

Testing a Model of Suicidality in Community Adolescents: A Brief Report

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Abstract

We tested a theory-based model of suicidality in adolescents that included the variables: self-criticism, dependency, anger-temperament, depression and anger-in. A sample of 263 adolescents, 107 boys and 156 girls, aged between 15 and 19 years ($M=16.8$, $SD=1.26$), from two high schools in the district of Évora, Portugal, responded to a socio-demographic questionnaire, to the Depressive Experiences Questionnaire for Adolescents (Blatt et al.), the Center for the Epidemiologic Studies of Depression Scale (Radloff), the State-Trait Anger Expression Inventory (Spielberger) and the Suicide Behaviors Questionnaire – Revised (Osman et al.). The model tested by Structural Equation Modeling fits the data well. Self-criticism, dependency and anger-temperament demonstrated indirect relationships with suicidality and depression presented a direct relationship with suicidality and tended to relate indirectly with suicidality through anger-in.

Keywords: Suicidality; Adolescents; Self-criticism; Dependency; Anger; Depression

Introduction

Suicide is a major health problem across the life span. Estimates indicate that almost one million people die by suicide each year all across the world [1]. Non-fatal suicidal behaviors, such as suicide attempts, occur at least 10 to 20 times more than completed suicides [2]. The increased autonomy and reduction of parental supervision and the adolescent's increased capacity for planning may be associated with the occurrence of suicide in adolescence [3]. Suicide prediction is complex and difficult [4], because suicidality is thought to be a multifactorial phenomenon [5]. It is important to full understand risk factors to suicide in order to develop procedures for intervention. Many psychological factors related with suicidality have been reported [5], like dysfunctional personality traits [6,7] depression [8] and anger [9].

Research has systematically demonstrated depression has an important role in suicidality [8,10-12] and that personality traits of self-critical perfectionism and dependency, according to Blatt's perspective are related with depression [12-14]. Several clinical reports [15-17] and empirical research [18-22] have also linked self-criticism with suicidality [23]. Results are more equivocal for dependency. However Klomek et al. [24], for example, found that adolescents who had tried to kill themselves had significantly higher levels of both self-critical and dependent vulnerabilities than did non-suicidal controls. Campos et al. [7] found that depression and social withdrawal mediated the relationship between both dependent and self-critical vulnerabilities and suicidality in a sample of community adolescents. In fact, dependency / neediness and especially self-criticism may play a role in suicide risk through the mediation effect of other variables such as psychopathology, particularly depression [7,19,20]. According to Blatt's [13] perspective dependent individuals are vulnerable to depression following interpersonal loss and are characterized by

presenting intense feelings of loneliness and helplessness and intense fears of being abandoned, unprotected and uncared for [13,16,24]. Self-critically depressed individuals, by contrast, are characterized by feelings of unworthiness, inferiority, criticism, and guilt. Self-critical individuals engage in harsh self-evaluation and are vulnerable to experiences of failure and criticism [13,16,17].

In Spielberger [25] perspective, anger-temperament is a personality trait defined by a tendency to experience and react with anger even in situations in which the individual is not provoked. Differently, anger reaction is the tendency to react with anger, specifically when the individual is provoked or humiliated. Also according to Spielberger's perspective, when angered or irritated, individuals may control anger, turn it out or turn it against themselves. Anger-in consists in the expression of anger against the self and empirically relates with anger-temperament [26]. Anger, particularly anger-temperament and anger-in, has been associated with depression [27,28] and suicidality [9,29,30]. For example, according to Demirbas and Gursel [31] results, anger-trait related with suicidality in college students, and Cautin et al. [29] found among psychiatric adolescent patients that anger-in was related with more lethal suicide attempts. Besides depression, dependency also relates with anger-in [32]. Dependent individuals inhibit or deny aggression because of their need for care and fear of abandonment [33]. They may have difficulties expressing anger for fear of losing support and the gratification that significant others can provide, thus turning aggressive feelings against themselves in order not to disrupt their relationships [34].

Aim of the Study

The current study evaluates a theory-based model of suicidality (Figure 1) in a community sample of adolescents. This model included as predictors the trait variables of self-criticism, dependency and anger-temperament, and also depression and anger-in. Suicidality is the criterion-variable. According to the model, personality traits of dependency, self-criticism and anger-temperament predict depression,

which in turn predict suicidality directly and indirectly through anger-in. Anger-in acts as a mediator between depression and suicidality and also between anger-temperament and suicidality. We hypothesize that the model tested by Structural Equation Modeling (SEM) will provide a good fit for the observed data.

Method

Participants and procedures

Two hundred and sixty three students from two suburban Portuguese high schools in Évora, Portugal, volunteered to participate. One hundred and fifty six participants (59.4%) were females and 107 (40.6%) were males, ranging in age from 15 to 19 years ($M=16.8$, $SD=1.3$). Most of the participants (>95%) were Caucasian. During class time and in groups of 17 to 28, students completed a series of questionnaires presented in random order, after receiving a brief explanation of the study. Participants were informed that the study was about adolescent's personality and mood. Data collection was authorized by school directors and parents gave informed consent. Participation was anonymous and voluntary. The guidelines of the Portuguese Psychologists Board were followed. Participants were provided the opportunity to discontinue their participation at any time and twelve chose to do so. Data collection protected confidentiality.

Measures

The Depressive Experiences Questionnaire for Adolescents [35]. The DEQ-A was used to measure dependency and self-criticism. As the adult version, the Depressive Experiences Questionnaire, DEQ-A includes 66 items and yields two vulnerability factors of dependency and self-criticism, and a third resilience factor, efficacy. Only the first two factors were used in the present study. Psychometric properties of the DEQ-A have been confirmed in numerous studies and different cultures [13]. The Portuguese version of the DEQ-A [36] presents adequate psychometric properties. In the present study, Cronbach's alpha values were .86 for Dependency and .70 for Self-criticism.

State-trait Anger Expression Inventory (STAXI) [25]. The STAXI is a 44 items inventory that can be used with adolescents and adults and allows the assessment of several dimensions of anger: anger-state, anger-temperament, anger-reaction, anger-in, anger-out and anger-control. Items are responded in 4 points likert-scales. In the present study just the anger-temperament and anger-in scales were used. STAXI was adapted for the Portuguese population by Silva, Campos and Prazeres [37]. In the Portuguese version alpha values ranged between .65 and .80 and in the present study were .77 and .73, respectively, for the Anger-temperament and Anger-in scales.

Center for Epidemiological Studies Depression Scale (CES-D) Radloff et al. [38]. The CES-D is a 20-item inventory assessing

symptoms of depression. It is well suited for the general population. Individuals are asked to indicate the frequency with which they have experienced each of the 20 symptoms of depression over the past week on a 4-point scale (0 to 3). The CES-D has adequate psychometric properties. The CES-D was adapted for the Portuguese population by Gonçalves and Fagulha [39] and has adequate psychometric characteristics with Cronbach's alpha values varying between .87 and .92 across samples. In the present sample, the alpha coefficient was .90.

Suicidal Behavior Questionnaire – Revised (SBQ-R) [40]. The SBQ-R was used in the present study to assess suicidality. The questionnaire is composed of following four multiple choice items: "Have you ever thought about or attempted to kill yourself?"; "How often have you thought about killing yourself in the past year?"; "Have you ever told someone that you were going to commit suicide, or that you might do it?"; "How likely is that you will attempt suicide someday?"¹ In the original version, the Cronbach's alpha reliability value was .76. The Portuguese version [20] presents adequate psychometric properties. 25.1% of our sample obtained a score above the cut-off point of 7 proposed by Osman et al. [40], 2.3% of participants indicated previous suicide attempts (option 4 on item 1), 3.8% indicated past suicide plans (option 3 on item 1) and 30.8% indicated past suicidal thoughts (option 2 on item 1). and 30.8% indicated past minor suicidal thoughts (option 2 on item 1). In this study, the Cronbach's alpha was .78.

Data analysis

Initially, variables included in the model were correlated (Table 1). We then tested our proposed model (Figure 1) by path analysis using Structural Equation Modeling (SEM) and the AMOS 21 software. In the present study, SEM tested the effect of the personality traits of dependency, self-criticism and anger-temperament, and of anger-in and depression on the dependent variable of suicidality. Several indices evaluated our model: χ^2 , χ^2/df , Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (SRMR) and Comparative Fit Index (CFI). A model in which χ^2/df is ≤ 3 , CFI is greater than 0.90, RMSEA is between .00 and .08 and SRMR is between .00 and .10 is considered to have acceptable fit [41,42]. In examining associations among variables, the size of the eigenvalues, the condition index, the variance inflation factor, and the tolerance value did not indicate the presence of multicollinearity. Normality of variables was tested through the Kolmogorov-Smirnov Z test which indicated that some variables were not normality distributed. Consequently, bootstrapping (with 5.000 samples to build 95% bias-corrected percentile confidence intervals) was used to test significance levels [43]. Bootstrapping also tested the significance of indirect effects [44], through the empirical construction of sampling distributions of these effects [45].

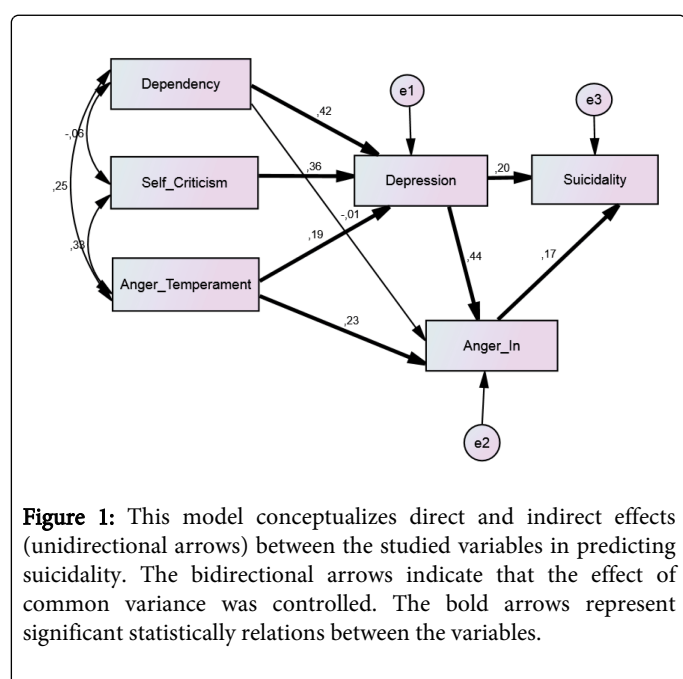
Variables	1	2	3	4	5	6	M	SD
Personality								
1. Self-criticism	—						-0.32	0.96
2. Dependency	-0.06	—					0.38	1.01

¹ The SBQ-R can be downloaded in: <http://www.integration.samhsa.gov/images/res/SBQ.pdf>

Depression								
3- Total score in the CES-D	.40 ***	.45 ***	—				16.1	10.2
Anger								
4. Anger-Temperament	.33 ***	.25 ***	.42 ***	—			6.9	2.4
5. Anger-In Suicidality	.37 ***	.25 ***	.54 ***	.41 ***	—		16.9	4.1
6. Total score in the SBQ-R	.12 *	.20 **	.29 ***	.21 **	.28 ***	—	5.9	2.7

Note N=165. *p<.10. **p<.01. ***p<.001.

Table 1: Correlations between the studied variables



Results

Zero-order correlations for the variables included in the final SEM model are displayed in Table 1. We also explored associations between a pool of socio-demographic variables and suicidality. Age correlated significantly and negatively with suicidality ($r=-.25$, $p<.01$), divorced parents correlated positively with suicidality ($r=.16$, $p<.05$), having a chronic disease correlated negatively with suicidality ($r=-.15$, $p<.05$), level of education of the mother correlated positively with suicidality ($r=.21$, $p<.001$) and level of education of the father correlated positively with suicidality ($r=.26$, $p<.05$).

The SEM model (Figure 1) fit the observed data well ($\chi^2[4]=9.56$, $p<.05$, $\chi^2/22.39$, $CFI=.98$, $SRMR=0.031$, $RMSEA=0.073$). Regarding direct effects, Dependency significantly related with depression ($\beta=.42$, $t=8.48$, $p<.001$; $SE=0.60$, 95% CI [0.294, 0.530], $p<.001$), as well as self-criticism ($\beta=.36$, $t=7.07$, $p<.001$; $SE=0.047$, 95% CI [0.265, 0.454], $p<.001$) and anger temperament ($\beta=.19$, $t=3.61$, $p<.001$; $SE=0.053$, 95% CI [0.008, 0.293], $p<.004$). Anger-temperament related with anger-in ($\beta=.$

$.23$, $t=4.18$, $p<.001$; $SE=0.056$, 95% CI [0.113, 0.345], $p<.005$), as well as depression ($\beta=.44$, $t=7.24$, $p<.001$; $SE=0.051$, 95% CI [0.342, 0.565], $p<.004$). Finally depression related with suicidality ($\beta=.21$, $t=2.96$, $p<.003$; $SE=0.079$, 95% CI [0.070, 0.383], $p<.009$), as well as anger-in ($\beta=.17$, $t=2.40$, $p<.05$; $SE=0.072$, 95% CI [0.022, 0.304], $p<.05$). Regarding indirect effects, Dependency significantly related with suicidality ($\beta=.12$, $t=3.10$, $p<.05$; $SE=0.034$, 95% CI [0.053, 0.189], $p<.003$), as well as self-criticism ($\beta=.10$, $t=4.10$, $p<.02$; $SE=0.026$, 95% CI [0.058, 0.165], $p<.002$) and anger-temperament ($\beta=.09$, $t=3.30$, $p<.05$; $SE=0.025$, 95% CI [0.043, 0.141], $p<.005$). Depression tended to relate with suicidality ($\beta=.07$, $t=2.22$, $p<.10$; $SE=0.032$, 95% CI [0.013, 0.140], $p<.02$). Dependency also related with anger-in ($\beta=.19$, $t=5.77$, $p<.005$; $SE=0.031$, 95% CI [0.133, 0.256], $p<.002$), as well as self-criticism ($\beta=.16$, $t=5.23$, $p<.01$; $SE=0.029$, 95% CI [0.106, 0.221], $p<.005$), and anger temperament ($\beta=.08$, $t=3.04$, $p<.05$; $SE=0.027$, 95% CI [0.039, 0.140], $p<.005$).

Finally, it is important to note that when the model was examined while controlling for the shared variances among relevant socio-demographic variables and independent variables as well as the associations between these variables and suicidality, results did not change. To simplify the presentations, these variables were removed from the model.

Discussion

The present study tested a model of suicidality in community adolescents that included the variables of dependency, self-criticism, anger-temperament, depression and anger-in. The tested SEM model fit the observed data well. According to the results, self-critical, dependent and anger traits predict depression, which in turn predicts suicidality directly and indirectly through anger-in.

According to the present results self-critical, dependent and angry adolescents may be vulnerable to suicide thought their vulnerability to depression. Angry adolescents may also turn anger against the self which in turn may also predispose them to suicidality. These results are in accordance with previous studies, which demonstrate that dysfunctional personality traits are a predisposing factor for suicidality, and that this relationship is mediated by distress, especially depression [20]. According to our results depression directly related with suicidality and tended to indirectly relate with suicidality via anger-in. In previous studies this form of anger expression was related with suicidality [46]. Previous results have also related depression with

suicidality in adolescents and young adults [47,48]. For example, Konick and Gutierrez [47] found in a sample of 345 college students that depression was the most important variable in the prediction of suicidal ideation. In depressed adolescents high levels of anger may be directed toward the self, leading to self-destructive behaviors and possibility culminating in suicide [49]. Difficulties in interpersonal relationships may associate with depression and lead the individual to feel alone and helpless, but also to experience anger and direct anger against himself, [49]. According to Laufer [50], adolescents may adopt self-destructive behaviors following marked relational and adjustment difficulties. The suicide may be, at least in part, a form of "attack" to the self and to significant others.

The major contribution of the present study was to test simultaneously for the role of three different types of variables in adolescents' suicide risk: personality predispositions, depression and anger, and also to test for possible relationships between these variables in the prediction of suicidality. Besides the mediation effect of depression in the relationship between personality traits and suicidality, anger-in may also play a mediation role in the relationship between anger-temperament and suicidality and in the relationship between depression and suicidality.

Limitations and conclusion

It is important to note that we used a non-clinical sample, just self-report measures and a cross-sectional design. Because we used a convenience sample, findings may lack external validity and problems regarding generalizability may exist. Future studies may test our model using longitudinal designs in clinical samples based on other procedures as clinical interviews and projective techniques, an also based on multiple informants. However, our findings confirm the importance of dependency and self-criticism as important dimensions in suicidality, as well as anger and depression. Our findings point to the potential importance of personality vulnerability dimensions in understanding and identifying youth who may be at risk for suicide. Self-critical, dependent and angry adolescents may be vulnerable to suicide, because of their vulnerability to depression. Psychotherapeutic interventions should focus on experiences of worthlessness and inferiority that are part of introjective personality configuration and on the feelings and fears of abandonment typical of the anaclitic configuration (Blatt [13]). Psychological interventions should also focus on anger- traits and on intense feelings of anger directed toward the self.). School educators should be particularly attentive to depressed youths and those who systematically tend to feel angry but tend to turn anger against themselves. This adolescents may appear sad, isolated, excessive quiet and may present self-injured behaviors or at least tend to systematically blame themselves for everything. This may be particularly important when adolescents are also too perfectionists and self-critical (introjective traits) or clinging on others (anaclitic traits).

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