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The role of moral objections to suicide in the assessment of suicidal patients

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Abstract

Background—Moral and religious objections to suicide (MOS) are reported to be associated with less suicidal behavior in depressed patients, and are proposed to act as a protective factor against suicidal behavior. It is unclear whether MOS are a protective factor against suicide attempt per se, or if this effect is mediated through other variables.

Method—Depressed inpatients ($n = 265$) reporting low or high MOS were compared on history of suicidal behaviour, demographic and clinical characteristics.

Results—Patients with low MOS had significantly more lifetime suicide attempts, were more often without religious affiliation, had greater depression severity, hopelessness and trait impulsivity, less anxiety and fewer reasons for living. Logistic regression revealed that lower MOS was independently associated with suicide attempt.

Conclusions—Moral and religious objections to suicide may serve as a protective factor against suicidal acts given their unique association with less suicidal behavior in depressed inpatients.

Keywords

Suicide; Moral objections; Protective factors

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Contributors

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1. Background

Religious commitment to a few core, life-saving beliefs may protect against suicide (Stack, 1983; Neeleman et al., 1997; Dervic et al., 2004). Our group reported that, in a clinical sample, greater moral and religious objections to suicide (MOS), which may represent religious beliefs, measured with Reasons for Living Inventory (RFLI) (Linehan et al., 1983), were associated with less suicidal behavior in a study of depressed patients (Dervic et al., 2004). However, it remains unclear whether MOS are associated with suicidal behavior independently or if this effect is mediated through related demographic and clinical characteristics, i.e. marital and parental status, level of education, depression or hopelessness. Oquendo et al. (2004) proposed that a propensity to react with more subjective distress or pessimism, i.e. more self-perceived depression, more hopelessness and less perceived reasons for living to similar stressors, distinguishes future suicide attempters from non-attempters. In this context, it is important to identify other factors which could represent a part of the described pessimism trait that predicts suicidal behavior (Oquendo et al., 2004). For example, it is possible that moral and religious objections to suicide could counteract subjective cognitive and emotional constriction observed in suicidal crises (Ringel, 1976), and inversely, their absence could aggravate suicide risk. Also, a higher anxiety level could also contribute to suicidality (Bolton et al., 2007). However, the data on the relationship between anxiety and religion are mixed (Shreve-Neiger and Edelstein, 2004). If low MOS can be shown to have a direct association with suicidal behaviour, this could contribute to the improvement of the assessment and treatment of suicidality. Therefore, we examined factors associated with high and low MOS in a sample of depressed inpatients. Based on the literature, we hypothesized that: (1) having fewer moral and religious objections to suicide (MOS) is independently associated with a increased likelihood of having a history of suicide attempt; (2) having fewer moral and religious objections to suicide (MOS) is associated with greater depression, hopelessness and fewer reasons for living in general; (3) we explored the relationship between MOS and anxiety. To our knowledge, this is the first clinical study to explore whether there is an independent relationship between moral and religious objections to suicide (MOS) and suicidal behavior.

2. Materials and methods

2.1. Participants

Two hundred and sixty-five (265) inpatients who met DSM-III-R criteria (Spitzer et al., 1990) for a current Major Depressive Episode, entered the study. These patients were enrolled into a larger study of the neurobiology of suicidal behavior. Treatment provided to patients naturalistically by the clinical staff of the inpatient research unit, rather than in a standardized fashion. DSM-III-R was used so as to allow comparison of all study participants as the study began prior to the introduction of the DSM-IV. The mean age of the sample was 36.9 years (± 12.0), 60.2% ($n = 159$) were female and 77.7% ($n = 206$) were white. Patients were recruited at the New York State Psychiatric Institute (NYSPI) ($n = 164$; 61.9%) and Western Psychiatric Institute and Clinic (WPIC) ($n = 101$; 38.1%). There were significant differences in the two cities with regard to several demographic and clinical variables (see Section 3). Two hundred and ninety-five (95.6%) patients from this study were also reported in previous studies (Dervic et al., 2004; Oquendo et al., 2004, 2007; Lizardi et al., 2007). Exclusion criteria included current substance or alcohol abuse, neurological illness or other active medical conditions. All patients gave written informed consent for the study as required by the Institutional Review Board.

2.2. Measures

DSM-III-R Axis I and II psychiatric disorders were diagnosed based on the Structured Clinical Interview for DSM-III-R (SCID) I (Spitzer et al., 1990) and II (Spitzer et al., 1990) and confirmed by consensus conference led by experienced MD or PhD level clinicians. Acute psychopathology during the 2 weeks before the evaluation was assessed. Objective depressive symptoms were assessed by a research clinician who used the 17-item Hamilton Depression Rating Scale (HAM17) (Hamilton, 1960). Patients' subjective perception of depression severity was assessed by means of self-report with the Beck Depression Inventory (BDI) (Beck et al., 1961). Hopelessness was assessed with the Beck Hopelessness Scale (BHS) (Beck et al., 1974). The level of psychosocial functioning was assessed with the Global Assessment Scale (GAS) (excluding the suicide item) (Endicott et al., 1976). Lifetime aggression was measured with the Brown–Goodwin Aggression Inventory (BGAI) (Brown et al., 1979), and the Buss–Durkee Hostility Inventory (BDHI) (Buss and Durkee, 1957). Trait impulsivity was measured with the Barratt Impulsivity Scale (BIS) (Barratt, 1965). Anxiety was assessed using the anxiety item from BPRS and two anxiety items (e.g. psychic anxiety and somatic anxiety) from HAM-17. The presence and severity of psychosis were evaluated in the current episode by using the Brief Psychiatric Rating Scale (BPRS) (Overall and Gorham, 1962), the Scale for the Assessment of Positive Symptoms (SAPS) (Andreasen, 1984a) and the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1984b). Stressful life events were assessed using the St. Paul–Ramsey Scale (SPRS) (unpublished 1978 instrument of AE Lumry; available from the authors) which rates the severity of individual stressors from 1 (none) to 7 (catastrophic) in six categories ranging from marital to occupational and gives a final global measure of the stressors. The Reasons for Living Inventory (RFL) (Linehan et al., 1983) which consists of 6 subscales, Survival and Coping Beliefs (SCB), Responsibility to Family (RF), Child-related Concerns (CC), Fear of Suicide (FS), Fear of Social Disapproval (FSD) and Moral Objections to Suicide (MOS), was administered to assess possible protective factors. The Survival and Coping Beliefs (SCB) subscale consisting of 24 items which assess coping potential (i.e. “I believe I can find solution to my problems”, “I believe I can learn to adjust or cope with my problems”, “I have the courage to face a life”, “I am too stable to kill myself”) as well as positive attitudes towards the future and life, was used to assess coping strategies. The Responsibility to Family (RF) subscale consists of seven items, e.g. “My family depends upon on me and needs me”, “I love and enjoy my family too much and could not leave them”. The Children-related Concerns (CC) subscale consists of three items, e.g. “I want to watch my children as they grow”. The Fear of Suicide (FS) subscale consists of seven items, e.g. “I am afraid of “actual” act of killing myself (the pain, blood, violence)”, “I am afraid of death”. The Fear of Social Disapproval (FS) subscale consists of three items, e.g. “Other people would think I am weak and selfish”. The MOS subscale of the Reasons for Living Inventory (RFLI) was used to assess moral and religious objections to suicide. This subscale consists of four questions that reflect traditional religious beliefs: “I believe only God has right to end a life”, “My religious beliefs forbid it”, “I am afraid of going to hell” and “I consider it morally wrong”. A suicide attempt was defined as a self-destructive act with at least some intent to end one's life. Lifetime history of suicide attempts was obtained using the Columbia Suicide History Form which records the number, method, and degree of medical damage of suicide attempts (Oquendo et al., 2003).

2.3. Statistical methods

Patients with low and high MOS, divided upon the midpoint of the observed distribution (i.e., minimum observed value (4) + maximum observed value (24)/2), from two recruitment centers (NYSPI and WPIC) were compared in terms of demographic and clinical variables using χ^2 statistics for categorical variables and *t*-test statistics for continuous variables. Five logistic regressions were conducted. The first had MOS score divided at 14 as the dependent

variable, and five RFLI subscales as the independent variables. The second logistic regression had MOS as dependent variable and all significantly related demographic variables as independent variables. The third logistic regressions had MOS as dependent variable and highly correlated clinical variables as independent variables. Furthermore, the fourth logistic regression had suicide attempt as the dependent variable and MOS as the independent variable controlling for significant demographic and clinical factors as well as site effect. The fifth logistic regression was performed with MOS as the dependent variable and with MOS significantly associated demographic and clinical factors as the independent variables, while controlling for site effect.

3. Results

Two hundred and three (76.6%) of the patients had a diagnosis of major depressive disorder and 62 (23.4%) had bipolar disorder, currently depressed. 29.4% of patients were in their first Major Depression Episodes (MDE). Mean BDI score was 27.3 (± 11.5) and mean HAM-17 score 19.4 (± 5.7). There were 133 ($n = 133$; 50.2%) patients with a lifetime history of a suicide attempt. Patients had 7.4 (± 18.6) previous MDE, 2.6 (± 6.1) previous hospitalisations, and 1.4 (± 2.3) previous suicide attempts. The mean BPRS score in the sample was 36.1 (± 8.0), 65% of the sample did not report any positive symptoms on the SAPS, and SANS mean was 9.9 (± 2.6). The mean age of onset of depression was 25.3 (± 12.7) years.

One hundred and sixty-one ($n = 163$; 61.5%) patients were rated as having low moral/religious objections to suicide (MOS) (range of scores 4–13 based on the observed distribution), and 102 ($n = 102$; 38.5%) patients were rated as having high MOS (range of scores 14–24 based on the observed distribution). At the two recruitment sites (NYSPI and WPIC) patients differed on few variables. The sample at NYSPI was older, more educated, had higher personal income and fewer children. In terms of clinical variables, the sample in WPIC had significantly more self-reported depression (BDI) as well as clinician-rated depression (HAM-17), but less hopelessness (BHI), greater BPRS and SAPS score, higher scores on SCBS and higher total RFLI score (data available on request). However, the two samples did not differ on diagnoses, marital status, race, global functioning (GAS w/o suicide), undesirable life events (SPRS), SANS score, or anxiety items. Specifically, they did not differ on several variables key to the current analysis, namely high/low MOS prevalence, other RFLI subscales (RF, CC, FS, FSD) as well as number of previous MDEs, number of previous hospitalisations and number of previous suicide attempts.

3.1. Comparison of depressed patients with lower and higher moral and religious objections to suicide

Patients with lower MOS were less likely to report religious affiliation and were better educated (measured as education lower than/or high school vs. any education higher than high school), but had lower personal income compared to those with higher MOS (see Table 1). In terms of clinical variables, patients with lower MOS were more often lifetime suicide attempters, reported more self-perceived depression severity (BDI), hopelessness (BDHI) and less psychic anxiety than patients with higher MOS (see Table 2). Furthermore, patients with lower MOS perceived less total reasons for living (RFLI) measured with RFLI with excluded MOS items (137.9 [SD ± 38.8] vs. 188.3 [SD ± 41.6], $t = -10.0$, d.f. = 263, $p < .001$), and scored lower on all RFLI subscales: Survival and Coping beliefs (SCB), Responsibility to Family (RF), Child-Related Concerns (CC), Fear of Suicide (FS) and Fear of Social Disapproval (FSD) compared with patients with high MOS (see Table 2).

Logistic regressions with MOS as the independent variable and the five RFLI subscales as dependent variables indicated that only the Survival and Coping beliefs (SCB) subscale

remained significant (OR = .96, 95% CI = .94–.98, $p = .001$). Furthermore, logistic regressions with MOS as dependent variable and all significant demographic variables (i.e. religious affiliation, educational level, personal income) indicated that religious affiliation (OR = .224, 95% CI = .09–.53, $p = .001$) and educational level (OR = 1.9, 95% CI = 1.02–3.5, $p = .041$) remained significant; however, personal income did not (OR = 1.0, 95% CI = 1.0–1.0, $p = .223$). Similarly, logistic regressions with MOS as the dependent variable and highly correlated clinical variables (i.e. self-reported depression and hopelessness) as independent variables indicated that only hopelessness remained significant (OR = 1.1, 95% CI = 1.03–1.1, $p = .001$), whereas self-reported depression did not (OR = 1.0, 95% CI = .97–1.03, $p = .808$).

A final model with suicide attempt as the dependent variable and MOS as independent variable, while controlling for variables which were significantly associated with MOS (religious affiliation, educational level, hopelessness, psychic anxiety, and SCB) and site effect, revealed that only MOS and SCB remained significantly associated with suicide attempt (see Table 3). Additional logistic regression with MOS as the dependent variable and all variables on which the low and high MOS groups significantly differed as independent variables (see Tables 1 and 2), while controlling for site effect were performed. In this model, educational level, religious affiliation, and SCB remained significantly associated with MOS, whereas hopelessness and psychic anxiety did not (see Table 4).

4. Discussion

Our study showed that moral and religious objections to suicide (MOS) have a unique association with suicidal behavior. Specifically, subjects with low MOS were more likely to have a lifetime history of suicide attempt, which is consistent with previous reports that life-saving beliefs associated with religious commitment may protect against suicide (Stack, 1983; Neeleman et al., 1997; Dervic et al., 2004). Several mechanisms could be involved in the protective role of MOS against suicidal behavior. The motivation to commit suicide involves considerable ambivalence, and suicidal individuals often experience an internal struggle between wanting to live and wanting to die (Shneidman and Farberow, 1957). In fact, it has been reported that the wish to die/wish to live index has a unique ability to predict suicide even after controlling for other variables such as previous suicide attempt and major depressive disorder (Brown et al., 2005). Since the MOS subscale of RFLI reflects traditional religious beliefs (Linehan et al., 1983), religious values and optimism may be an important consideration for many individuals contemplating suicide (Linehan et al., 1983) and may serve to tip the balance towards the resolve of life (Pinto et al., 1998). Indeed, subjects with higher MOS perceived more reasons for living in all domains measured in our study. Of course, further studies with more comprehensive assessment of religiosity may further clarify the relationship between suicidality and religiosity.

Of interest, compared with MOS, self-perceived depression severity and hopelessness, considered part of a pessimism trait (Oquendo et al., 2004), did not reach statistical significance in our model. The current study is cross-sectional and we previously reported that pessimism traits predict future attempts. It is possible that there are differences in features associated with past lifetime suicidal behavior compared to actual predictors of suicidal acts in the short term. Our current finding is consistent with some previous studies that did not find a direct association between hopelessness and suicide attempt status. Rather, these studies found that the relationship is mediated by suicidal ideation. That is, suicidal ideation is influenced by level of hopelessness and suicidal ideation influences risk of suicide attempt (Valtonen et al., 2005; Sokero et al., 2003; Dieserud et al., 2001). However, it is important to note that literature in this area has been inconsistent. Many other studies have found a significant relationship between hopelessness and past suicide attempt

status (Soloff et al., 2000; Rifai et al., 1994; Fawcett et al., 1987; Beck et al., 1985). This inconsistency may be due to differences in methodologies such as characteristics of the sample: clinical vs. non-clinical samples or differing psychiatric diagnoses of subjects. Thus, the relationship between hopelessness and suicide attempt remains unclear.

In a review of studies which investigated the relationship between anxiety and religion (Shreve-Neiger and Edelstein, 2004) inconclusive results were found. This is largely due to limited assessment of anxiety and poor operationalization of religious constructs across studies. In our study, higher psychic anxiety was related to higher moral and religious objections to suicide (MOS), although there was no association with a history of suicide attempt. Some authors argue that conflicting evidence for the relationship between religion and anxiety is due to failure of the majority of the studies to differentiate and assess religion's intrinsic and extrinsic dimensions (Bergin et al., 1987). Indeed, when religion was broken into its intrinsic (e.g. prayer, level of devotion) and extrinsic (e.g. religious denomination, service attendance) components, several reports found that intrinsic religiosity is related to less anxiety, whereas extrinsic religiosity is associated with increased anxiety (Shreve-Neiger and Edelstein, 2004). To our knowledge, no studies to date have focused on the relationship between extrinsic and intrinsic religiosity and suicidal behavior.

Subjects with low MOS on average had at least some higher education. It could be that individuals with higher educational attainment feel more self-sufficient and rely more on themselves. Indeed, investigating specific dimensions of religiosity, Kendler et al. (2003) reported that higher educational level was associated with less religious tenets, in particular with regard to the judgmental and punitive aspects of religion. However, reports on the relationship between religiosity and educational level have been inconsistent. Whereas Bussing et al. (2005) found that individuals with higher educational level endorsed greater levels of conventional religious practice and unconventional spiritual practices, Albani et al. (2002) reported higher religiosity among individuals with lower education, which is consistent with our findings. Inconsistencies in the relationship between religiosity and educational level could emerge partly from different methodologies used in previous studies given that religion is a complex, multidimensional construct (Hill and Hood, 1999). It may also reflect the fact that previous studies used diverse clinical samples such as cancer patients and individuals with psychiatric disorders making them difficult to compare.

4.1. Limitations

One limitation of this study is that its measure of moral and religious objections to suicide was based upon patient report. It did not assess religious upbringing, religious practice or the level of personal devotion. Also, high/low MOS is a cross-sectional measure and we do not know its stability. Unfortunately, the prospective data does not include a measure of religious affiliation. Therefore, we are unable to determine if there is a correlation between moral/religious objections to suicide or to establish the stability of the MOS over time. Furthermore, only a patient population with mood disorders was included in the study, thus, our findings may not be generalizable to other patient groups. Additionally, patients' report on and perception of moral/religious objections to suicide could be distorted due to depression. Finally, the data is cross-sectional which makes us unable to draw conclusions in terms of prediction of suicidal behavior.

5. Conclusion

Since the inclusion of the Reasons for Living Inventory (Linehan et al., 1983) in the clinical assessment and treatment of suicidal patients has been previously suggested (Malone et al., 2000; Oquendo et al., 2004), we endorse the inclusion of the Moral Objections to Suicide (MOS) subscale in particular. Our findings suggest that MOS do have a unique association

with suicide attempt status in depressed inpatients. In clinical practice, patients with serious suicide intent frequently deny it, and this necessitates assessment procedures that supplement what the individual is willing to disclose (McAuliffe, 2002), hence the four questions of the MOS subscale could be easily and practically employed. For depressed patients who consider their religious feelings important, MOS may serve as an additional resource in the struggle against suicidality. Clearly, prospective studies are warranted to further investigate this effect.

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Table 1

Demographic Characteristics of 265 depressed patients with high and low moral or religious objections to suicide

	Patients with low MOS (<i>n</i> = 163; 61.5%)	Patients with high MOS (<i>n</i> = 102; 38.5%)	<i>t</i>-test or ² (d.f.)	<i>p</i>
	Mean ($\pm$SD)			
Age	36.3 ($\pm$ 11.8)	37.8 ($\pm$ 12.3)	-.97 (d.f. = 262)	.331
Personal income	20,703	26,199	12.2 (d.f. = 238)	<.001
	% (<i>n</i>)			
Sex (female)	61.7 (<i>n</i> = 100)	57.8 (<i>n</i> = 59)	.39 (d.f. = 1)	.530
Race (white)	80.4 (<i>n</i> = 131)	73.5 (<i>n</i> = 75)	1.6 (d.f. = 1)	.193
Educational level (more than high school)	79.5 (<i>n</i> = 128)	63.4 (<i>n</i> = 64)	8.2 (d.f. = 1)	.004
Marital status (currently married)	20.2 (<i>n</i> = 33)	30.4 (<i>n</i> = 31)	3.5 (d.f. = 1)	.060
With children	44.2 (<i>n</i> = 72)	55.9 (<i>n</i> = 57)	3.4 (d.f. = 1)	.063
With religious affiliation	73.9 (<i>n</i> = 119)	91.8 (<i>n</i> = 90)	12.5	<.001

Table 2

Clinical characteristics of 265 depressed patients with high and low moral or religious objections to suicide

	Patients with low MOS (<i>n</i> = 163; 61.5%)	Patients with high MOS (<i>n</i> = 102; 38.5%)	<i>t</i> -test or ² (d.f.)	<i>p</i>
	% or mean (±SD)			
Life-time suicide attempt	60.1 (<i>n</i> = 98)	34.3 (<i>n</i> = 35)	16.7	<.001
Self-perceived depression severity (BDI)	29.4 (±10.4) (<i>n</i> = 162)	25.2 (±12.6) (<i>n</i> = 101)	2.8 (d.f. = 181.5)	.005
Clinically rated depression (HAM-17)	19.9 (±5.4) (<i>n</i> = 163)	19.8 (±6.2) (<i>n</i> = 102)	-.74 (d.f. = 263)	.460
Hopelessness (BHI)	12.9 (±5.4) (<i>n</i> = 161)	9.7 (±5.7) (<i>n</i> = 100)	4.5 (d.f. = 259)	<.001
Impulsivity (BIS)	54.1 (±18.4) (<i>n</i> = 148)	50.5 (±17.2) (<i>n</i> = 88)	1.4 (d.f. = 234)	.137
Hostility (BDHI)	36.1 (±12.4) (<i>n</i> = 140)	35.0 (±11.2) (<i>n</i> = 83)	.65 (d.f. = 221)	.516
Trait aggression (BGAI)	18.9 (±5.8) (<i>n</i> = 157)	18.1 (±5.7) (<i>n</i> = 92)	1.0 (d.f. = 247)	.296
Adverse life-events (SPRS)	3.9 (±1.0) (<i>n</i> = 139)	3.8 (±1.2) (<i>n</i> = 82)	.31 (d.f. = 219)	.751
Global psychopathology (BPRS)	35.5 (±7.8) (<i>n</i> = 160)	37.0 (±8.2) (<i>n</i> = 101)	-1.4 (d.f. = 259)	.139
Psychosocial functioning (GAS w/o suicide)	45.7 (±10.2) (<i>n</i> = 130)	44.4 (±10.8) (<i>n</i> = 73)	.90 (d.f. = 201)	.367
Anxiety item (BPRS)	4.1 (±1.5) (<i>n</i> = 160)	4.4 (±1.5) (<i>n</i> = 101)	-1.7 (d.f. = 259)	.079
Psychic anxiety (HAM-17)	1.7 (±1.0) (<i>n</i> = 163)	2.0 (±1.2) (<i>n</i> = 102)	-2.3 (d.f. = 263)	.021
Somatic anxiety (HAM-17)	1.5 (±1.0) (<i>n</i> = 163)	1.6 (±1.0) (<i>n</i> = 102)	-1.4 (d.f. = 263)	.151
<i>Reasons for Living Inventory (RFLI) Subscales</i>				
Survival and Coping Beliefs	70.8 (±28.2) (<i>n</i> = 163)	94.5 (±26.2) (<i>n</i> = 101)	-6.7 (d.f. = 262)	<.001
Responsibility to family	25.7 (±9.6) (<i>n</i> = 163)	30.3 (±8.9) (<i>n</i> = 102)	-3.9 (d.f. = 263)	<.001
Child-related concerns	8.3 (±5.8) (<i>n</i> = 159)	11.8 (±5.6) (<i>n</i> = 97)	-4.7 (d.f. = 254)	<.001
Fear of suicide	19.8 (±8.3) (<i>n</i> = 163)	23.3 (±9.1) (<i>n</i> = 101)	-3.1 (d.f. = 262)	.002
Fear of social disapproval	6.6 (±3.7) (<i>n</i> = 163)	9.3 (±4.5) (<i>n</i> = 102)	-4.9 (d.f. = 183.4)	<.001

Table 3Logistic regression analysis with *suicide attempt* as the dependent variable

	OR	95% CI	Wald ²	<i>p</i>
Religious affiliation	.65	.33–1.3	1.4	.229
Educational level	.71	.36–1.4	.95	.329
Low moral or religious objections to suicide (low MOS = 1; high MOS = 0)	1.9	1.04–3.4	4.4	.036
Hopelessness (BHS)	.97	.91–1.04	.47	.490
Psychic anxiety (HAM-17)	1.02	.81–1.2	.04	.835
Survival and Coping Beliefs (SCB)	.97	.96–.98	13.0	<.001
Site (WPIC vs. NYSPI)	1.2	.64–2.2	.34	.560

Table 4

Logistic regression with *moral or religious objections to suicide* (low MOS = 1; high MOS = 0) as the dependent variable and significantly associated psychosocial factors as independent variables

	OR	95% CI	Wald ²	p
Religious affiliation	.28	.12–.65	8.5	<.003
Educational level	2.1	1.06–4.2	4.5	.033
Hopelessness (BHS)	1.02	.95–1.08	.37	.540
Psychic anxiety (HAM-17)	.79	.62–1.01	3.4	.065
Survival and Coping Beliefs (SCB)	.97	.96–.98	14.6	<.001
Site (WPIC vs. NYSPI)	1.5	.77–2.9	1.4	.228