevant, we employed the strictest criteria to establish the presence of psychotic symptoms (Boyda and McFeeters, 2015). Questions and response options for the endorsement of each psychotic symptom are shown in Appendix 1. We created a dichotomous variable with those who endorsed at least one of the five psychotic symptoms coded 1 and others coded 0 (Koyanagi et al., 2015).

2.2.3. Common mental disorders (CMDs)

The Clinical Interview Schedule Revised (CIS-R), which can be administered by lay interviewers, was used to identify non-psychotic symptoms in the prior week to generate ICD-10 diagnoses (Lewis et al., 1992). The following diagnoses were determined: depressive episode, anxiety disorders (generalized anxiety disorder, panic disorder, phobia, obsessive-compulsive disorder), and a residual category of mixed anxiety–depressive disorder (MADD). MADD is a provisional diagnosis in ICD-10 and refers to the presence of subclinical depressive and anxiety symptoms that do not meet the diagnostic criteria for anxiety disorders and depressive episode (Das-Munshi et al., 2008). We used the following variables in our analysis: anxiety disorders, depressive episode, and any CMD (at least one of: depressive episode, anxiety disorders, or MADD). While MADD is considered a sub-threshold condition, it has been reported to be associated with significant distress and impairment of functioning (Katon and Roy-Byrne, 1991). Thus, in line with previous publications using the same dataset (Jonas et al., 2014; Weich et al., 2011), this condition was included in the any CMD category and used in some analyses.

2.2.4. Stressful life events

Respondents' experience of potentially stressful life events was assessed with 18 questions on the lifetime occurrence of such phenomena as serious illness/injury/assault to oneself or others, interpersonal problems, death of a family member, financial crises, sexual abuse etc., (the complete list is provided in Appendix 2) with yes or no answer options. The total number of stressful life events was summed.

2.2.5. Alcohol dependence

Alcohol consumption was assessed with the Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al., 1993). Respondents whose AUDIT score was 10 or above were also assessed for alcohol dependence. This was done with the Severity of Alcohol Dependence Questionnaire (SADQ-C) (Stockwell et al., 1994), with a score of 4 or more (out of 60) being used to establish past 6-month alcohol dependence.

2.2.6. Drug use

Respondents who had taken any of the following drugs in the previous 12 months were classified as past 12-month drug users: cannabis, amphetamines, cocaine, crack, ecstasy, heroin, acid or LSD, magic mushrooms, methadone or physeptone, tranquilizers, amyl nitrate, anabolic steroids, and glues.

2.2.7. Chronic physical conditions

We focused on four chronic physical conditions (diabetes, heart attack/angina, asthma, arthritis), which have been reported to be more prevalent among those with subclinical psychosis (Moreno et al., 2013; Nuevo et al., 2011; Saha et al., 2011), and which may also cause pain. Only conditions which were diagnosed by a doctor or other health professional and those that were present in the past 12 months were

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