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At-risk symptoms of bipolar disorder in a university student cohort

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ABSTRACT

To assess the occurrence and frequency of bipolar at-risk symptoms in a large sample of previously undiagnosed students using the new screening tool Bochumer Screeningbogen Bipolar (BSB). 2329 students of the Ruhr-University Bochum, Germany completed online demographic data as well as various self-rating questionnaires (BSB; Hypomania Checklist 32; Altman Self-Rating Mania Scale; Beck Depression Inventory). Within the student cohort (64.4% female, mean age 24.3 years) every fifth student currently suffered from moderate to severe depressive symptoms; every sixth student had already thought about suicide and every other student reported a history of mood swings. The most frequently reported depressive symptoms included physical exhaustion, depressed mood, and tiredness. The most frequently reported (hypo)manic symptoms included physical agitation, feeling extremely energetic, and lack of concentration. The BSB showed good convergent validity with other established questionnaires capturing depressive or (hypo)manic symptoms, as well as a stable administration of underlying constructs. The BSB correlated significantly with the already established applied questionnaires. The predictive power of the BSB regarding the development of bipolar disorder cannot be correctly quantified at present. The further purpose of this exploratory web-based study should be to examine the validity of the presented measures in a longitudinal design.

1. Introduction

Bipolar disorder (BD) is a severe chronic disease with periods of remission and relapse. It is characterized by affective periods causing unusual shifts in mood, activity levels, and the ability to cope with everyday life. Mood swings range from the lows of depression consisting of low mood and decreased drive to the highs of mania associated with elevated mood, and increased energy with simultaneous loss of sleep, increased talkativeness and partly irresponsible behavior. Moreover, BD is associated with a significant risk of suicidal behavior and at least 15% of patients die by suicide (Muller-Oerlinghausen et al., 2002). Suicide rates of bipolar patients seem to be particularly high in the early stages of the disease (Goodwin and Jamison, 2007). The disability burden of BD has been ranked one of the leading neuropsychiatric conditions in the WHO's Global Burden of Disease Study (Mathers et al., 2008). Estimates of prevalence vary between 2,6 and 8,3% depending upon the applied diagnostic criteria (Bauer and Pfennig, 2005). The average age of onset can only be stated in decades of life. Accordingly, the second and third decades of life are considered typical onset times (Geoffroy et al., 2013). BD can remain undiagnosed and untreated for many years with an average eight years' delay from a patient's first recollected mood episode to receiving a diagnosis of BD (Hirschfeld and Vornik, 2004; Mantere et al., 2004). Such unrecognized and therefore untreated disorder is associated with an unfavorable course of disease characterized by an increase of both number and severity of episodes as well as a reduced response to pharmacological interventions (Bauer et al., 2008; Treuer and Tohen, 2010). In contrast, intervening early in the prodromal phase may reduce the burden of BD, as this strategy has the potential to delay, lessen the severity of, or even prevent the full-blown disorder (Conus et al., 2008; Correll et al., 2007a; McGorry et al., 2006; Salvadore et al., 2008). The earliest possible detection of prodromal signs and symptoms and the screening of potential at-risk populations is therefore essential and influences the future course of the disease as well as the psychosocial functioning of patients.

Whereas the term prodrome describes a subsyndromal stage preceding the actual disease onset (Bauer et al., 2008; Correll et al., 2007a; Hauser et al., 2007) and therefore can only be used retrospectively, the at-risk state prospectively encompasses sub-threshold symptom clusters in individuals, who might – or might not - make the transition later on

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(Geoffroy and Scott, 2017). The bipolar at-risk state combines past or present mood swings, subthreshold affective symptoms, and familial risk with functional impairment (Leopold et al., 2014; Bechdolf et al., 2010). These state, trait, and familial characteristics (Scott et al., 2017) can be monitored prospectively through a critical period of enhanced risk (Leopold et al., 2014), such as being in the age of onset range for BD onset.

At-risk groups are heterogeneous and screening is complicated (Leopold et al., 2014) due to the variety of risk constellations, the episodic course of BD, the multiplicity of subthreshold symptoms, and the symptomatic overlap with other mental disorders in a vulnerable age group (Hauser and Correll, 2013).

As several different symptoms might be present prior to BD, a cluster of features, including distal and more enduring symptoms, such as personality traits, and more proximal, recently emerging or worsening clinical symptoms, including depressive and manic/hypomanic symptomatology, might best capture the bipolar prodrome. In a previous retrospective German multi-center study we assessed the phenomenology and course of pre-(hypo)manic and pre-depressed prodromal symptoms, including mood swings, as precursors of BD (Zeschel et al., 2013). Not only specific depressive or manic, but also general symptoms occurred prior to both affective episodes. The pre-depressive prodrome lasted longer than the pre-manic one, but severity and frequency did not differ significantly. Mood swings and disturbed diurnal rhythm occurred prior to both episodes as early signs of BD in a retrospective (Zeschel et al., 2013) as well as in a prospective survey (Bechdolf et al., 2012). Moreover, the cyclothymic and irritable temperaments seem to have an impact on the amount of prodromal symptoms prior to the first episode (Zeschel et al., 2015). Correll et al. (2014a) introduced the Bipolar Prodrome Symptom Interview and Scale–Prospective (BPSS-P) as the first specific interview for emerging bipolar disorder symptoms. The semi-structured BPSS-P was also developed based on the DSM criteria for BD and is divided into the three sections mania, depression, and general symptoms. The severity of the symptoms is assessed for the past month and year. In a study with 163 young patients suffering from mood spectrum disorders (n = 129) or non- psychotic, non-mood spectrum disorders (n = 34), as well as 42 healthy controls, good to excellent psychometric properties were shown for the BPSS-P. However, the application of the BPSS-P took 1–2.5 h in controls and patients after special training of the interviewers (Correll et al., 2014b). The BPSS-P therefore seems to be rather an instrument for the specialized psychiatrist than a short screening tool in daily clinical practice.

Based on previous work and the current diagnostic criteria for BD (American Psychiatric Association, 2013) the Bochumer Screeningbogen Bipolar (BSB) was developed as a short screening tool for the daily clinical practice. The purpose of this web-based cross-sectional study was to further assess epidemiology and frequency of bipolar at-risk symptoms in a large German university cohort by using this new screening tool, outside of the location where it was developed (Scott et al., 2017). The BSB comprises not only (hypo)manic, but also depressive and general symptoms. In order to further characterize the bipolar at-risk state, three different time frames (week, month, lifetime) were chosen for this baseline evaluation. Whereas most psychometric tools for the assessment of affective episodes ask about the last seven days or the precedent month.

2. Methods

2.1. Participants

After sorting out 639 incomplete data sets, the final sample consisted of 2329 students (64.4% female, 24.3 ± 4 years) recruited from the Ruhr-University Bochum, Germany. The link to the study webpage was distributed via email to all enrolled students (n = 42,718, 49% female, 32 ± 8.5 years). The service-platform LimeService (limeservice.com) was used to prepare, run and evaluate the web-based survey.

Initially participants were informed in detail about the study's aim to investigate at-risk patterns not active clinical-level symptoms and therefore they had to confirm explicitly that they are not suffering from a mental disease. Further inclusion criteria were digitally signing the statement of informed consent, and being aged between 18 and 40 years (age of onset range for BD onset). The majority of all contacted students (96.7%) belonged to this age group. If participants were aged outside the chosen range or suffered from a psychiatric disease, the questionnaire ended automatically (exclusion). The study was approved by the Ethical Committee of the Department of Medicine at the Ruhr-University Bochum (ref: 5154–14). Participation was voluntary and pseudonymous, and all study subjects were assured that their data would be kept confidential. After reading and digitally signing a statement of informed consent, participants completed the survey online within approximately 20 min. The authors drew lots among all participants for 40 amazon vouchers of 20€ as compensation for participating in the survey. Students were asked to provide an email address in case they would like to be notified of incidental findings (with a personal email specifying the results and providing detailed contact information on regular as well as emergency psychiatric care). Moreover, they were asked to subscribe for a mailing list (on a separate server and with independent administration) in case they wished to participate in a longitudinal follow-up of the study.

2.1.1. Demographic data

Participants did not only complete the psychometric instruments described below, but did also provide broad data on their socio-demographic (age, gender, nationality and marital status) and health status (self-injury and suicidality, traumatic experiences, risk behavior, substance abuse), family history (occurrence and diagnosis of mental disorders) and mood swings. Mood swings were specifically inquired with the intention to differentiate between state and trait. The original wording was „Some people report to have experienced periods of severe mood swings. Please indicate if the following descriptions apply to you: My mood changes...“ „...very fast.“ and „...quickly for no apparent reason.“ The response options were: „no“, „yes for all my life“, „yes occurred recently“.

2.2. Instruments

2.2.1. Bochumer Screeningbogen Bipolar (BSB)

Based on the DSM-5 criteria for BD and results of a previous retrospective German multi-center study assessing the phenomenology and course of pre-(hypo)manic and pre-depressed prodromal symptoms (Zeschel et al., 2013 & 2015), the BSB was developed. Initially rhe semi-structured interview BPSS-R (Correll et al., 2007a) systematically assessed the onset pattern, duration, severity and frequency of 39 symptoms and signs that emerged or worsened prior to the first manic or major depressive episode. In order to extract a short questionnaire for daily use, all items were ranked within the respective (mania, depression, psychosis, general) symptom index according to their frequency. Subsequently the top five items were selected and integrated into the new questionnaire if they were mentioned by at least 25% of the original sample.

17 BSB items were then subdivided into different symptom domain indices for further analysis: (hypo)manic, depressive, general symptom and total index. The mania score consists of lack of concentration, physical agitation, reduced sleep requirement, extremely energetic/active, racing thoughts, and overtalkativeness. The depression score also comprises lack of concentration and physical agitation, but also depressed mood, reduced vitality (anhedonia), physical exhaustion, tiredness, insomnia, and weight loss. The general symptom score consists of social isolation, anxiety, mood lability, disturbed diurnal rhythm, and increased creativity. The wording of the BSB questions is