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Original article

Personality traits in attempted and completed suicide

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ABSTRACT

Objective: Though widely used in clinical and biological studies, no investigation of the factor structure of the Karolinska Scales of Personality (KSP) has been performed in suicide attempters. There are very few studies of personality traits in suicide completers. The aim of the present study was to assess the factor structure of KSP in suicide attempters. A secondary aim was to examine whether the factor structure of the KSP was related to gender and/or to violent method of the suicide attempt or to suicide completion.
Method: The factor structure of the KSP was analysed in data from 165 suicide attempters from the Suicide Prevention Clinic at the Karolinska University Hospital using principal component analysis and orthogonal varimax rotation for the factor extraction. The effect of gender and (1) used method in the suicide attempt (violent versus nonviolent), and (2) later completed suicide on the factors was assessed in two separate series of the two-way ANOVAs.
Result: A four-factor solution appeared: (1) Neuroticism, (2) Nonconformity, (3) Psychoticism and (4) Extraversion. Men who later completed suicide reported more Extroversion than male survivors.
Conclusion: The obtained factor structure is comparable to a previous factor structure in a group of twins from the population-based Swedish Twin Registry indicating that no specific personality structure characterized the current sample. Differences in personality traits between suicide completers and survivors indicate that these groups may have some distinct characteristics.

1. Introduction

Suicidal behaviours present important challenges to individuals, families, and public health systems. Attempted suicide is 10–40 times more frequent than completed suicide and is one of the strongest predictors of subsequent suicide [31]. Suicide attempt, completed suicide as well as the choice of method of suicidal behaviour differ in gender and age pattern [14]. Suicide method may be seen as a behavioural marker, with violent suicide attempters being more likely to have higher levels of aggression and impulsive behaviour [6].

The suicidal temperament hypothesis suggests that certain personality traits may render a person vulnerable to suicide risk. Features of the suicidal temperament include such personality traits as anger and aggression, impulsivity, anxiety proneness and low socialization, as well as being more depressed, psychasthenic and socially introverted [21].

Impulsivity and harm avoidance independently associated with self-aggressive tendencies in personality [12] and high harm avoidance associated with suicide attempt in major depression [2], as well as with residual depressive symptoms in bipolar I patients [17].

Evidence to date also suggests that hopelessness and neuroticism, and to a lesser extent, extroversion may be useful in screening for risk for suicidal behaviours [1], and suicide risk appears to be associated with extreme scores on personality traits extroversion, neuroticism, and openness to experience [1]. However, the results from a cluster analysis of 215 suicide attempters indicated that they are a temperamentally heterogeneous group and a large subgroup in this study showed no personality pathology [7]. Not surprisingly, there are very few studies of suicide completers.

The Karolinska Scales of Personality (KSP) [25] is a self-rating questionnaire that has been standardized in Sweden and used for both research purposes and in clinical practice. The KSP was constructed with the assumption that there are biological correlates to personality [24,26] and it has also been used in studies of biological markers of suicidal behaviour [27]. The KSP consists of 135 items grouped on a nonfactorial basis into 15 scales: Impulsiveness, Monotony avoidance, Detachment, Socialization, Social desirability, Somatic anxiety, Muscular tension, Psychic anxiety, Psychasthenia, Inhibition of aggression, Verbal aggression, Indirect aggression, Irritability, Suspicion and Guilt. These subscales have subsequently been studied in different

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populations using factor analysis. The method of factor analysis has a strong tradition in personality research [9] and it has been used for the construction of personality scales and subsequent validation processes. Moreover, factor analysis has been used in research to identify the structure of common personality traits and to uncover the components of well-established personality inventories. The KSP scales were originally classified by Schalling et al. [24] into seven components, while later factor analyses have resulted in fewer factors. Gustavsson et al. analysed the KSP together with the Eysenck Personality Questionnaire [9] in the Swedish Adoption/Twin Study of Aging (SATSA), which consists of twins from the population-based Swedish Twin Registry [13]. The classification presented included four factors: (1) Neuroticism (Socialization [negative loading], Somatic anxiety, Psychic anxiety, Muscular tension, Psychasthenia, Inhibition of aggression, Irritability, Guilt); (2) Psychoticism (Detachment, Suspicion); (3) Nonconformity (Social desirability [negative], Indirect aggression, Verbal aggression); (4) Extraversion (Impulsiveness, Monotony avoidance) [13]. Factor analyses of the KSP in other populations have shown other factor solutions [4,16]. Thus, the factor structure of the KSP differs depending on the characteristics of the group, which is not surprising, bearing in mind that samples that are known to be different with respect to some particular criterion may also have different factors [30]. Theoretically, the personality traits underlying ''suicidal temperament'', i.e. proposed traits that mediate suicidal behaviours, could correlate highly with one another and constitute a criterion that affects the factor structure. This could result in a different factor structure than what is seen in other populations.

To the best of our knowledge, no investigation of the factor structure of the KSP has been performed in suicide attempters. The aim of the present study was to carry out such an investigation. Since suicide attempt and suicide, as well as the choice of method of suicidal behaviour differ between sexes, a secondary aim was to explore the obtained factor solution in males versus females, in violent vs nonviolent suicide attempters as well as in suicide completers versus survivors.

2. Methods

2.1. Study setting

Attempted suicide patients having their clinical follow-up at the Suicide Prevention Clinic at the Karolinska University Hospital were invited to participate in two studies of biological and psychological risk factors for suicidal behaviour. The patients were recruited during 1993–2005. The Regional Ethical Review Board in Stockholm approved the study protocols (Dnr 93-211 and Dnr 00-194) and the participants gave their written informed consent for the study.

2.2. Participants

A total of 181 individuals (67 men and 113 women) who had attempted suicide were enrolled in the study. Inclusion criteria were a recent suicide attempt (a time limit of 1 month), fair capacity to communicate verbally and in writing in the Swedish language and age of 18 years or older. Exclusion criteria were schizophrenia spectrum psychosis, dementia, mental retardation and intravenous drug abuse. A suicide attempt was defined as a self-destructive act with some degree of intent to die. Freeman risk rescue rating was used to assess the seriousness of suicidal incidents involving the method, and probability of death. The mean total Freeman rating was 5.6 (SD. = 1.4; range 2–10). The mean age of the patients was 35.45 years (SD = 12.30; range 18–69). The mean age did not differ between men and women.

The participants were interviewed by trained psychiatrists using the SCID I research version interview to establish the diagnosis according to DSM-III or DSM-IV [11,28]. Trained clinical psychologists established Axis II diagnoses by means of the SCID II interview [29]. Ninety-one per cent of the participants had at least one current Axis I psychiatric diagnosis; 75% satisfied the criteria for mood disorders (unipolar, major depressive disorder, single episode or recurrent, bipolar disorder, depressed or dysthymic disorder), 5% for adjustment disorder and 5% for anxiety disorders. Three per cent of patients had a substance-related disorder, one patient anorexia nervosa and one an unspecified psychiatric disorder (not psychotic). Twenty-three per cent of the patients had a comorbid substance-related disorder (mostly alcohol dependence). Among Axis II diagnoses, 33% of the patients met the criteria for a personality disorder, 17% were diagnosed with borderline personality disorder.

Suicide attempt method was defined violent according to the criteria of Träskman [32]. These criteria include the use of all violent methods (e.g., firearm, hanging, jumping from a high place, car exhaust) and classify suicide attempts involving drug overdose or superficial phlebotomy as nonviolent.

All patients were followed up for mortality and cause of death. All deaths that occurred between study enrolment and January 2009 were included. The patients who died within the follow-up period were identified and the causes of death were obtained from Statistics Sweden which keeps the National Swedish Cause of death register for the National Board of Health and Welfare. Eleven suicides, four women and seven men, were ascertained from the death certificates. The follow-up time ranged between 4–15 years (mean 9.5 years).

2.3. The Karolinska Scales of Personality

The response format in the KSP is a four-step scale, from ''Does not apply at all'' (scored 1) to ''Applies completely'' (scored 4). All but three scales (Somatic anxiety, Psychic anxiety and Muscular tension) include few items with reversed scoring. Nine of the KSP scales consist of 10 items, one scale (Socialization) includes 20 items and all hostility and aggressiveness-related scales consist of five items each.

The participants completed the KSP under the supervision of a research nurse. The KSP raw scores were transformed into T scores (population M = 50, SD = 10), based on the age and gender-stratified Swedish normative sample [25].

2.4. Statistical methods

The associations between gender and violent vs nonviolent method in the suicide attempt, as well as gender and later completed suicide were analysed using χ^2 test. The KSP data was missing for 15 individuals (7 men and 8 women; all from the group that used a nonviolent method in the attempted suicide), and the final study group with completed KSP thus consisted of 166 persons (61 men and 105 women). Regression analysis was used to identify multivariate outliers, the criterion being the Mahalanobis distance at $P < .001$ evaluated as χ^2 with degrees of freedom equal to the number of variables, i.e. the 15 scales of the KSP [30]. One male participant was identified as an outlier and removed from all analyses. Absence of multicollinearity and factorability of the correlation matrices was estimated using the principal component analysis (PCA). The overall Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) coefficient was .84 with the lowest single MSA being .56 (Monotony avoidance), and the determinant for the correlation matrix was .001. Taken together, these results