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The prevalence and clinical associations of mood instability in adults living in England: Results from the Adult Psychiatric Morbidity Survey 2007

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ABSTRACT

Mood instability is underinvestigated but potentially clinically important. This study aimed to describe the prevalence of mood instability in adults living in England and test whether it is important in explaining the extent of symptoms of common mental disorders, suicidality and healthcare use. An analysis of data from the Adult Psychiatric Morbidity Survey 2007, a household survey of private households in England (N=7403), was completed. The prevalence of mood instability was 13.9%. In univariate analysis it was strongly associated with socio-demographic and clinical variables. In regression modelling mood instability was independently associated with non-psychotic psychopathology, increasing the odds by 9.89. It was also linked with suicidal ideas (odds ratios (OR): 2.04) but not suicidal acts, and associated with being in receipt of medication, counselling or therapy for mental health problems (OR: 1.88), independent of a diagnosis of borderline personality disorder. Mood instability is relatively common in the adult population, occurs frequently in common mental disorders and appears to be an important symptom in its own right. It is associated with two important measures in psychiatry, namely suicidal thinking and healthcare service use. It warrants more widespread recognition and further research is required to understand if, when and how to intervene.

1. Introduction

Affective experience tends to differ for individuals along several dimensions including intensity, lability, valence (pleasant/unpleasant), consciousness of affect and occurrence of specific affects (such as shame and guilt) and their emotional expression (Westen et al., 1997; Schimmack et al., 2000). Mood instability is an understudied aspect, probably because of a lack of a clear, accepted, and well-validated definition. However, the 4th edition of the Diagnostic and Statistical Manual (American Psychiatric Association, 1994), in describing the characteristics of borderline personality disorder (BPD), highlights mood instability as due to a "marked reactivity of mood".

Mood instability may be seen alongside a number of common psychiatric disorders such as depression and post-traumatic stress disorder (PTSD) (Koenigsberg, 2010), although epidemiologi-cal evidence of this association is lacking. However, previous research using the method of ecological momentary assessment has examined the changeability of mood in mental disorders. These studies suggest greater positive affect during the day and greater diurnal mood variation in negative affect in people with major depression compared to matched controls (Peeters et al., 2006). Similarly people with BPD appear to have much greater mood instability, especially with regards to valence and distress, than healthy controls (Ebner-Priemer et al., 2007). They also have a greater instability of mood than people with a current depressive disorder in the out-patient setting (Trull et al., 2008).

Mood instability is a feature of bipolar affective disorder ((Paris, 2004; Smith et al., 2004) also. There may be differing patterns of emotional flux such that patients with BPD experience more change between euthymia and anger and depression and anxiety, whilst those with bipolar disorder show more oscillation from depression to elation (Henry et al., 2001; Koenigsberg et al., 2002).

There is a steadily expanding evidence base that symptoms in children such as irritability that tend to be asso-ciated with problems of mood regulation can predict future common mental disorders such as depression and anxiety (Stringaris et al., 2009). Indeed, studies on both mood (Correll et al., 2007) and personality disorders (Chanen et al., 2008; Miller et al., 2008) independently suggest mood swings and episodic changes in mood can be the earliest signs of illness.

Therefore, current evidence suggests mood instability is a potentially important psychopathological construct in a range of psychiatric problems. However, its prevalence in the general population is unknown, and its attributes and associations require

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much clearer delineation. We use data from a household survey to begin to address the many gaps in our knowledge about mood instability. The primary aims of this analysis are to describe the prevalence of mood instability in the general population in England and to test whether it is important in explaining the extent of non-psychotic psychopathology, suicidality and healthcare use.

2. Methods

This analysis uses data from the Adult Psychiatric Morbidity Survey (APMS) 2007, a household survey designed to be representative of adults living in private households in England (UK). A detailed description of the survey and the sampling methods employed is provided in the main survey report (McManus et al., 2009). The Royal Free Hospital and Medical School (UK) Research Ethics Committee gave ethical approval for the household survey.

2.1. Sampling of participants

In summary a multi-stage stratified probability sampling design was adopted for the survey with postal addresses which receive less than 50 items of mail each day being the sampling frame. One adult aged 16 years or over was selected for interview in each household. There was no upper age limit for participants.

There were two phases of assessments for participants. In the first phase structured assessments and screening instruments for mental disorders were applied using interviews lasting approximately 90 min. Clinically trained interviewers conducted more detailed assessments applying clinical judgments in a subsample of participants in the second phase of the survey. Phase 2 assessments were specifically to obtain information which would allow diagnoses such as Borderline Personality Disorder as BPD. The probability of being selected for a phase 2 assessment for BPD was dependent on a process of score sampling fractions being applied to the phase 1 responses to the Structured Clinical Interview for IDSM-IV Axis II Personality Disorders screening questions. Thus those who endorsed three or fewer items in the screen were excluded from the phase 2 sampling and those who endorsed more than eight items were all sampled. The probability of selection for phase 2 given a SCID BPD screen score of 4, 5, 6, and 7 was 0.25, 0.4, 0.52 and 0.63, respectively.

In phase 1 of the study, 7403 participants were interviewed, and of the 746 people approached for phase 2, data were available for 606.

2.2. Measures

2.2.1. Phase one

An item from the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) (First et al., 1997) was used as the measure of mood instability. The item asks "Do you have a lot of sudden mood changes?" with the timescale for this symptom being "suffered this over the last several years". This item in the SCID-II is designed to elicit the mood instability component of the DSM-IV BPD diagnosis. Respondents can answer yes or no. These data were collected in phase 1 of the survey.

The presence of non-psychotic symptoms associated with the common mental disorders (depression, anxiety disorders, phobic disorders, etc.) was assessed using the Clinical Interview Schedule-Revised (CIS-R) (Lewis et al., 1992), which has a reliability of between 0.74 and 0.91. This is an interviewer-administered questionnaire addressing non-psychotic symptoms. An initial question asks if the respondent has suffered from the symptom in the last month. If the respondent answers yes, then further questions enquire about the extent of symptoms in the past week. A question also asks about the length of time the person has had symptoms beyond this 1-week period. Scores are coded on a continuous scale, which represents the degree of psychopathology. A score of 12 or more suggests a significant level of symptoms, and can be used to indicate that a clinical assessment for the range of common mental disorders is required. We used this cut off level in the current analyses. Answers to the CIS-R can also be used to derive ICD-10 diagnoses using a computer algorithm, which takes into account that symptoms should have occurred for at least 2 weeks.

Two aspects of suicidality that were collected for the survey were used. These were suicidal thoughts, which were strictly defined as having had "thoughts of taking your own life", and secondly suicidal acts defined as "having made an attempt to end your life" (McManus et al., 2009).

The extent of alcohol misuse was measured using the Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al., 1993), which uses the last year as the period of reference. The median reliability coefficient for the AUDIT from studies published since 2002 is 0.83 (from 0.75 to 0.97) (Reinert and Allen, 2007). Hazardous drinking is indicated by an AUDIT score of 8 or more and harmful drinking by a score of more than 16.

A number of healthcare service use items were collected from all respondents. The item used in this analysis was "currently receiving any medication, counselling or therapy" for mental health problems.

2.2.2. Phase two

The full set of items in the SCID-II was used in the context of a detailed clinical interview in order to enable a diagnosis of BPD. This interview, which included assessment of sub-threshold symptoms, was conducted with the subsample of respondents who were selected for phase 2.

2.3. Data analysis

To account for non-response, the survey data were weighted so that the results were representative of the population living in private households and aged over 16 years. Weighting took account of the probabilities of respondents coming from households of a different size and household non-response bias. Then calibration weighting was used based on age, sex and region in order to ensure representativeness. Exact details of what weights were applied to each variable are available in the primary report from the survey (McManus et al., 2009) (Section 13.7). All analyses of statistical significance in the current investigation were based on weighted data, with the absolute sizes of the weights having no particular significance.

Data from the full dataset (phases 1 and 2) were used in all analyses. The first stage of the analysis investigated univariate associations between individual measures, e.g. age, marital status and CIS-R, and mood instability using chi-squared tests. Tests were considered to provide evidence of significance if p-values were less than 0.05 (5% level).

This initial analysis was followed by more formal modelling using multiple logistic regression analysis to assess the significance of mood instability after adjustment for a range of important factors identified in the first stage analysis. The strategy in regression modelling was firstly to examine whether mood instability was independently associated with CIS-R scores and then to analyse whether it was associated with suicidality and health services use when other important relevant explanatory variables were taken into account.

The logistic regression models allowed odds ratios to be estimated that quantified the associations between mood instability and (i) CIS-R score, (ii) service use, (iii) thoughts of suicide over the last year and (iv) suicidal acts. These output variables were binary (no/yes). Modelling proceeded by first fitting the following subset of patient characteristics: age group, gender, ethnic status, employment status, equivalised household income, marital status, BPD diagnosis, alcohol use (AUDIT scores), drug use and CIS-R (models 2–4).

Mood instability was then introduced into the models in order to test its association with the outcome variables after adjusting for all the other model factors. The most parsimonious models were identified using a combination of a stepwise fitting algorithm and observed changes in the odds ratio of the mood instability term after dropping insignificant patient characteristic terms from the full model. Significance was assessed at the 5% level; 95% robust confidence intervals were constructed using estimated log odds ratios and robust standard errors based on asymptotic normality. Analysis was undertaken in the statistical software R (R Project, 2010).

3. Results

3.1. Prevalence

Overall, 7403 people were interviewed in phase 1, with a response rate of 57% of those eligible to participate in the study. Data ware available for 606 out of the 746 individuals approached for the second stage of the survey. The prevalence of mood instability was 13.9% of the population over 16 years of age. Rates of mood instability by ICD-10 diagnostic category were as follows: generalised anxiety disorder, 49.2% (176/358); panic disorder, 56.1% (46/82); depressive episode (any severity), 60.9% (153/251); post-traumatic stress disorder, 63.3% (136/215); and obsessive-compulsive disorder, 67.1% (57/85). The socio-demographic patterns of people reporting mood instability in the general population and univariate associations with non-psychotic psychopathology, suicidality and health service use are shown in Table 1.

3.2. Unadjusted analyses

Mood instability was strongly associated with age, employment, household income, marital status, non-psychotic psychopathology,