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The German version of the Painful and Provocative Events Scale: A psychometric investigation

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ABSTRACT

The interpersonal theory of suicide (Joiner, T.E., 2005. Why People Die By Suicide. Harvard University Press, Cambridge) postulates that, for a serious or lethal suicide attempt one has to possess a desire to die and the capability to commit suicide. The capability is proposed to be acquired over time by repeated experiences with painful and provocative events such as self-injurious behavior and other experiences such as childhood abuse, combat exposure, physical fights, promiscuous sex, and playing contact sports. Up to now, experiences with painful and provocative events are measured with various versions of the Painful and Provocative Events Scale (PPES). However, a thorough validation of this assessment instrument is still lacking. Our study aimed at validating the German version of PPES, with two clinical ($n=424$) and one community sample ($n=532$). Results support a two-factor structure (eight items "active painful and provocative events", four items "passive painful and provocative events") that was invariant across the three subsamples. Nonetheless, low factor loadings, low indicator reliabilities, moderate construct reliability and mixed evidence for construct validity indicate that the PPES in its current form appears to be of limited use. The development of a new instrument to assess painful and provocative events seems appropriate.

1. Introduction

Suicide is a significant public health concern, with about one million people worldwide dying from suicide each year (WHO, 2014). Suicide is among the three leading causes of death among those aged 15–24 years and is the tenth leading cause of death for all ages in the United States (CDC, 2012). About 90% of all suicides are committed by individuals who suffer from a mental illness (Cavanagh et al., 2003), most prominently affective disorders, schizophrenia, borderline personality disorder, anorexia nervosa and substance dependency (Joiner et al., 2009). Other known risk factors include male gender, older age, social isolation, childhood maltreatment, sexual abuse, self-harm and previous suicide attempts (Van Orden et al., 2010). Nonetheless, very few persons suffering from one of the mental disorders listed above actually commit suicide. Therefore, it is crucial to understand who of those at risk actually attempt or even die by suicide.

According to the *Interpersonal Theory of Suicide* (Joiner, 2005), three proximal, causal and interactive risk factors must be present in order to both desire and be capable of suicide: The most dangerous form of suicidal desire is said to be caused by the simultaneous presence of *thwarted belongingness*—the experience that one is not an integral part of a valued group—and *perceived burdensomeness*—the view that one's existence burdens family, friends, and/or society. Yet, Joiner (2005) claims that desire to die by suicide is not sufficient to lead to lethal suicidal behavior. Rather, individuals have to have developed a fearlessness of pain, injury and death to be capable to act on the desire for suicide. According to Joiner's theory, the so-called *acquired capability for suicide* arises from repeated exposure to painful and/or provocative experiences.

Joiner (2005) proposes that the most direct route to acquire the capability for suicide is by engaging in suicidal behavior, either through suicide attempts, or practicing and preparing for suicidal behavior. In line with this assumption, past suicide attempts are one of the strongest predictors of future suicide attempts (e.g. Carter et al., 2005; Gibb et al., 2005; Joiner et al., 2005; Oquendo et al., 2007;

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Mundt et al., 2013). However, Joiner (2005) points to the fact, that one can also become less fearful of pain, injury and death by experiences other than suicide attempts, (e.g. childhood abuse, combat exposure, painful and provocative events like physical fights, promiscuous sex or playing contact sports). Joiner (2005) proposes that the mechanisms whereby individuals acquire the capability for lethal self-injury are habituation (to fear and pain involved in the experiences mentioned above) and the strengthening of opponent processes (in response to fear and pain); both processes are described by opponent process theory (Solomon and Corbit, 1974). Opponent process theory states that with repeated exposure, the effects of previously noxious or provocative stimuli (e.g., fear of death) may recede, while the opposite effect of the stimuli (e.g., a sense of relief rather than fear) becomes strengthened and amplified.

Evidence for the validity of the Interpersonal Theory of Suicide is accruing, with a growing number of studies demonstrating profound associations between the theory's key variables and suicide ideation as well as suicide attempts (see Van Orden et al. (2010) for a review). Studies testing the acquired capability construct have found that individuals with a history of suicide attempts exhibit higher levels of the acquired capability than individuals with no history of suicide attempts (Smith et al., 2010) and that acquired capability is predictive of suicide attempts and suicide (Nademin et al., 2008; Van Orden et al., 2008; Anestis and Joiner, 2011). In general, men exhibit higher levels of acquired capability than women and combat veterans exhibit higher levels than students (Bryan et al, 2010; Witte et al., 2012). In accordance with the theoretical assumptions, higher levels of painful and provocative experiences significantly predict higher levels of acquired capability (Van Orden et al., 2008; Anestis and Joiner, 2012; Smith et al., 2013a, 2013b). Furthermore, combat experiences characterized by violence and high levels of injury and death are strongly associated with the acquired capability (Bryan and Cukrowicz, 2011). Further studies have revealed that experience with euthanasia in veterinary students is associated with higher extent of acquired capability (Witte et al., 2013), and that overexercise among women with symptoms of bulimia nervosa predicts acquired capability (Smith et al., 2013a, 2013b). Finally, it has been shown that experiences with painful and provocative events mediate the relationship between impulsivity and acquired capability (Bender et al., 2011). This means that impulsive individuals tend to have higher levels of acquired capability for suicide because they have experienced more painful and provocative events in their lives. In sum, different kinds of painful and provocative events have been shown to be relevant for the acquired capability for suicide. Yet, the relative influence of different types of painful and provocative events in acquiring capability and executing suicidal thoughts is unknown.

Furthermore, most studies so far apply an unvalidated measure of painful and provocative events: i.e. the Painful and Provocative Events Scale (PPES) developed by Bender et al. (2007). It asks individuals to report how many times they have experienced certain events leading to acquired capability for suicide according to the Interpersonal Theory (e.g. played contact sports, got a piercing, shot a gun, tied a nod, intentionally hurt animals, participated in physical fights, jumped from high places, became a victim of sexual abuse). PPES-versions of varying length have been utilized in recent studies: 10 items (Van Orden et al., 2008; Bender et al., 2011; Hawkins et al., 2014), 18 items (Bender et al., 2011), 25 items (Franklin et al., 2011, Ribeiro et al., 2014), 26 items (Anestis and Joiner, 2012), 49 items (Smith et al., 2010) and 74 items (Smith et al., 2013a, 2013b). Most of these studies (Van Orden et al., 2008; Smith et al., 2010; Bender et al., 2011; Smith et al., 2013a, 2013b) combined items of the PPES with items of the Impulsive Behavior Scale (IBS) (Rosotto et al., 1998), a 25-item measure asking about an individual's participation in impulsive behaviors. Criteria for the inclusion and exclusion of different item sets are not reported in any of these studies and internal consistencies are reported for the combined measures only. To our knowledge only four published studies used the PPES alone: Ribeiro et al. (2014) and Franklin et al. (2011) made used of a 25-item version of the PPES. Ribeiro et al. (2014) report an internal consistency (Cronbachs α) of 0.89 in one sample of American undergraduate students and 0.56 in another sample of American undergraduates. Franklin et al. (2011) did not report on internal consistency of the scale. Anestis and Joiner (2012) (see also Pennings and Anestis (2013)) used a 26-item version of the PPES and report an internal consistency of 0.66 in a sample of undergraduate students and Hawkins et al. (2014) used a 10-item version and found an internal consistency of 0.61 in an outpatient sample.

A thorough validation of the questionnaire has not been undertaken yet. This limitation may result in an inaccurate operationalization of the construct and poor understanding of experiences and events relevant (or irrelevant) to acquiring capability for suicide. Suicide risk assessments should benefit from a clear understanding of the events most relevant to acquired capability and suicidal behavior. Therefore, the current study aims at examining the factor structure, reliability and construct validity of the German version of the PPES. We used an exploratory approach in conducting the factor analysis, due to a lack of previous exploration of the measure and no clear delineation of subscales.

2. Methods

2.1. Participants

Data was derived from three different samples (two clinical and one community sample) in Germany.

2.1.1. Sample 1 (community sample)

The first sample was a community sample of 532 participants of which 73.7% ($n=392$) were female and 26.3% ($n=140$) were male. Age ranged from 18 to 83 years with a mean of 34.1 (S.D.=15.1). Three hundred and ninety-six participants (93.6%) had never attempted suicide, whereas 3.9% ($n=21$) had attempted suicide once and 2.8% ($n=15$) reported multiple attempts. The majority reported to be in a partnership (41.2%): 28.4% were single and 24.8% were married, 4.1% of the sample were either separated or divorced and 1.5% reported to be widowed. Four hundred and fourteen participants (77.8%) have never undergone treatment because of a mental illness.

2.1.2. Sample 2 (inpatient sample)

The second sample comprised 244 patients either undergoing a psychiatric inpatient treatment (43%, $n=105$) or receiving treatment at a psychiatric day hospital setting (57%, $n=139$). Up to four diagnoses were reported per patient. The most common first diagnosis was an affective disorder with 83.6%, followed by neurotic, stress-related and somatoform disorders (9%), substance abuse (3.3%), delusional disorders (1.6%), disorders of adult personality and behavior (1.2%), behavioral syndromes associated with physiological disturbances and physical factors, mental retardation and disorders of psychological development (each 0.4%). One hundred thirty-five participants (55.3%) were female. One hundred and seven participants (43.9%) were male with information on gender missing from two participants. Age ranged from 18 to 85 with a mean of 42.5 years (S.D.=14.2). One hundred sixty-eight participants (69.4 %) had never attempted to commit suicide, 16.4% ($n=40$) reported one attempt and 14% ($n=34$) multiple attempts. Two participants failed to provide information on past suicide attempts. About 33% ($n=80$) of the participants were married, 27% ($n=66$) were single, 18.4% ($n=45$) were either separated or divorced, 18.0% ($n=44$) were in a steady relationship and 2.9% ($n=7$) were widowed. Data on partnership status was missing from one person.

2.1.3. Sample 3 (outpatient sample)

The third sample comprised 180 patients in an outpatient psychotherapeutic clinic. Again, patients were given up to four diagnoses with neurotic, stress-related and somatoform disorders (52.2%) being the most common first diagnosis followed by affective disorders (41.7%), behavioral syndromes associated with physiological disturbances and physical factors (4.4%), substance abuse (1.1%) and disorders of psychological development (0.6%). Ninety-seven (53.9%) of the participants were