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# The association between general psychological distress and delusional-like experiences: A large population-based study

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ABSTRACT

*Background:* Delusional-like experiences (DLE) are prevalent in the community, and are associated with the both clinical and subclinical depression and anxiety. The aim of this study was to explore the association between general psychological distress and DLE adjusting for the presence of psychiatric disorders in a large population-based sample.
*Methods:* Subjects were drawn from the Australian National Survey of Mental Health and Wellbeing 2007 (n = 8841). DLE were assessed using a modified World Mental Health Composite International Diagnostic Interview (CIDI) schedule, and psychological distress was measured using the Kessler-10 (K10) short questionnaire. We examined the relationship between DLE and quartiles of K10 scores using logistic regression, adjusting for depression and anxiety disorders, and other potential confounding factors. The analyses were also repeated in the subgroup of the sample who were free of lifetime clinical diagnoses.
*Results:* Of the participants, 776 (8.4%) endorsed one or more DLE. Individuals with moderate and severe psychological distress were two to three times more likely to endorse DLE. The association remained significant after adjusting for potential confounding factors, and in the subgroup of the population who remained after excluding those who met criteria for lifetime diagnosis for any mental disorder.
*Conclusion:* While DLE have traditionally been associated with psychotic disorders, our results suggest that they are associated with non-specific psychological distress in otherwise-well individuals.



## 1. Introduction

There has been growing interest in the epidemiology of isolated hallucinations and delusional-like experiences (DLE) in the general community (Kelleher and Cannon, 2010). These experiences are relatively common in community samples, with a recent systematic review reporting a median prevalence estimate of 5% (van Os et al., 2009). Understandably, the research community has concentrated on the potential role of isolated hallucinations and DLE as antecedents of clinical psychosis. Otherwise-well adolescents (Welham et al., 2009) and adults (Hanssen et al., 2005) who report these experiences are more likely to subsequently develop psychotic disorders. Many of the risk factors associated with hallucinations and DLE are also associated with schizophrenia (Kelleher and Cannon,

*Abbreviations:* DLE, Delusional-like experiences; CIDI, Composite International Diagnostic Interview.

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2010), which has stimulated debate about whether these experiences represent a 'continuum of psychosis' (David, 2010; Kaymaz and van Os, 2010; Sommer, 2010).

In addition to their association with psychotic disorders, hallucinations and DLE are also associated with common mental disorders such as anxiety disorders and depression (Freeman and Fowler, 2009; Johns et al., 2004; Scott et al., 2009; Varghese et al., 2009; Yung et al., 2007). Moreover, community-based studies have found that hallucinations and DLE are associated with isolated symptoms of depression (Johns et al., 2004; van Os et al., 2000) and exposure to traumatic events (with or without post-traumatic stress disorder) (Scott et al., 2007). The evidence suggests that DLE are associated with a wide range of both *clinical* syndromes and perhaps *subclinical* symptoms.

While community surveys of mental illness tend to be focussed on categorical diagnoses (e.g. depression present or absent), mental illness is present on a continuum in the population. Evidence shows that general psychological distress, a non-specific marker of mental illness, exists in the general community on a continuum with a significant proportion of the population experiencing severe psychological distress. For example, studies from the USA (Kessler et al., 2002; McVeigh et al., 2006; Pratt et al., 2007); Australia (Andrews and Slade, 2001; Furukawa et al., 2003; Kilkkinen et al., 2007), and New Zealand (Oakley Browne et al., 2009) demonstrated that about 3–10% population had moderate to severe psychological distress. Recent studies show that psychological distress is associated with substantial reduction in productivity at work, increased absenteeism and employee attrition (Hilton et al., 2008a, b), and workplace accident and failures (Hilton and Whiteford, 2010; Kim, 2008). While some individuals with moderate to severe psychological distress would meet criteria for *clinical* diagnoses (e.g. meet diagnostic criteria for depressive disorder, etc.), population-based surveys have indicated that mild *subclinical* levels of general psychological distress are common in the community.

Given the nonspecific association between mental illness and DLE, we hypothesized that general psychological distress with or without clinical diagnoses might be associated with increased DLE. The study hypothesis was that individuals who reported more general psychological distress would be more likely to endorse DLE *regardless of the presence of categorical diagnoses* (e.g. depression, anxiety) or other known factors associated with DLE (e.g. drug use, traumatic events). We had the opportunity to explore these research issues using a large population-based study.

## 2. Material and methods

### 2.1. Participants

Subjects were drawn from the Australian National Survey of Mental Health and Wellbeing 2007. Details of the methodology have been published elsewhere (Slade et al., 2009). In brief, the study was a national face-to-face household survey of community residents aged between 16 and 85 years. Sampling was based on random selection from a stratified, multistage area probability sample of private dwellings carried out by trained interviewers from the Australian Bureau of Statistics from August to December 2007. In total, 8841 individuals participated in the survey. All data were weighted to account for the differential probability of selection and the calibration to population benchmarks and standard errors (S.E.) were estimated using the jack-knife method of replication.

### 2.2. Assessment of DSM-IV diagnoses and delusional-like experiences

A modified version of the World Mental Health Survey Initiative of the Composite International Diagnostic Interview (WMH-CIDI 3.0) was used to generate a wide range of DSM-IV lifetime diagnoses, including common mental disorders such as depression, anxiety disorders, alcohol and other drug abuse disorders. The presence of DLE was defined as the endorsement of one or more items from the CIDI psychosis section (see Appendix 1). Briefly, DLE were assessed with three 'screen' items followed by three 'probe' items. Those subjects who positively endorsed any screen items were then asked a probe item. The items covered the following DLE: delusions of control, thought interference and passivity (Questions 1 and 1a); delusions of reference or persecution (Questions 2 and 2a); and grandiose delusions (Questions 3 and 3a).

Also in keeping with our previous analyses (Scott et al., 2007; Varghese et al., 2009), individuals who screened positive for schizophrenia (i.e. respondents who reported 'Yes' to the item "Had been told at any time by a psychiatrist that they had schizophrenia") were excluded from the analyses (n = 68) leaving a total of 8 773 subjects for this study.

### 2.3. Assessment of psychological distress

The psychological distress scale (K10) is comprised of 10 symptom items that were designed to elicit information on participant's physical and psychological conditions for a period of one month prior to the survey interview (Kessler et al., 2002). The K10 scale was developed and validated against common mental illnesses using large population surveys (Andrews and Slade, 2001; Drapeau et al., 2010; Kessler et al., 2002, 2010). The K10 has good psychometric properties with respect to the prediction of common mental disorders (Andrews and Slade, 2001; Kessler et al., 2002, 2010).

Apart from its utility to quickly screen individuals at risk of common mental disorders, the K10 also provides a range of scores that can serve as an index of *general psychological distress.* The scale includes items related to common but nonspecific experiences of psychological distress (e.g. *'how often have you felt nervous'*), as well as items related to anxiety disorders and depression (e.g. '*how often have you felt -restless, -depressed,* etc.'). Full details of the items are included in Appendix 2. Each question uses a five-value response option for describing frequency (*none of the time, a little of the time, some of the time, most of the time, all of the time*) scored from 1 to 5. Questions 3, 6 and 8 were not asked if the response to the preceding question was '*none of the time*'. Summation of responses yields a range of 10 to 50 in which higher values indicate more general psychological distress.

### 2.4. Data analyses

For the main analyses, we examined the association between DLE (i.e. at least one of the G items endorsed) and