Insomnia and paranoia

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A R T I C L E   I N F O

A B S T R A C T

Insomnia is a potential cause of anxiety, depression, and anomalies of experience; separate research has shown that anxiety, depression and anomalies of experience are predictors of paranoia. Thus insomnia may contribute to the formation and maintenance of persecutory ideation. The aim was to examine for the first time the association of insomnia symptoms and paranoia in the general population and the extent of insomnia in individuals with persecutory delusions attending psychiatric services. Assessments of insomnia, persecutory ideation, anxiety, and depression were completed by 300 individuals from the general population and 30 individuals with persecutory delusions and a diagnosis of non-affective psychosis. Insomnia symptoms were clearly associated with higher levels of persecutory ideation. Consistent with the theoretical understanding of paranoia, the association was partly explained by the presence of anxiety and depression. Moderate or severe insomnia was present in more than 50% of the delusions group. The study provides the first direct evidence that insomnia is common in individuals with high levels of paranoia. It is plausible that sleep difficulties contribute to the development of persecutory ideation. The intriguing implication is that insomnia interventions for this group could have the added benefit of lessening paranoia.

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1. Introduction

Clinical experience indicates that many individuals with persecutory delusions have difficulties initiating and maintaining sleep. The extent of the problem has never been reported. Often the insomnia is simply a result of insufficient activity during the day and early retirement to bed. However the relationship between insomnia and paranoia may hold greater clinical and theoretical interest. The stressful experience of insomnia may lead to the lowering of mood and anomalies of experience that drive persecutory ideation. The intriguing clinical implication is that simple well-established interventions for sleep difficulties could lessen paranoid experience.

There is evidence consistent with the idea that sleep disturbance has a role in the development of paranoia. Insomnia is a risk factor for the development of emotional disorder (Ford and Kamerow, 1989; Breslau et al., 1996; Morphy et al., 2007) and an association with daytime mood disturbance has been repeatedly demonstrated (Riedel and Lichstein, 2000; Buysse et al., 2007). In separate research, paranoia has been strongly linked with negative affect (Freeman et al., 2008b; Bentall et al., in press), even being considered a type of anxious fear (Freeman and Freeman, 2008). Therefore insomnia may be one cause of the negative mood that leads to paranoia. Anomalies of experience such as perceptual distortions and hallucinations are also considered a key cause of paranoia (Maher, 1988; Freeman et al., 2008a); therefore it is germane that sleep deprivation has long been noted to produce temporary psychotic-like experiences (Luby et al., 1960; West et al., 1962). Sleep difficulties are a common prodromal feature of schizophrenia (Birchwood et al., 1989; Yung and McGorry, 1996) and even in unmedicated patients with schizophrenia there is evidence of increased sleep latency and decreased total sleep time (Chouinard et al., 2004). At a neurobiological level it has been suggested that the overactivity of dopamine D2 receptors in the striatum thought to underlie the positive symptoms of schizophrenia also enhances wakefulness (Monti and Monti, 2005).

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Recent research demonstrates that paranoid thinking is much more common in the general population than previously thought (Freeman et al., 2008b). A high prevalence of insomnia has been recognised for longer. Approximately 30% of the general population experience symptoms of insomnia, with a third of this group having chronic insomnia (Ohayon, 2002; Walsh, 2004; Morin et al., 2006). This sleep disturbance is associated with anxiety and depression (Taylor et al., 2005; Breslau et al., 1996; Buckner et al., 2008); indeed, difficulties falling or staying asleep are a symptom of the diagnoses of depression, generalised anxiety disorder, and post-traumatic stress disorder (APA, 2000). In the current study the aim was to determine whether persecutory ideation and insomnia are associated. A community sample was used to obtain a range in paranoia severity and avoid the complicating issues of neuroleptic medication and high levels of inactivity. At the same time the occurrence of insomnia in a group of patients with persecutory delusions attending psychiatric services for psychosis was also examined.

2. Method

2.1. Participants

The community sample comprised 300 individuals. There were three entry criteria: aged 18 or above; able to read and write in English; and no history of treatment for severe mental illness (e.g. schizophrenia, bipolar disorder). The sample was recruited via the distribution to local postcodes of leaflets advertising research studies at King's College London. Those who responded to the leaflet were screened for the entry criteria over the telephone. Questionnaires were then completed at King's College London, by postal return or an Internet website (only available to screened individuals). The clinical group was recruited from adult services in the South London and Maudsley NHS Foundation Trust. The entry criteria were the presence of a current persecutory delusion, which met the criteria of Freeman and Garety (2000), and a clinical diagnosis of schizophrenia, schizo-affective disorder, or delusional disorder (i.e. nonaffective psychosis).

2.2. Measures

2.2.1. Insomnia Severity Index (ISI) (Bastien et al., 2001)
The ISI is a seven-item self-report questionnaire based upon the insomnia criteria of the Diagnostic and Statistical Manual of Mental Disorders (APA, 1994). The scale assesses sleep-onset and sleep maintenance difficulties, associated distress, and interference with daily functioning. Each item is rated on a 0–4 scale. The time period is the past fortnight. Higher scores indicate the presence of symptoms of insomnia. The scale was evaluated in a sample of over two hundred individuals attending a sleep disorders clinic, and has been repeatedly used in insomnia studies (Buckner et al., 2008; Savard et al., 2005; Bernert et al., 2007). The questionnaire shows convergent validity with daily sleep diaries, significant other reports and clinician ratings. In the current study the scale showed high internal reliability (Cronbach's Alpha = .89). The guidelines for the interpretation of scores are: no clinically significant insomnia (0–7), subthreshold insomnia (8–14), clinical insomnia of moderate severity (15–21) and severe clinical insomnia (22–28).

2.2.2. Sleep-50 Questionnaire (Spoormaker et al., 2005)
The nine-item insomnia subscale of the Sleep-50 Questionnaire assesses difficulties falling and staying asleep over the past month, but not interference with daily functioning. Each item is rated on a scale of 1 to 4. Higher scores indicate the presence of symptoms of insomnia. The scale was psychometrically evaluated in a sample of 400 students and 250 sleep clinic patients. In the current study the internal reliability of the scale was high (Cronbach's Alpha = .88). Clinical insomnia is indicated by a score of 19 or above.

2.2.3. Green et al. Paranoid Thoughts Scale — Part B (Green et al., 2008)
The G-PTS Part B is a self-report measure of the occurrence of persecutory ideation in the past month. Each of the sixteen items (e.g. 'I was convinced there was a conspiracy against me', 'Certain individuals have had it in for me', 'I have definitely been persecuted') is rated on a scale from 1 to 5, and conforms to a clear definition of persecutory ideation (Freeman and Garety, 2000). The total score can range from 16 to 80. Higher scores indicate greater levels of persecutory thinking. The questionnaire has been psychometrically evaluated for use in both clinical and non-clinical populations. The internal consistency of the scale and test–retest reliability are good. Convergent validity with the Paranoia Scale (Fenigstein and Vanable, 1992) has been shown. In the current study the scale had very high internal reliability (Cronbach's Alpha = .94).

2.2.4. Depression Anxiety Stress Scales (Lovibond and Lovibond, 1995)
The DASS is a 42-item instrument with three subscales measuring symptoms of depression, anxiety, and stress over the past week. Each of the subscales consists of 14 items with a 0–3 scale (0 = did not apply to me at all, 3 = applied to me very much). Higher scores indicate higher levels of emotional distress. The scale has been shown to be reliable and valid in large clinical and non-clinical populations (Brown et al., 1997; Crawford and Henry, 2003; Page et al., 2007). The anxiety and depression subscales were used; each showed very high internal reliability in the current study (Anxiety Cronbach's Alpha = .91, Depression Cronbach's Alpha = .96). There are no items on the scales that assess sleep difficulties.

2.3. Analysis

Analyses were carried out using Stata Version 10.0 (StataCorp, 2008). Visual inspection showed that the measures of persecutory ideation, anxiety and depression in the community sample all showed considerable positive skew; 46.7%, 34.3% and 31.0% had the minimum scores on the measures of paranoia, depression and anxiety respectively. These variables were therefore recoded into ordinal categories: Paranoia (16, 17–20, 21–24, 25–28, 29+), Depression (0, 1–3, 4–6, 7–9, 10–12, 13+), Anxiety (0, 1–3, 4–6, 7–9, 10+). The main analyses were ordinal logistic regressions (using the Stata ologit command) with paranoia as the dependent variable. In the first stage insomnia was the independent variable (controlling for age, sex, and working status). In the second stage depression was added as an additional independent variable. In the final stage anxiety was added to the model. This procedure was carried out separately for each of the insomnia scales. There were no missing data. The models were