



## Loneliness in psychotic disorders and its association with cognitive function and symptom profile



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### ARTICLE INFO

#### Article history:

Received 26 June 2015

Received in revised form 15 October 2015

Accepted 20 October 2015

Available online 31 October 2015

#### Keywords:

Psychosis

Social isolation

Cognition

Digit symbol coding

Anhedonia

### ABSTRACT

**Background:** Loneliness involves subjective, rather than objective, social isolation and has a range of negative effects on mental and physical functioning. The purpose of this study was to examine the prevalence of loneliness in psychotic disorders and its association with symptoms and cognitive performance.

**Method:** Data were drawn from the second Australian National Survey of Psychosis and comprised responses from 1642 participants with an International Classification of Diseases 10 diagnosis of psychotic disorder who had completed a semi-structured interview of symptoms and social functioning (including loneliness), along with standardized assessments of current (digit symbol coding; DSC) and premorbid (National Adult Reading Test) cognitive ability. We examined the prevalence of loneliness across the diagnostic categories of psychosis, and its association with psychotic and non-psychotic symptoms and digit symbol coding scores.

**Results:** The prevalence of loneliness was high, ranging from 74.75% in participants with delusional disorders to 93.8% in depressive psychosis, and was significantly higher than in the general population. Loneliness was also significantly associated with anhedonia and subjective thought disorder. Participants feeling socially isolated/lonely for company had significantly lower DSC scores than those who only felt lonely occasionally. Unexpectedly, participants who reported *not* feeling lonely had the lowest DSC scores.

**Conclusions:** Loneliness is common across all psychotic disorders, particularly in depressive psychosis. It is specifically associated with ongoing loss of pleasure and disordered thoughts as well as impairment in current cognitive functioning. However, poor cognitive functioning is not inevitably associated with loneliness. Implications for personalized treatment of psychosis are discussed.

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### 1. Introduction

People with psychotic disorders often feel lonely, and many expect to be lonely in the future (Morgan et al., 2012). Tackling feelings of social isolation (i.e. loneliness) in psychosis has been identified as a key goal for mental health service reform in Australia (Carr and

Waghorn, 2013). Summary data from the second Australian National Survey of Psychosis underline the extent of loneliness in psychotic illness, with the majority (80.1%) of adults with a diagnosis of psychosis endorsing feeling lonely in the past 12 months (Stain et al., 2012), and loneliness being ranked as one of the top two challenges anticipated over the next 12 months (Morgan et al., 2012). It is difficult to find directly comparable data on loneliness in the general Australian community, since rates vary as a function of sample characteristics (Victor and Yang, 2012), the particular assessment instrument used, and the time frame being considered. However, in the 2012 Quality of Life survey in New Zealand 35% of individuals in the general community reported *sometimes* or *often* feeling socially isolated in the past 12 months (Nielsen, 2012). Similarly, data from the United Kingdom and

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Australia indicate that around 7–11% of adults describe themselves currently as *often* or *very* lonely (Griffin, 2010; Hawthorne, 2008), with roughly 30% indicating that loneliness is an enduring part of life (Heinrich and Gullone, 2006).

Data from the 2007 Adult Psychiatric Morbidity Survey in England highlighted a significant association between loneliness and *all* mental disorders, including psychosis, but showed that – contrary to expectations – increased social support and participation had minimal positive impact (Meltzer et al., 2013). These findings therefore suggest that many intervention strategies currently being promoted to counter loneliness in people with psychotic disorders may have limited benefit and will need significant re-thinking (Lim and Gleeson, 2014; Sundermann et al., 2013). Designing more effective interventions for loneliness in people with psychosis is dependent on gaining a better understanding of the nature of loneliness and its impact on mental and physical functioning (Cacioppo and Cacioppo, 2014). Loneliness is clearly not just a social problem – a lack of *objective* social support: it is better characterized as *feeling* socially isolated (Cacioppo and Patrick, 2008). Loneliness is a well-established risk factor for early death (Holt-Lunstad et al., 2010) and has a range of detrimental effects on physical, psychological and brain functioning (Cacioppo and Cacioppo, 2014; Hawkey and Cacioppo, 2010). Research also indicates that loneliness is a risk factor for, and contributes to, poor general cognitive ability and slow cognitive processing – though bidirectional effects are also likely (Cacioppo and Hawkey, 2009; Ellwardt et al., 2013; Gow et al., 2013). Although impaired cognitive functioning is associated with all forms of psychosis and is a significant contributor to functional outcome (Morgan et al., 2014; Owoso et al., 2013; Zanelli et al., 2010) surprisingly little attention has been given to the relationship between loneliness and cognition or symptom profile in psychosis (Sundermann et al., 2014).

Implementing better interventions for loneliness also needs to be done in an efficient and/or personalized way, which means amongst other things, targeting them to those most in need. Amongst the high prevalence mental disorders this means targeting interventions to people with depression or phobias (Meltzer et al., 2013). Previous evidence confirms that loneliness is distinguishable from and can directly lead to depressive symptomatology (but not vice versa), irrespective of age, gender and ethnicity (Cacioppo et al., 2010). In contrast, the relationship between loneliness and specific diagnostic categories of psychosis has been largely neglected. Consequently, it is currently unknown whether loneliness accompanies some, or all forms of psychotic disorder to the same degree.

Our goal in this paper was to utilize data collected within the second Australian National Survey of Psychosis, 2010 (Morgan et al., 2012) to address some of these important gaps in the literature. In particular, the following questions were examined: 1) Is loneliness more prevalent in people with psychosis than in the general community? 2) Does loneliness vary across diagnostic categories of psychosis? 3) Is loneliness associated with the presence of specific symptoms? and 4) Is loneliness in psychosis related to poorer current cognitive functioning?

## 2. Method

### 2.1. Participant selection

Participants were drawn from the database of the second Australian National Survey of Psychosis in 2010. Full details of the population coverage, design and methods employed in the survey are provided elsewhere (Morgan et al., 2012, 2014). In brief, the survey was designed to estimate the treated prevalence of psychosis in adults (18–64 years) in contact with public treatment services, and to describe their mental and physical health, cognitive functioning, substance use, and personal and social circumstances.

### 2.2. Assessment of loneliness

The key assessment of loneliness focused on item 10.19 of the survey, adapted from the Australian Quality of Life Survey (Hawthorne et al., 1999): “In the last 12 months have you felt lonely?” Responses were made using a 4-point scale, reflecting increasing feelings of loneliness: (1) I have plenty of friends and have not been lonely; 2) Although I have friends I have been lonely occasionally; 3) I have some friends but have been lonely for company; 4) I have felt socially isolated and lonely). All records with a valid (non-missing/known) response were extracted from the database ( $N = 1780$  out of 1825 interviewed). We compared the percentage of people with psychosis who reported feeling lonely to a reference value (35%) from the general population in New Zealand. This selection was justified on the basis that New Zealand data was highly similar in format and time frame (Nielsen, 2012) and drawn from a similar population demographic.

### 2.3. Diagnostic assessment

Evaluation of symptoms was undertaken using the Diagnostic Interview for Psychosis (Castle et al., 2006), with a focus on symptom presentation in the past year. Diagnostic classification was made by the underlying OPCRIT computer algorithm (thereby reducing subjective bias), yielding diagnoses in five categories (schizophrenia, schizoaffective disorder, bipolar disorder with psychotic features, depressive psychosis and delusional disorder), in accordance with ICD-10 criteria (McGuffin et al., 1991). Inter-rater reliability was good (see Morgan et al. (2014)). Participants who were screened positive for psychosis but did not meet full criteria for an ICD-10 psychotic disorder ( $N = 183$ ) were excluded from the analyses.

### 2.4. Cognitive assessment

General cognitive ability was assessed with the Digit Symbol Coding Test (DSCT) from the Repeatable Battery for the Assessment of Neuro-psychological Status (RBANS; Randolph et al., 1998) which provides an index of current information processing efficiency. The National Adult Reading Test-Revised (NART-R; Nelson and Willison, 1991) was also used to provide an estimated premorbid IQ. Both measures have been used extensively in research on schizophrenia and psychosis, with low scores (i.e. worse performance) providing reliable and robust predictors of risk of illness and poor functional outcome. Assessments deemed invalid were categorized as “missing” ( $N = 186$ ) and excluded from analyses.

### 2.5. Assessment of social characteristics

Socioeconomic disadvantage was determined at the postcode level using the Index of Relative Socio-Economic Disadvantage derived by the Australian Bureau of Statistics (ABS) by principal components analysis of census data (Australian Bureau of Statistics, 2008). Quintiles were constructed, with the first quintile representing the most disadvantaged postcodes and the fifth quintile the least disadvantaged. In addition, participants provided information regarding school completion, current employment, geographical location, marital status, age at migration and indigenous status (Aboriginal and Torres Strait Islander, ATSI).

### 2.6. Ethics approval

The study was approved by institutional human research ethics committees at each of the seven study sites and all participants provided written informed consent.

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