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Associations of fearful spells and panic attacks with incident anxiety, depressive, and substance use disorders: A 10-year prospective-longitudinal community study of adolescents and young adults

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ABSTRACT

Objective: The concept of fearful spells (FS) denotes distressing spells of anxiety that might or might not qualify for criteria of panic attacks (PA). Few studies examined prospective-longitudinal associations of FS not meeting criteria for PA with the subsequent onset of mental disorders to clarify the role of FS as risk markers of psychopathology.

Method: A representative community sample of adolescents and young adults ($N = 3021$, age 14–24 at baseline) was prospectively followed up in up to 3 assessment waves over up to 10 years. FS, PA, anxiety, depressive, and substance use disorders were assessed using the DSM-IV/M-CIDI. Odds Ratios (OR) from logistic regressions were used to examine the predictive value of FS-only (no PA) and PA at baseline for incident disorders at follow-up.

Results: In logistic regressions adjusted for sex and age, FS-only predicted the onset of any subsequent disorder, any anxiety disorder, panic disorder, agoraphobia, GAD, social phobia, any depressive disorder, major depression, and dysthymia (ORs 1.54–4.36); PA predicted the onset of any anxiety disorder, panic disorder, GAD, social phobia, any depressive disorder, major depression, dysthymia, any substance use disorder, alcohol abuse/dependence, and nicotine dependence (ORs 2.08–8.75; reference group: No FS-only and no PA). Associations with psychopathology were slightly smaller for FS-only than for PA, however, differences in associations (PA compared to FS-only) only reached significance for any anxiety disorder (OR = 3.26) and alcohol abuse/dependence (OR = 2.26).

Conclusions: Findings suggest that compared to PA, FS-only have similar predictive properties regarding subsequent psychopathology and might be useful for an early identification of high-risk individuals.

1. Introduction

DSM-IV panic attacks (PA) describe discrete episodes of intense fear or discomfort, in which at least 4 out of 13 panic symptoms develop abruptly and reach a peak within 10 min (crescendo). Cross-sectional and longitudinal epidemiological studies show that PA are strongly linked to psychopathology. For instance, PA at baseline were found to predict first onset of any anxiety disorder, social phobia, specific phobia, generalized anxiety disorder (GAD), any substance use disorder, any alcohol use disorder, and any somatoform disorder at follow-up (covering a period of up to 10 years) (Goodwin et al., 2004; Reed and Wittchen, 1998). Further research revealed similar findings showing PA being associated with various mental disorders, co-/multi-morbidity, and impairment (Baillie and Rapee, 2005; Batelaan et al., 2012; Goodwin and Hamilton, 2001; Kessler et al., 2006; Wittchen et al., 1998c). In fact, due to their predictive power across various disorders, PA were suggested being a useful marker of clinically relevant psychopathology in general (Baillie and Rapee, 2005; Craske et al., 2010; Goodwin et al., 2004; Narrow et al., 2013; Reed and Wittchen,

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1998; Shear et al., 2007) and thus designated as symptom specifier in DSM-5 (American Psychiatric Association, 2013).

However, few studies have examined whether fearful spells (FS) – a broadly defined concept describing simply the occurrence of distressing spells of anxiety without the complex symptom requirement of PA – might be a predictive marker as well. Assessment of FS typically relies on a single question, which (if endorsed by the respondent) prompts the typical set of PA-questions. Thus, FS include "milder" anxiety attacks that may or may not be associated (1) with panic symptoms and/or (2) crescendo in symptom onset. FS were shown to more often occur in childhood than PA (Wittchen et al., 1998c), suggesting that FS may be particularly useful for an early identification of high-risk individuals. The fact that FS can be reliably assessed using a single question adds to its potential value as a time-economic marker (Wittchen et al., 1998a).

Among a large community sample of Australian adults ($N = 10641$), Baillie and Rapee (2005) found that lifetime FS, lifetime but not past 12-month PA, and 12-month PA (exclusive groups) predicted any disorder, any depressive disorder (including major depression and dysthymia), any non-panic anxiety disorder (including agoraphobia, GAD, social phobia, post-traumatic stress disorder, and obsessive compulsive disorder), and any substance use disorder (including abuse/dependence of alcohol or illicit drugs) (12-month prevalence; cross-sectional analyses). Lifetime FS were more sensitive, but less specific markers of psychopathology than lifetime and 12-month PA. Among $N = 776$ New York residents, Pine et al., (1998) investigated longitudinal associations between FS in adolescence (T1 and T2) and internalizing disorders in adulthood (T3). Result revealed that FS at T1 predicted simple phobia, social phobia, and GAD at T3, while FS at T2 additionally predicted major depression at T3. However, in this study, diagnostic outcomes at follow-up were not restricted to incident disorders, i.e. respective disorders may have firstly occurred prior to FS.

While a substantial body of evidence exists for PA, little previous research investigated prospective-longitudinal associations of FS with *incident* psychopathology and compared associations of FS with those obtained from PA. Thus, using data of a representative community sample of adolescents and young adults, this study aims to examine associations of FS-only (not meeting criteria for DSM-IV-TR PA at baseline) and PA at baseline with incident disorders at follow-up (multiple assessment waves covering a follow-up period of up to 10 years). We expect that baseline FS and PA should increase the risk for incident anxiety, depressive, and substance use disorders at follow-up. Associations with psychopathology should be stronger for PA than for FS and increase with panic severity.

2. Materials and methods

2.1. Sample

Data come from the Early Developmental Stages of Psychopathology Study (EDSP), a 10-year prospective-longitudinal study among a representative community sample of adolescents and young adults with one baseline (T0, 1995; $N = 3021$; response rate 70.8%) and three follow-up investigations (T1, 1996/97, $N = 1228$, only younger cohort, response rate 88.0%; T2, 1998/99, $N = 2548$, response rate 84.3%; T3; 2003, $N = 2210$, response rate 73.2%). The sample was drawn randomly from the Munich area (Germany); participants were aged 14–24 years at baseline and 21–34 years at last follow up. Because the study focused on early developmental stages of psychopathology, 14–15-year-olds were sampled at twice the probability of individuals aged 16–21 years, and 22–24-year-olds were sampled at half this probability. At T1, only the younger EDSP cohort (aged 14 to 17 at baseline) was examined; at T0, T2, and T3, both cohorts (younger and older, aged 18 to 24 at baseline) were investigated. Further details along with information on method, design, sampling, sample weights, and responsiveness have been previously presented (Lieb et al., 2000; Wittchen et al., 1998b). The EDSP was carried out in accordance with the Helsinki Declaration of 1975 (as revised in 2013) and has been approved by the Ethics Committee of the Medical Faculty of the Technische Universität Dresden (No: EK-13811). After complete description of the study, all participants 18 years or older provided written informed consent; for respondents younger than 18 years, parental consent was provided.

2.2. Diagnostic assessment

Diagnostic information on symptoms and disorders prior to and after baseline was assessed using the lifetime (baseline) and interval version (follow-up assessments) of the Computer-Assisted Personal Interview (CAPI) version of the Munich-Composite International Diagnostic Interview (DIA-X/M-CIDI, Wittchen and Pfister, 1997). The M-CIDI is an updated version of the World Health Organization's CIDI version 1.2 (World Health Organization, 1990) with additional questions to cover DSM-IV and ICD-10 criteria. The M-CIDI can be used to assess symptoms, syndromes and diagnoses of 48 mental disorders along with additional information about onset, duration, and clinical/psychosocial severity. Detailed descriptions on psychometric properties have been presented elsewhere (Reed et al., 1998; Wittchen et al., 1998a).

The current study focuses on follow-up incidences of anxiety, depressive, and substance use disorders. Anxiety disorders include panic disorder, agoraphobia, GAD, and social phobia. Depressive disorders include major depression and dysthymia. Substance use disorders include alcohol abuse/dependence, nicotine dependence, and abuse/dependence of illicit drugs. For phobias, the impairment criterion was only applied to participants aged 18 years or older (Wittchen et al., 1999).

2.3. Assessment of FS and PA

FS and PA were assessed with the DSM-IV-TR M-CIDI section for panic disorder. FS were diagnosed in those affirming the stem question of the M-CIDI panic disorder section ("Have you ever had an attack when all of a sudden you felt frightened, anxious or very uneasy?"). Participants with FS could or could not have additional panic symptoms.

PA were diagnosed whenever the respondent met the additional DSM-IV-TR criteria, that is (a) at least one attack occurred suddenly out of the blue, (b) the anxiety reaction included 4 or more out of 13 panic symptoms (palpitations, pounding heart, or accelerated heart rate; sweating; trembling or shaking; sensations of shortness of breath or smothering; feeling of choking; chest pain or discomfort; nausea or abdominal distress; feeling dizzy, unsteady, lightheaded, or faint; derealization; fear of losing control or going crazy; fear of dying; paresthesias; chills or hot flushes), and (c) the symptoms increased within 10 min (crescendo).

The current analysis distinguishes between FS-only and PA as mutually exclusive groups. FS-only includes those who experienced at least one FS prior to baseline, but never met criteria for PA, while PA includes those who experienced at least one PA prior to baseline. That is, cases with FS and PA prior to baseline were classified as PA but not FS-only.

2.4. Statistical analysis

Since for each incident disorder, respective baseline cases and cases with no follow-up assessment were excluded from the