

Religious Affiliation and Suicide Attempt

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Objective: Few studies have investigated the association between religion and suicide either in terms of Durkheim's social integration hypothesis or the hypothesis of the regulative benefits of religion. The relationship between religion and suicide attempts has received even less attention.

Method: Depressed inpatients (N=371) who reported belonging to one specific religion or described themselves as having no religious affiliation were compared in terms of their demographic and clinical characteristics.

Results: Religiously unaffiliated subjects had significantly more lifetime suicide attempts and more first-degree relatives who committed suicide than subjects who endorsed a religious affiliation. Unaffiliated subjects were younger, less often married, less often had children, and had less contact with family members. Furthermore, subjects with no religious affilia-

tion perceived fewer reasons for living, particularly fewer moral objections to suicide. In terms of clinical characteristics, religiously unaffiliated subjects had more lifetime impulsivity, aggression, and past substance use disorder. No differences in the level of subjective and objective depression, hopelessness, or stressful life events were found.

Conclusions: Religious affiliation is associated with less suicidal behavior in depressed inpatients. After other factors were controlled, it was found that greater moral objections to suicide and lower aggression level in religiously affiliated subjects may function as protective factors against suicide attempts. Further study about the influence of religious affiliation on aggressive behavior and how moral objections can reduce the probability of acting on suicidal thoughts may offer new therapeutic strategies in suicide prevention.

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Suicide rates are lower in religious countries than in secular ones (1, 2). Some of this difference may be due to underreporting in religious countries because of concerns over stigma (3). Yet, some of the difference may be real, although it is not known whether the negative association between religion and suicide is due to its integrative benefits (such as social cohesion, as proposed by Durkheim in 1951 [4]) or to the moral imperatives of religious belief, given its prohibitions against suicidal behavior (1, 5–7). Most previous studies have been epidemiologic and have investigated the association between completed suicide and religion. An inverse relationship between religious commitment and suicidal ideation has also been reported (5, 8–10). However, reports regarding religious affiliation and suicide attempt are sparse. Morphey (11) compared 50 suicide attempters hospitalized after self-poisoning with respect to their religious beliefs and practices. He found no significant differences in terms of Catholic versus Protestant affiliation. Similarly, Malone et al. (12) reported that religious persuasion, defined as Catholic and non-Catholic, did not differ between suicide attempters and nonattempters. Kok (13) compared suicide attempt rates in Chinese, Malay, and Indian women in Singapore and concluded that the comparatively low rate of attempted sui-

cide in Malay women was due to their religion, since Islam strictly forbids suicide.

Studies of religious commitment in general suggest a protective effect as well. In a sample of institutionalized chronically ill elderly, Nelson (14) showed that intensity of religious commitment was negatively associated with suicide gestures. In a cross-national study of 25 countries, Stack (1) concluded that protective effects were not due to any specific religious denomination per se but rather to a strong religious commitment to basic life-preserving values, beliefs, and practices that reduce rates of suicide.

Therefore, we examined factors associated with religious affiliation and nonaffiliation in depressed inpatients, generally considered to be at highest risk for a suicide attempt. We hypothesized that the religious subjects would report more moral objections to suicide as measured with the Reasons for Living Inventory (15). This instrument includes questions that reflect traditional religious beliefs: "I believe only God has the right to end a life," "My religious beliefs forbid it," "I am afraid of going to Hell," and "I consider it morally wrong." We examined the relationship between religious affiliation and social cohesion by examining the amount of time spent with relatives in religiously affiliated versus unaffiliated patients. To our knowledge, this is the first study investigating the relation-

TABLE 1. Demographic Characteristics of 371 Depressed Inpatients by Religious Affiliation Status

Characteristic	Depressed Patient Group				Analysis	
	Affiliated With a Religion (N=305)		No Religious Affiliation (N=66)		t (df=369)	p
	Mean	SD	Mean	SD		
Age	37.5	12.8	33.3	12.1	2.4	0.02
Education (years)	14.4	3.0	15.0	2.9	-1.46	0.15
Annual income (dollars)	21,157	26,139	17,568	20,579	0.975	0.33
	N	%	N	%	χ^2 (df=1)	p
Female	123	40.3	27	40.9	0.008	0.93
White	239	78.4	51	77.3	0.03	0.85
Married	85	27.9	8	12.1	6.1	0.007
With children	173	56.7	18	27.3	18.8	<0.001
Family-oriented social network ^a	197	64.5	17	25.7	22.1	<0.001

^a More time spent with first-degree relatives than with nonfamilial relationships (friends and others).

ship between religious affiliation status and suicide attempts in a clinical sample.

Method

Subjects

Inpatients (N=371) who met DSM-III-R criteria for a current major depressive episode were entered into the study. The mean age of the sample was 36.8 years (SD=12.8), 40.4% (N=150) were female, and 78.2% (N=290) were white. Subjects were recruited at the New York State Psychiatric Institute and Western Psychiatric Institute and Clinic. Exclusion criteria were current substance or alcohol abuse, neurological illness, or other active medical conditions. All subjects gave written informed consent for the study as required by the Institutional Review Board.

DSM-III-R axis I psychiatric disorders were diagnosed with the Structured Clinical Interview for DSM-III-R (16) and confirmed by a consensus conference led by experienced M.D.- or Ph.D.-level clinicians. Psychiatric symptoms were assessed with the Brief Psychiatric Rating Scale (BPRS) (17), the Global Assessment Scale (GAS) (excluding the suicide item) (18), the 17-item Hamilton Depression Rating Scale (19), the Beck Depression Inventory (20), and the Beck Hopelessness Scale (21). Lifetime aggression, hostility, and impulsivity were measured with the Brown-Goodwin Aggression Inventory (22), Buss-Durkee Hostility Inventory (23), and the Barratt Impulsivity Scale (24). Stressful life events were assessed with the St. Paul-Ramsey Scale (unpublished 1978 instrument of A.E. Lumry). The Reasons for Living Inventory (12) was administered to assess protective factors. Social network assessments were made by using the "significant others" items from our baseline demographic form, which inquire about the persons with whom subjects spend the most time and how much time they spend. We chose these items as a proxy for social network assessment, since they reflect two important characteristics as described by Lin et al. (25): frequency of contact and network composition. In order to perform logistic regressions, we dichotomized the variable "significant others" as follows: family members (spouse, mother, father, sibling, offspring, grandparent, other relatives) and non-family members (roommate, friend, fiancée, other).

Lifetime history of suicide attempts was obtained from the Columbia Suicide History Form (26). A suicide attempt was defined as a self-destructive act with at least some intent to end one's life. The highest level of suicidal ideation in the 2 weeks preceding the baseline assessment was measured by using the Scale for Suicide Ideation (27).

Statistical Methods

Pearson correlations, t tests, and chi-square analyses were used to identify correlated variables. Subjects who endorsed a religious affiliation and those who did not were compared in terms of demographic and clinical variables by using chi-square analyses for categorical variables and t tests for continuous variables. Backward stepwise regressions were conducted for the purpose of data reduction. One regression included all demographic variables that differed significantly between religiously affiliated and unaffiliated subjects as the independent variables and suicide attempt as the outcome variable. Similar analyses were conducted with the clinical variables that differed significantly between the two groups. A final model was subjected to logistic regression with suicide attempt as the outcome variable and religious affiliation as the independent variable after we controlled for moral objections to suicide and significant demographic and clinical factors selected in the data reduction regressions. A similar procedure was used for suicidal ideation, resulting in a final linear regression with suicidal ideation as the outcome variable.

In order to investigate whether moral objections to suicide mediate the relationship between suicidal behavior and religious affiliation, we used an established three-step procedure (28). First, we examined the bivariate association between religious affiliation and suicide attempt and whether the magnitude of this association was reduced when moral objections to suicide were controlled statistically. Second, we investigated whether religious affiliation was associated with moral objections to suicide. Finally, we determined whether moral objections to suicide were associated with suicide attempt after religious affiliation was controlled statistically. If all three conditions were met, it could be inferred that moral objections to suicide mediate the association between religious affiliation and suicide attempt.

Results

Two hundred ninety-five (79.5%) of the subjects had a diagnosis of major depressive disorder, and 76 (20.5%) had bipolar disorder, currently depressed. There were 189 subjects (50.9%) with a lifetime history of a suicide attempt. One hundred seventy-five (47.2%) had a history of substance use disorder. The mean clinical ratings were 20.1 (SD=6.2) on the Hamilton depression scale, 28.1 (SD=11.4) on the Beck Depression Inventory, and 36.3 (SD=8.1) on the BPRS. Among the subjects who reported a religious affiliation (N=305), the specific denominations endorsed

TABLE 2. Suicide History and Clinical Characteristics of 371 Depressed Inpatients by Religious Affiliation Status

Measure	Depressed Patient Group				Analysis	
	Affiliated With a Religion (N=305)		No Religious Affiliation (N=66)		χ^2 (df=1)	p
	N	%	N	%		
Suicide attempt in lifetime	146	48.3	43	66.2	6.8	0.009
Suicide committed by first-degree relative	7	2.3	5	7.6	4.7	0.03
History of substance abuse	133	44.0	42	63.6	8.3	0.004
	Mean	SD	Mean	SD	t (df=369)	p
Scale for Suicidal Ideation	12.9	11.0	16.0	9.7	-2.12	0.04
Beck Depression Inventory	27.7	11.5	29.5	11.0	-1.08	0.24
17-item Hamilton Depression Rating Scale	20.0	6.5	20.4	4.4	-0.545	0.59
Beck Hopelessness Scale	11.6	5.9	12.8	5.5	-1.42	0.16
Reasons for Living Inventory	160.8	47.2	139.0	41.7	3.06	0.002
Brief Psychiatric Rating Scale	36.6	8.6	34.9	5.2	1.99	0.05
Global Assessment Scale ^a	44.0	10.6	45.2	9.6	-0.73	0.47
Barratt Impulsivity Scale	51.2	17.2	57.3	17.6	-2.39	0.02
Buss-Durkee Hostility Inventory	35.7	12.4	38.9	12.4	-1.75	0.09
Brown-Goodwin Aggression Inventory	18.0	5.6	20.0	5.4	-2.57	0.02
St. Paul-Ramsey Scale	3.9	1.1	4.0	1.0	-0.23	0.82

^a Excluding the suicide item.

were Catholicism (41.0%, N=125), Protestantism (28.5%, N=87), Judaism (17.4%, N=53), and other (13.1%, N=40).

Effect of Religious Affiliation in Subjects With Depression

Subjects with no religious affiliation were more often lifetime suicide attempters, reported more suicidal ideation, and were more likely to have first-degree relatives who had committed suicide than religiously affiliated subjects.

The religiously affiliated and unaffiliated subjects did not differ in terms of gender, race, education, or income. Religiously unaffiliated subjects were younger, less often married, and less often had children. Religiously affiliated subjects reported a more family-oriented social network, reflected in more time spent with first-degree relatives. In contrast, most unaffiliated subjects (74.3%) reported more nonfamilial relationships (friends and others) (Table 1).

There were no differences between groups in the level of subjective depression (Beck Depression Inventory), objective depression (Hamilton depression scale), hopelessness (Beck Hopelessness Scale), life events (St. Paul-Ramsey Scale), or global functioning (GAS) (Table 2). Lower general psychopathology scores (BPRS) were found in the patients with no religious affiliation. Significantly higher lifetime scores for aggression (Brown-Goodwin Aggression Inventory) and impulsivity (Barratt Impulsivity Scale) but not hostility (Buss-Durkee Hostility Inventory) were found in the religiously unaffiliated group. Furthermore, a history of substance use disorder was more common in the subjects with no religious affiliation (Table 2). Subjects with no religious affiliation also reported fewer perceived reasons for living (Reasons for Living Inventory). In particular, scores on three Reasons for Living Inventory subscales: responsibility to family ($t=3.1$, $df=262$, $p=0.002$), child-related con-

cerns ($t=2.6$, $df=253$, $p=0.008$), and moral objections to suicide ($t=4.7$, $df=97.6$, $p<0.001$) were higher in the religiously affiliated group. The scores on other Reasons for Living Inventory subscales did not significantly differ between the two groups: survival and coping beliefs ($t=1.83$, $df=261$, $p<0.07$), fear of suicide ($t=0.83$, $df=261$, $p<0.41$), and fear of social disapproval ($t=0.24$, $df=97$, $p<0.81$).

Relationship Between Religious Affiliation and Suicide Attempts

A backward stepwise logistic regression showed that age (odds ratio=0.97, 95% confidence interval [CI]=0.95 to 0.99; Wald $\chi^2=7.84$, $p=0.005$), but not marital status, parental status, or time spent with family, was significantly associated with suicide attempt status. With regard to clinical variables, only lifetime aggression (odds ratio=1.09, 95% CI=1.03 to 1.14; Wald $\chi^2=9.83$, $p=0.002$) and responsibility to family (odds ratio=0.93, 95% CI=0.91 to 0.97; Wald $\chi^2=17.99$, $p<0.001$) were significantly associated with suicide attempt status, whereas history of past substance use, lifetime impulsivity, general acute psychopathology as rated by the BPRS, and child-related concerns were not.

On the basis of these two data reduction regressions, a final model was tested with suicide attempt status as the outcome variable and age, aggression, responsibility to family, religious affiliation, and moral objections to suicide as the independent variables. Backward stepwise logistic regressions showed that low moral objections to suicide, high lifetime aggression levels, and less feeling of responsibility to family were significantly associated with suicide attempt, whereas religious affiliation per se and age were not (Table 3). Although the odds ratio for aggression and moral objections to suicide were low (1.09 and 0.90 respectively), the score ranges for these variables indicate a meaningful effect on risk for suicide attempt.

TABLE 3. Logistic Regression Analysis of Variables Associated With Suicide Attempt^a

Item	Association With Suicide Attempt		Analysis	
	Odds Ratio	95% CI	Wald χ^2	p
Age ^b	0.97	0.95 to 1.00	3.62	0.056
Religious affiliation	0.89	0.43 to 1.86	0.09	0.76
Aggression ^b	1.09	1.04 to 1.16	10.58	0.001
Responsibility to family ^b	0.96	0.94 to 0.99	4.13	0.04
Moral objections to suicide	0.90	0.87 to 0.95	16.41	<0.001

^a In the final model, suicide attempt was the outcome variable and religious affiliation the independent variable; moral objections and significant demographic and clinical variables were controlled.

^b Variable that significantly differed between patients with versus without religious affiliation.

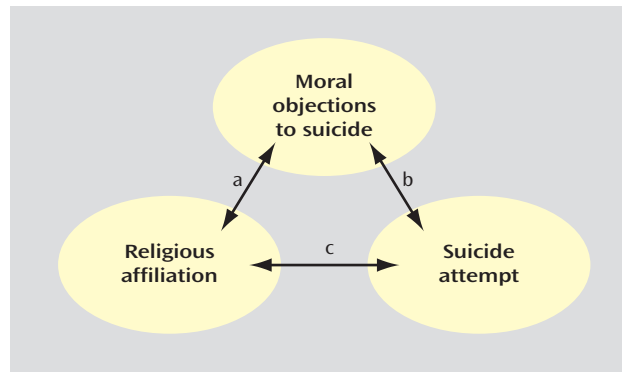
Of note, there was no significant correlation between moral objections to suicide and aggression level ($r=-0.08$, $df=249$, $p<0.18$). Also, when entered in a logistic backward conditional regression model with suicide attempt as a dependent variable, both variables remained significant and independent (moral objections to suicide: odds ratio=0.89, 95% CI=0.85 to 0.93 [[test statistic]=[value], $p<0.001$]; aggression: odds ratio=1.1, 95% CI=1.06 to 1.1 [[test statistic]=[value], $p<0.001$]).

Moral objections to suicide mediated the association between religious affiliation and suicide attempt as all three stipulated conditions were met (28). First, religious affiliation was significantly associated with moral objections to suicide. Second, moral objections to suicide were significantly associated with suicide attempt when religious affiliation was statistically controlled. Third, the significant bivariate association between religious affiliation and suicide attempt did not remain significant when moral objections to suicide were controlled statistically (Figure 1).

Relationship Between Religious Affiliation and Suicidal Ideation

Linear stepwise regressions with suicidal ideation as the dependent variable showed that of the demographic variables, age was significant ($\beta=-0.182$, $t=-2.9$, $p=0.003$), whereas marital status, parental status, and social network were not. Of the clinical variables, linear stepwise regression analysis showed that aggression ($\beta=0.218$, $t=3.6$, $p<0.001$) and responsibility to family ($\beta=-0.23$, $t=-3.7$, $p<0.001$) were significant, whereas history of past substance abuse, BPRS score, impulsivity, and child-related concerns were not significant. The final model with suicidal ideation as the outcome variable and age, aggression, responsibility to family, religious affiliation, and moral objections to suicide as the independent variables revealed that high aggression scores, low moral objections to suicide, and younger age were significantly and independently associated with suicidal ideation. Religious affiliation and responsibility to family were not (Table 4).

FIGURE 1. Moral Objections to Suicide as Mediator of Religious Affiliation



^a Significant association between religious affiliation and moral objections to suicide (odds ratio=1.11, 95% CI=1.05 to 1.18; Wald $\chi^2=14.07$, $p<0.001$).

^b Significant association between moral objections to suicide and suicide attempt when religious affiliation was statistically controlled (adjusted odds ratio=0.90, 95% CI=0.87 to 0.94; Wald $\chi^2=22.72$, $p<0.001$).

^c Significant bivariate association between religious affiliation and suicide attempt that did not remain significant when moral objections to suicide were controlled statistically (adjusted odds ratio=1.3, 95% CI=0.71 to 2.6; Wald $\chi^2=0.90$, $p<0.34$).

Discussion

Kendler et al. (29) noted that religiosity is a prominent and complex aspect of human culture relatively neglected in comprehensive biopsychosocial models of psychopathology. Indeed, religious commitment to a few core life-saving beliefs may protect against suicide (1, 7, 30).

The main finding of this study was that religiously affiliated subjects were less likely to have a history of suicide attempts, the best predictor of future suicide or attempts (31). Moreover, greater moral objections to suicide that may represent traditional religious beliefs mediated the protective effect of religious affiliation against suicidal behavior in a clinical sample of depressed patients. Individuals with a religious affiliation also reported less suicidal ideation at the time of evaluation, despite comparable severity of depression, number of adverse life events, and severity of hopelessness. Of note, suicidal ideation, a risk factor for suicidal acts, has been found to be inversely related to religion (5, 8–10). Therefore, religion may provide a positive force that counteracts suicidal ideation in the face of depression, hopelessness, and stressful events.

Previous studies have not established an association between specific religious denomination (i.e., Catholic versus Protestant) and suicidal behavior. Our findings suggest that assessment of presence or absence of religious affiliation, regardless of denomination, may be more useful. Rather, lack of affiliation may be a risk factor for suicidal acts.

Suicidal behavior is related to aggressive and impulsive traits (30), and anger predicts future suicidal behavior in adolescent boys (32). Religiosity has been reported to be

associated with lower hostility, less anger, and less aggressiveness (33, 34), which is consistent with our findings. Of note, aggression and moral objections to suicide were independently associated with suicidal behavior in this sample. Therefore, religious affiliation may affect suicidal behavior both by lowering aggression levels and independently through moral objections to suicide. Of interest is the fact that Boomsma et al. (35) found that in a twin sample, receiving a religious upbringing reduced the influence of genetic factors on disinhibition.

The relationship between religious affiliation and aggression in our study of depressed inpatients suggests therapeutic interventions for the prevention of deliberate self-harm. The potential for prevention by using therapeutic interventions aimed toward aggressive behaviors is strongly supported by reports that anger reduction leads to decreased parasuicidal behavior after dialectical behavioral therapy (36). Thus, supporting religious beliefs that patients find useful in coping with stress (33) and which may also reduce anger could be a useful tool in a therapeutic process that targets suicide prevention. Furthermore, patients who are wavering about their religious affiliation could receive support for their own ambivalently held beliefs and more specifically for their moral objections to suicide.

Religious commitment promotes social ties and reduces alienation (33). We found weaker family ties in religiously unaffiliated subjects, and family members are reported to be more likely to provide reliable emotional support, nurturance, and reassurance of worth (37). Our finding is consistent with reports about less dense social networks among atheists (38), although whether distancing from one's family facilitates disaffiliation from the family's religion or vice versa is not known.

The greatest protective effect of religion on suicide is reported to be present in subjects who have relatives and friends of the same religion (38). Although in our study social network was not independently related to suicidal behavior, stronger feelings of responsibility to family were found in religiously affiliated subjects, who were also more often parents and married. Responsibility to family was inversely related to acting on suicidal thoughts. Most religions stress the importance and value of family. Thus, consistent with previous reports (5, 6, 30), a commitment to a set of personal religious beliefs appears to be a more important factor against suicidal behavior than social cohesiveness per se. As noted by Pescosolido and Georgianna (38), religion's role in suicidal behavior, operating through a social network mechanism, seems to be more complex than Durkheim's social cohesion theory would suggest.

A tendency toward increased religiosity in older age (39) is consistent with the fact that the religious subjects in our study were older than nonreligious subjects (40). In our clinical sample, age was related to suicidal ideation but not to suicide attempt status.

TABLE 4. Linear Regression Analysis of Variables Associated With Suicidal Ideation^a

Item	β	t	p
Age ^b	-0.152	-2.4	0.02
Religious affiliation	0.016	0.260	0.80
Aggression ^b	0.208	3.3	0.001
Responsibility to family ^b	-0.099	-1.5	0.14
Moral objections/religious beliefs	-0.197	-3.2	0.001

^a In the final model, suicidal ideation was the outcome variable and religious affiliation the independent variable; moral objections and significant demographic and clinical variables were controlled.

^b Variable that significantly differed between patients with versus without religious affiliation.

Although it is not known whether there is causality involved in the association between suicide attempt and lack of religious affiliation, Kendler et al. (29) have argued that, in general, the effect of religious commitment on personal (mal)adjustment is stronger than the reverse. As Neeleman and Persaud (41) stated, psychiatric practice might be improved if an understanding of the role of religious beliefs in mental health and adaptation were integrated into research and practice. Yet, a recent survey of Canadian psychiatrists (42) showed that they did not assign importance to prayer above medication and psychotherapy in the case of suicidality, although they recognized its usefulness for other mental health difficulties. Indeed, psychiatrists are also reported to be less religious than the general population (43, 44), yet support of the patient's spirituality has been deemed an ethical imperative, reflecting a physician's commitment to the patient's best interest (45).

This study has some limitations. For example, it did not assess religious upbringing, religious practice, or the level of personal devotion. Therefore, it is possible that depressed patients who stated that they were atheists or had no religion had abandoned religion as a consequence of depression or hopelessness. It is notable that hopelessness and depression scores were similar in the religious and nonreligious group but that the two groups differed strongly on perceived reasons for living. This suggests that some positive aspect of religious affiliation overcame the negative effects of depression, stressful life events, and hopelessness. Perhaps this was also manifested in the presence of less suicidal ideation.

Our study showed a relationship between religious affiliation status and suicide attempts in a clinical sample of depressed inpatients. It seems that the constellation of religious beliefs and lower aggression level, together with a higher threshold for suicidal thoughts in religiously affiliated depressed subjects, reduces risk for suicidal acts. Given the insufficient attention to patients' religious attitudes by psychiatrists in general, support for the patient's own religious affiliation could be an additional resource in psychiatric and psychotherapeutic treatments targeting suicidal acts.

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