



Pain is independently associated with reduced health related quality of life in people with psychosis



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ABSTRACT

The objective was to investigate the relationship between pain and health related quality of life (HRQOL) in people with psychosis. The study utilised a cross-sectional design including individuals with established psychosis from five Mental Health Trusts across England. Participants were classified as having pain or not and HRQOL was determined with the EQ-5D-3L. Covariates considered include the Positive and Negative Syndrome Scale (PANSS), the Montgomery Asberg Depression Rating Scale (MADRS) and Global Assessment of Functioning (GAF). Hierarchical multiple linear regression analyses were conducted. The final sample included 438 individuals with psychosis (47.5 years, SD 10.1, 193 females (42.9%)). 160 participants reported pain (36.5%) and compared to the non-pain group ($N=278$) they had significantly higher depressive symptoms (MADRS 14.91 vs 8.68), total (51.8 vs 47.9) and general PANSS scores (26.8 vs. 23.5) and lower overall HRQOL (54.7 vs 68.3). The final regression analysis ($n=387$) demonstrated that lower levels of pain were a predictor of better HRQOL ($\beta=.173$) after adjusting for the PANSS, MADRS and GAF. Depressive symptoms were the largest predictor of HRQOL ($\beta=-.486$). Only 1–2% of the sample were in receipt of analgesic medication suggesting pain is greatly overlooked despite its wider deleterious impact on HRQOL.

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1. Introduction

Pain often has a marked deleterious impact upon the health of an individual and is a primary reason why people seek medical help among the general population (Hasselström et al., 2002). Painful conditions such as osteoarthritis and lower back pain are leading global causes of years lived with disability (Murray et al., 2012). The financial impact of pain is also profound. For instance, in the US alone in 2010 it was estimated that the costs associated

with chronic pain were between 560 and 635 billion dollars per annum (Gaskin and Richard, 2012), whilst the management of back pain accounts for over 20% of healthcare expenditure in the United Kingdom (DOH, 2009; Breivik et al., 2006). Despite the fact there is increasing recognition that people with schizophrenia have significantly poorer physical health and multiple comorbidities (De Hert et al., 2011; Smith et al., 2013), little research has considered the impact of clinical pain in this population (pain naturally occurring and without medical provocation) (Engels et al., 2013; Stubbs et al., 2014a).

To date, the literature investigating pain among people with psychosis and in particular schizophrenia has been dominated by the consideration of experimental pain (pain specifically elicited

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for experimental purposes) or pain induced by medical procedures such as lumbar puncture (Stubbs et al., 2014a). This research has mostly found that people with schizophrenia have reduced sensitivity to pain compared to healthy controls (Potvin and Marchand, 2008). Factors that may account for this include higher activity of central endorphins (Bonnot et al., 2009) or antipsychotic medication, although a meta-analysis identified hypoalgesia among people who were antipsychotic naïve (Potvin and Marchand, 2008). Also, it appears that people with schizophrenia experience difficulties recognising and expressing their pain (Bonnot et al., 2009; Wojakiewicz et al., 2013) which may be due to dysfunction in the prefrontal cortex leading to alterations in the motivational affective processing of pain (Engels et al., 2013). To this end, previous research has found that 40% of people with schizophrenia with clinical pain have not reported their pain to a clinician (Kuritzky et al., 1999) but they are able to describe it when prompted. Ultimately, under recognition of pain may result in individuals not getting the medical or non-pharmacological interventions they require. For instance, Watson et al. (1981) found that whilst 37% of their sample had clinical pain only 31% of these were receiving medical help.

Recently, a systematic review and meta-analysis demonstrated that approximately a third of people with schizophrenia experience clinical pain which is comparable to people without a mental illness (Stubbs et al., 2014a). The authors found very few studies that had investigated that impact of pain on the health and well-being of people with schizophrenia. Clearly, given that pain is relatively common and in the general population it has a range of deleterious impacts on various aspects of health (e.g. depressive symptoms) and quality of life (QOL), research is required to understand the impact of pain upon people with schizophrenia. Specifically, the influence of pain on health related quality of life (HRQOL) is important, given that HRQOL is an important patient reported outcome (PRO; Calvert et al., 2014). People with psychosis and in particular schizophrenia already experience marked reductions in HRQOL (Saarni et al., 2010). Female gender, unmarried status, older age, less education, less finances and disability are associated with worse HRQOL (Heider et al., 2007; Ruggieri et al., 2005) yet the impact of pain on this is undetermined. Moreover, if pain does have an impact on HRQOL in people with schizophrenia, it will have important implications for clinical practice and may prompt clinicians to adopt a more proactive approach in the assessment and management of pain.

The current study set out to establish whether pain is associated with lower HRQOL in a sample of people with psychosis. We hypothesised that pain would be associated with deficits in HRQOL when we adjusted for other potential important factors such as depressive symptoms, symptoms of schizophrenia and global functioning.

2. Method

2.1. Participants and setting

This was a randomly selected cross-sectional study of 438 community based patients, with established psychosis, (defined as schizophrenia (ICD-10 code: F20), delusional Disorder (F22.0), schizoaffective disorder (F25), bipolar affective disorder (F31), recurrent depressive disorder (F32), current episode severe with psychotic symptoms (F33.3)) recruited at baseline to the Improving Physical health and reducing substance use in Psychosis (IMPACT) randomised controlled trial (RCT) (Gaughran et al., 2013). The study took place within five Mental Health Trusts in the UK.

Recruitment occurred in two waves; first, all eligible care-coordinators in participating CMHTs were approached in a random

sequence and invited to participate. Once each care coordinator provided informed consent, the patients from their caseload, meeting the inclusion criteria, were likewise approached in a random order and sequentially invited to participate.

2.2. Clinical and sociodemographic variables

A range of sociodemographic data were collected from all participants including age, sex, years of education, ethnicity, employment status and comorbid medical conditions. Participants smoking status was confirmed and individuals were classified as current smokers or not. Details regarding current prescribed medications were ascertained by self-report.

2.3. Anthropometric measures

All Participants were invited to have their weight, waist, hip and height measured. Weight was measured on a standard ESK weighing scale and was recorded in kilograms (kg). Height was measured on a Seca height measure and was recorded in centimetres. Body mass index was calculated by dividing weight in kilograms by height in metres².

2.4. Blood sampling

Willing participants were invited to provide a fasting blood sample. Participants were required to fast for a period of 12 h prior to the blood sample being collected. A trained phlebotomist was responsible for all blood sampling. A range of measures were taken including fasting glucose, HBA1c and vitamin D.

2.5. Sedentary behaviour

The International Physical Activity Questionnaire (IPAQ; (Craig et al., 2003)) is a reliable tool to consider physical activity and sedentary behaviour in people with schizophrenia (Soundy et al., 2014b). The IPAQ has been used previously to capture sedentary behaviour (Vancampfort et al., 2014a) and participants report the total number of hours and minutes they spend sitting per day. Previous research has demonstrated that pain can increase sedentary behaviour (Soundy et al., 2014 a) in particular, which can increase cardiovascular disease risk (Stubbs et al., 2015b). Therefore, we captured sedentary behaviour with the IPAQ, which although it has limitations (Soundy et al., 2014b), the IPAQ is the most suitable self-report measure currently available to measure sedentary behaviour.

2.6. Psychiatric symptoms and functioning

Symptom severity was assessed using the PANSS (Kay et al., 1987), a 30 item scale divided into three sub-sections. A 15 point score improvement is regarded as being clinically important (Leucht et al., 2006). In order to measure global functioning a trained research worker undertook the GAF (American Psychiatric Association, 2002) with all participants. Depressive symptoms were assessed using the Montgomery Asberg Depression Rating Scale (MADRS) (Montgomery and Asberg, 1979).

2.7. Health related quality of life (HRQOL)

All participants completed the European Quality of Life Instrument (EuroQoL EQ-5D-3L (EQ-5D, 1990)). It is easy to use and a practical tool to capture HRQOL and has been used previously in people with psychosis (Saarni et al., 2010) and demonstrates good psychometric properties (Stochl, 2013). Within the EQ-5D-3L, participants rated their perceived overall health state from 0

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