Religiosity Buffers Effects of Some Stressors on Depression but Exacerbates Others

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Although religiosity is protective for mortality and morbidity, its relationship with depression is unclear. We used the 1994 Alameda County Study survey of 2,537 subjects aged 50–102 to analyze associations between two forms of religiosity and depression as well as the extent to which religiosity buffers relationships between stressors and depression. Non-organizational religiosity included prayer and importance of religious and spiritual beliefs; organizational religiosity included attendance at services and other activities. Non-organizational religiosity had no association with depression; organizational religiosity had a negative relationship that weakened slightly with the addition of health controls. Both forms of religiosity buffered associations with depression for non-family stressors, such as financial and health problems. However, non-organizational religiosity exacerbated associations with depression for child problems, and organizational religiosity exacerbated associations with depression for marital problems, abuse, and caregiving. Religiosity may help those experiencing non-family stressors, but may worsen matters for those facing family crises.

RELIGIOUS involvement, often measured in terms of affiliation or frequent attendance at religious services, has been shown to be related to lower overall mortality and lower cause-specific mortality rates for arteriosclerotic heart disease, suicide, cirrhosis of the liver, and emphysema (Comstock & Partridge, 1972; Durkheim, 1951; Dwyer, Clarke, & Miller, 1990; House, Robbins, & Metzner, 1982; Kark et al., 1996; Levin & Vanderpool, 1987; Strawbridge, Cohen, Shema, & Kaplan, 1997; Zuckerman, Kasl, & Ostfeld, 1984). Being active in religious organizations has been associated with lower overall mortality and cancer-specific mortality (Gardner & Lyon, 1982; Seeman, Kaplan, Knudsen, Cohen, & Guralnik, 1987). More frequent religious attendance has been associated with lower blood pressure, less subsequent disability, and better perceived health (Graham et al., 1978; Idler & Kasl, 1992; Levin & Markides, 1986). Part of the explanation for this protective effect is that frequent attenders of religious services improve their health behaviors and increase their social contacts more over time than do less frequent attenders (Strawbridge et al., 1997). Such consistency has resulted in one call for physicians to reinforce religious involvement of their patients in the same way as for exercising and quitting smoking (Oxman, Freeman, & Manheimer, 1995).

The association of religious involvement with mental health has not proven as straightforward. Although generally consistent results have been reported between religious involvement and life satisfaction (Coke, 1992; Ho et al., 1995; Hadaway & Roof, 1978; Levin, Chatters, & Taylor, 1995), inconsistent results have been reported for associations between religious involvement and depression. Several studies have reported associations between various aspects of religious involvement and reduced levels of depression (Nelson, 1990; Pressman, Lyons, Larson, & Strain, 1990). In contrast, Williams and colleagues (1991) found no direct relationship between frequency of religious attendance and depressive symptoms; similar negative findings were reported by Krause (1992). Ellison (1995) found an association between frequency of religious attendance and depression for Whites but not for Blacks. Levin and colleagues (1996) found no relationship between religious involvement and depression for older Mexican Americans, while Idler (1994) reported a gender difference in which religious involvement was associated with lower rates of depression for women but not for men. Koenig and colleagues (1995) found an association between more frequent use of religious coping and cognitive symptoms of depression but not somatic symptoms of depression. McGaw and Wright (1979) have theorized that some religious denominations might even increase stress and depression in their members by making excessive demands on resources, such as time and financial contributions. Religious precepts could also increase psychological stress when they are at odds with prevailing societal values (Levin & Vanderpool, 1987).

Regardless of whether religious involvement has an independent effect on mental health, it does appear to be an important coping mechanism in times of stress for older persons. Koenig et al. (1988) reported the importance of faith and trust in God as a coping behavior for older adults. Others have reported on the importance of religious organizational support and prayer in times of stress (Idler, 1995; Neighbors, Jackson, Bowman, & Gurin, 1982). Religion may provide a rationale for traumatic events in one's life that would otherwise appear to be random and uncontrollable (Dull & Skokan, 1995).

Given the importance of religious involvement as a cop-

ing mechanism in the presence of stressors, it is possible that religious involvement buffers the impact of stressors on depression (Idler, 1995). In other words, persons with high levels of religious involvement experiencing a stressor may have less elevated rates of depression than do those with less involvement experiencing the same stressor. This approach involves a life-stress paradigm in which negative aspects of exposure to stressors are modified by social/psychological and institutional factors, such as religious involvement (Pearlin, 1989).

The few studies using the life-stress paradigm have reported inconsistent results. Williams and colleagues (1991) used two stress scales involving 16 health problems and 28 life events to assess the buffering effects of higher religious attendance on moods of depression and anxiety and reported significant buffering effects. In contrast, Krause and Van Tran (1989) found no buffering effect in an analysis involving a 10-item stressor scale. Siegel and Kuykendall (1990) examined only one stressor (death of a close family member) and found buffering effects for men but not for women. Shams and Jackson (1993) limited their analyses to male British Asian Muslims and reported significant buffering effects of religiosity for unemployment on psychological well-being. Ellison (1993) reported that religious involvement buffered effects of illness and physical unattractiveness (but not other types of stressors) on self-esteem for Blacks.

Such inconsistency could result from religiosity having a mixed effect depending on the specific stressor involved. Ellison (1994) has theorized that whereas religious involvement may result in reduced exposure to some stressors, it could actually increase the likelihood of depression when certain stressors do occur, especially those involving family and work relationships, because of the emphasis placed on harmony in these areas by most religious groups. Similar cautions have been voiced by others (Pargament, Van Haitsma, & Ensing, 1995). There is also more general evidence that otherwise supportive kinship and friendship networks are not necessarily supportive when certain stressors occur (Morgan, 1989; Pagel, Erdly, & Becker, 1987; Strawbridge & Wallhagen, 1991).

Thus religious involvement might buffer or exacerbate the impact of stressors on depression depending on the type of stressors involved; further, the distinction may occur between family and non-family stressors. Combining individual stressors in a single scale could mask such individual aspects and might explain the inconsistent results reported so far.

To this point the rationales presented here have principally involved organizational religiosity. Based on earlier work by Mindel and Vaughan (1978), there has been a growing interest in measuring aspects of non-organizational religiosity that include practices, beliefs, and meaning outside an organized religious emphasis (McFadden, 1996). Although few studies of non-organizational religiosity have involved health consequences, there does seem to be some evidence that such non-organizational measures tap a different dimension from the organizational measures (Chatters, Levin, & Taylor, 1992; Levin, 1996). It thus would be useful to compare associations with depression and buffer-

ing/exacerbating consequences of both organizational religiosity and non-organizational religiosity.

The research reported here analyzes three aspects of religiosity, stressors, and depression. Associations between two measures of religiosity (non-organizational and organizational) and depression are examined with and without adjustments for physical health to determine whether any observed relationship could be confounded by physical health. The associations between the stressors and religiosity are analyzed to determine to what extent religiosity is associated with higher or lower prevalences of stressors. Finally, the effects of religiosity on relationships between two types of stressors (non-family and family) and depression are examined to determine if such effects vary by the type of stressor involved.

METHODS

The Alameda County Study

Analyses are based on the 1994 follow-up of respondents from the Alameda County Study, a longitudinal study of health and mortality that has followed 6,928 persons selected in 1965 to represent the adult noninstitutionalized population of Alameda County, California. Original design and sampling procedures for this data set have been reported elsewhere (Berkman & Breslow, 1983). Subjects who move or become disabled are not dropped. Follow-up interviews were conducted in 1974, 1983 (50% sample), 1994, and 1995. Response rates have ranged from 85% to 97%; the response rate for the 1994 follow-up was 93% and included 2,730 subjects. Between 1965 and 1994 there were 804 subjects who could not be located for follow-up interviews and 1,394 who either refused or who could not be interviewed for other reasons. Cumulative loss to follow-up between 1965 and 1994 was therefore 31.7%. Deaths accounted for the remaining 2,000 subjects.

Subjects

Eligible subjects from the 1994 follow-up were the 2,655 who were age 50 or older; 118 (4.4%) with missing data on analysis variables were excluded. Of the 2,537 remaining, 1,104 (43.5%) were men and 1,433 (56.5%) women. Blacks numbered 214 (8.4%), Asian Americans 87 (3.4%), and Hispanics 49 (1.9%). Mean age was 65.1 years (range 50–102). As noted elsewhere, older subjects in the Alameda County Study resemble the older population of the United States on demographic variables with two exceptions: a higher proportion have 12 years of education or more, and a higher proportion are married (Strawbridge, Kaplan, Comacho, & Cohen, 1992).

For religious affiliation, 51.6% of subjects were Protestant, 25.7% Catholic, 3.9% Jewish, 3.7% other, and 15.1% none. For attendance at religious services, 25.2% attended weekly or more, 13.4% attended monthly, 25.5% once or twice a year, and 35.9% never attended services. These figures indicate lower levels of attendance at services and higher levels of those indicating no religious preference than reported in other studies of older persons in the United States (Branch et al., 1986; Levin, Taylor, & Chatters, 1994; Miles, George, & Wallsten, 1990.)

Religiosity

Religiosity was assessed with five variables. The first three dealt with frequency of activities: how often respondents went to religious services, how often they took part in other activities besides services at a place of worship, and how often they prayed. There were four response categories, ranging from 0 (never) to 3 (every week or more). The other two asked about importance of religious or spiritual beliefs as a source of meaning in respondents' lives and importance of religious or spiritual beliefs for what they did every day. Scores for these last two items were 0 (not at all important), 1 (a little important), 2 (fairly important), and 3 (very important).

Analyses by Mindel and Vaughan (1978) and Krause and Van Tran (1989) indicated that variables similar to the ones we used fall into two components: organizational and non-organizational religiosity. Prayer is placed with other non-organizational items because it is frequently utilized by persons outside an organizational setting (Krause & Van Tran, 1989). We tested these two components with a confirmatory factor analysis of the five measures using varimax rotation. Results are shown in Table 1 and confirm the two-factor solution. We therefore combined the two items of frequency of attendance and frequency of other activities at a place of worship to form an organizational religiosity scale and combined the other three items to form a non-organizational religiosity scale.

Scores were summed. The resulting organizational religiosity scale had a range of 0 to 6, with higher scores indicating greater organizational religiosity. Internal consistency for this two-item scale was 0.80 (standardized Cronbach's alpha). The resulting non-organizational scale had a range from 0 to 9, with higher scores indicating greater non-organizational religiosity. Internal consistency for the three items was 0.92 (standardized Cronbach's alpha).

Depression

For assessing depression we used the first two items from the DSM-III-R major depressive episodes scale (American Psychiatric Association, 1987): depressed mood ("feeling sad, blue or depressed" and anhedonia ("loss of interest or

Table 1. A Confirmatory Factor Model of Religiosity

Item	Organizational Religiosity	Non-organizational Religiosity
1. How often do you go to religious services?	.798	.418
2. Besides religious services, how often do you take part in other activities at a place of worship?	.928	.160
3. How often do you pray?	.250	.924
4. How important are your religious or spiritual beliefs for what you do every day?	.248	.915
5. How important are your religious or spiritual beliefs as a source of meaning in your life?	.271	.834

pleasure in most things"). Specific wording was adapted from the PRIME-MD mood disorders section (Spitzer, Williams, Kroenke, & Linzer, 1994). Respondents were asked whether they experienced these symptoms "nearly every day" during the past 2 weeks. Those who answered "yes" to either question were classified as experiencing depression; 427 did so, for a prevalence of 16.8%. The full DSM-III-R scale of 12 symptoms is designed to measure major depressive episodes, but the low prevalence of such episodes lacks sufficient power for use with interaction terms and the sample size we had. To meet diagnostic criteria for major depression, subjects must have one or both of the symptoms we selected before such a diagnosis can be considered (American Psychiatric Association, 1987). Other researchers have classified subjects as experiencing subsyndromal depression or minor depression based on various combinations of one or two symptoms from the full scale and demonstrated that such classifications have validity for assessing social dysfunction and disability (Judd, Rapaport, Paulus, & Brown, 1994; Liebowitz, 1993; Tannock & Katona, 1995). Although which specific symptoms to include remains in doubt, the two we selected will include all of those clinically depressed as well as those experiencing more minor levels of depression.

Stressors

Only stressors significantly related to depression in models adjusting for age, gender, ethnicity, education, and marital status were used. These were divided into non-family and family stressors.

Non-family stressors included those in the areas of finance, neighborhood, and physical health. *Financial problems* was scored positive if respondents reported not having enough money in the past month to buy food or not having enough money in the past year to buy clothing, fill a prescription, see a doctor, or pay rent/mortgage payments. Respondents saying that two or more of the following items were somewhat or very serious problems in their neighborhoods were classified as experiencing *neighborhood problems*: crime, traffic, excessive noise, trash and litter, lighting at night, or availability of public transportation. *Poor health* was measured by self-reporting health as fair or poor versus good or excellent. *Chronic illness* was measured by reported prevalence of one or more of the following conditions in the last 12 months versus none: diabetes, stroke, transitory ischemic attacks, bronchitis, emphysema, asthma, or osteoporosis. *Disability* was scored positive for those reporting a lot of difficulty or inability to do without help any of seven activities of daily living (bathing, eating, dressing, grooming, using the toilet, walking across a room, or transferring from bed to chair).

Family stressors included abuse, marital problems, caregiving, and experiencing trouble with children. *Abuse* was classified positive if respondents reported being physically abused in the past 12 months (hit, slapped, pushed, shoved, punched, or threatened with harm by a family member or close friend) or verbally abused in the past 12 months (being made fun of, severely criticized, or told that they were a stupid or worthless person). Respondents were classified as having *marital problems* if they reported often

having problems getting along with their spouses. *Caregiving* was classified positive for respondents who reported helping take care of a spouse, parent, parent-in-law, or grandchild who also lived with them. Respondents who reported relationship problems with any of their children were classified as having *child problems*.

Two non-family and family scales were calculated by simply adding the number of positive scores for the relevant stressors.

Adjustment Variables

Ethnicity was classified as Black versus non-Black. Marital status was classified as married versus all other categories. Education was split at 12 years or more versus less. Age was measured in whole years. Gender was female versus male.

Analysis Strategies

Associations between religiosity (using the two continuous scales as dependent variables) and age, gender, ethnicity, marital status, and education were assessed with two multiple regression models, entering all demographic variables simultaneously as independent variables. Similar separate models involving each of the nine stressors were used to estimate associations between each stressor and each religiosity scale. Subjects with no living children were omitted from the models involving problems with children, and subjects not currently married were omitted from the models involving marital problems.

Logistic regression was used to examine the associations of non-organizational and organizational religiosity with depression. For these models, depression was used as the dependent variable. Adjustments included age, gender, ethnicity, education, and (except for models analyzing marital problems) marital status.

Finally, logistic regression was used to assess the buffering or exacerbating impacts of religiosity on the prevalence of depression associated with each of the nine stressors and with the two sets of stressors combined in additive scales. Depression was used as the dependent variable. Individual models included as independent variables the individual stressor, the religiosity scale, and the interaction term between the stressor and the religiosity scale on depression. Adjustment variables were the same as in the previous analyses. Beta coefficients for the interaction terms were examined for buffering or exacerbating effects.

Standard .05 levels were used for statistical significance for all analyses except for those involving interactions. Given the lower power associated with the use of interaction terms, a higher significance level than .05 may be appropriate for assessing the likelihood that interaction is present (Greenland, 1989). We therefore used a .10 level for assessing statistical significance for the buffering/ exacerbating models. In order to present indications of effect size for the interactions, we used the fitted models to estimate odds ratios associated with depression at the high and low ends of the two religiosity scales for each of the indicated stressors. All statistical analyses were performed with the use of SAS software version 6.09 (SAS, 1993).

RESULTS

Scale Distributions and Association of the Two Religiosity Scales with Each Other

The mean of the 9-point non-organizational religiosity scale was 6.03 with a standard deviation of 3.21. Mean of the 6-point organizational scale was 2.04 with a standard deviation of 1.97. About a third of the respondents scored "0" on the organizational religiosity scale, meaning that they neither attended religious services nor took part in other activities at a place of worship. Conversely, 183 of the 2,537 respondents (7%) scored "6," meaning that they both attended services and took part in activities at a place of worship once a week or more. The majority of respondents were in between these two extreme scores.

The non-organizational religiosity scale had a different distribution. Just under 40% scored the highest possible score ("9"), meaning that they prayed weekly or more and reported that their religious or spiritual beliefs were both very important as a source of meaning in their lives and for what they did every day. Only 12% scored the lowest possible score of "0," meaning that they never prayed and answered "not at all important" to both of the questions on religious or spiritual beliefs. The remaining 49% scored in between these two extremes.

The two scales were only modestly correlated at 0.47. Nearly everyone (168 of 183, or 92%) at the highest organizational religiosity score scored at the highest level on the non-organizational religiosity scale, but only 17% (168 of 981) of those scoring at the highest level on the non-organizational religiosity scale also scored at the highest level on the organizational religiosity scale.

Demographic Associations

Associations between the demographic variables and the two religiosity scales are presented in Table 2. All the variables were entered together in a multiple regression model with the scales as dependent variables; each individual coefficient is thus adjusted for all of the other variables. These coefficients represent the difference in the mean score on the respective religiosity scale associated with the indicated

Table 2. Associations of Demographic Variables with Religiosity Scales

		Coefficients for Association with:[*]	
Variable	Comparison	Non-organizational Religiosity	Organizational Religiosity
Age	10 years older age	0.30***	0.13***
Gender	Female versus male	1.59***	0.37***
Ethnicity	Black versus all others	2.25***	1.46***
Marital status	Married versus all others	0.18	0.27**
Education	12 years or more versus less	−0.45**	0.21†

†$p < .10$; **$p \le .01$; ***$p \le .001$.
[*]Multiple regression was used to estimate association of demographic variables with religiosity measures. Coefficients indicate the difference in the mean score on the religiosity scale associated with the indicated comparison. All variables were entered together.

comparison for the demographic variables. For example, females scored an average of 1.59 points higher than males on the non-organizational religiosity scale and 0.37 points higher on the organizational religiosity scale. Blacks scored considerably higher than other ethnic/racial groups on both scales.

Stressor Prevalence and Associations with Religiosity

The prevalence of each stressor in the study and its associations with the two religiosity scales are presented in Table 3. Stressor prevalence varied from 3.7% for disability to 19.4% for one or more chronic conditions. The regression coefficients are all adjusted for the demographic variables from Table 2. These data address the question of whether persons experiencing individual stressors report higher or lower levels of religiosity compared with those not experiencing the same stressor. In this table the stressors are used as dependent variables. Higher prevalences of financial problems and caregiving as well as lower prevalence of marital problems were associated with higher levels of organizational religiosity. Higher prevalences of fair or poor health, chronic illness, and disability were all associated with lower levels of organizational religiosity.

Associations Between Religiosity Scales and Depression

In order to examine the association between religiosity and depression, depression was regressed on each of the two scales while controlling for age, gender, ethnicity, marital status, and education. There was no association between non-organizational religiosity and depression (beta coefficient = −.01, $p \leq .71$), but there was a negative association between organizational religiosity and depression (beta coefficient = −.07, $p \leq .01$). In other words, higher levels of organizational religiosity were associated with lower prevalences of depression. To test for possible confounding by physical health, an additional logistic regression model was run adding adjustments for perceived

health, chronic illness, and disability. With these additional variables in the model, the association between organizational religiosity and depression weakened slightly (beta coefficient = −.06, $p \leq .06$).

Buffering/Exacerbating Results

The extent to which the two religiosity measures buffer or exacerbate the associations between each stressor and depression is shown in Table 4. Depression is the dependent variable for all models in this table. Calculations for the interaction terms are based on entering the stressor under consideration, the appropriate religiosity scale, and the interaction term (stressor multiplied by the indicated scale) in the same model. Betas for the interaction tests based on the full scales are presented; if the sign is negative, the interaction is in the buffering direction, whereas a positive sign indicates an exacerbating effect. For illustrative purposes and to give an indication of effect size, the adjusted odds ratios presented in the table compare the prevalence of depression with and without the indicated stressor for those at the lowest and highest scores for each religiosity scale.

As Table 4 indicates, non-organizational religiosity buffered the relationship between financial problems and depression. The effect size can be estimated by comparing the adjusted odds ratios for the prevalence of depression for those experiencing financial problems compared with those not experiencing financial problems at the low and high ends of the non-organizational religiosity scale—in this case experiencing financial problems was associated with nearly a sixfold increase in the prevalence of depression at the low end of the non-organizational religiosity scale compared with less than a twofold increase for those at the high end of the scale. Non-organizational religiosity also buffered the impact of fair or poor health on depression. No buffering or exacerbating effects of non-organizational religiosity were shown for the other three non-family stressors, but there was a buffering effect for the non-family stressor scale.

Table 3. Stressor Prevalence and Associations with Religiosity Scales

Stressor	N	Prevalence	Associations with Religiosity Scales[a] (Beta Coefficients)	
			Non-organizational	Organizational
Non-family stressors				
Financial problems	2,537	17.1%	0.87***	0.13
Neighborhood problems	2,537	14.9%	0.17	0.03
Fair or poor health	2,537	18.1%	0.06	−0.20†
Chronic illness	2,537	19.4%	−0.09	−0.23*
Disability	2,537	3.7%	−0.41	−0.44*
Family stressors				
Abuse	2,537	10.1%	−0.11	−0.00
Marital problems[b]	1,832	5.0%	−0.68*	−0.15
Caregiving	2,537	5.4%	0.63*	0.20
Child problems[c]	2,263	17.1%	0.13	0.02

†$p < .10$; *$p \leq .05$; ***$p \leq .001$.
[a]Models use multiple regression to estimate associations between individual stressors and each of the two religiosity scales. Coefficients indicate the difference in the mean score on the specified religiosity scale associated with the presence of the indicated stressor. Stressors are used as independent variables. All models include age, gender, ethnicity, education, and (except for marital problems model) marital status.
[b]Subjects not currently married are omitted from this model.
[c]Subjects without living children are omitted from this model.

Table 4. Buffering/Exacerbating Results for Effects of Non-organizational and Organizational Religiosity on Associations Between Stressors and Depression

Stressor	Non-organizational Religiosity Scale			Organizational Religiosity Scale		
	Full-Scale Interaction Test Beta Coefficients[a]	Estimated Adjusted Depression Odds Ratio[b] at		Full-Scale Interaction Test Beta Coefficients[a]	Estimated Adjusted Depression Odds Ratio[b] at	
		Lowest Score	Highest Score		Lowest Score	Highest Score
Non-family stressors						
Financial problems	−0.13**	5.84	1.80	−0.15*	3.24	1.35
Neighborhood problems	−0.03	1.88	1.51	−0.12†	2.03	0.99
Fair or poor health	−0.07†	6.49	3.53	−0.15*	5.56	2.31
Chronic illness	−0.04	2.08	1.52	−0.16*	2.19	0.83
Disability	−0.09	5.51	2.51	−0.20†	4.34	1.34
Non-family stressor scale	−0.04**	NA	NA	−0.09**	NA	NA
Family stressors						
Abuse	−0.01	3.46	3.18	+0.15*	2.44	6.09
Marital problems	+0.09	3.21	7.33	+0.20†	3.55	11.72
Caregiving	+0.01	1.39	1.59	+0.21*	0.94	3.37
Child problems	+0.09*	1.37	3.09	+0.08	2.02	3.35
Family stressor scale	+0.03	NA	NA	+0.09*	NA	NA

†$p < .10$; *$p < .05$; **$p < .01$.

[a]Models use logistic regression to estimate interaction coefficients. A negative sign indicates a buffering effect, whereas a positive sign indicates an exacerbating effect. Models include age, gender, ethnicity, education, stressor, stressor by scale interaction term, and (except for models involving marital problems) marital status.

[b]Based on the same models used to estimate interaction coefficients. Models estimate odds ratios for the prevalence of depression for those with the indicated stressor compared with those without the stressor at low (0) and high (9 for non-organizational religiosity scale, 6 for organizational religiosity scale) scale values. Comparing the two odds ratios provides an indication of effect size.

Examining the family stressors reveals that non-organizational religiosity exacerbated the impact of child problems on depression and appeared to exacerbate the effect of marital problems. In the latter case the difference between the odds ratios for highest and lowest scale values was quite large (7.33 vs 3.21) but the p value associated with the interaction term was only .17; the failure of such a large difference to attain statistical significance is probably the result of the low prevalence of marital problems.

Organizational religiosity buffered the associations between all of the non-family stressors (financial problems, neighborhood problems, fair or poor health, disability, and chronic illness) and depression. Exacerbating effects were indicated for three of the family stressors (abuse, marital problems, and caregiving). Similar buffering and exacerbating effects were obtained when the non-family and family stressor scales were used.

DISCUSSION

The observed associations of older age, female gender, and Black ethnicity with non-organizational religiosity and organizational religiosity are consistent with findings from national research regarding religious involvement (Levin et al., 1994; McFadden, 1995). The only variable differentially associated with the two forms of religiosity was education: although education had a statistically marginal positive association with organizational religiosity, it was negatively associated with non-organizational religiosity. Reasons for this difference are unclear.

Religious attendance and affiliation levels among Alameda County Study subjects are somewhat below comparable national figures, but it is difficult to assess how such differences

might affect the cross-sectional, comparative analyses involving risk estimates for depression reported here unless Alameda County Study attenders and nonattenders are somehow fundamentally different from attenders and nonattenders in other areas of the county. As noted above, attendance is associated in these analyses with the same variables as reported in other studies. The higher levels of education and proportion of subjects married in the older Alameda cohort probably reflect the relatively strong California school system existing prior to the start of the study in 1965 and a higher differential loss to follow-up of unmarried subjects.

We found only selected relationships between the prevalence of stressors and religiosity. Experiencing financial problems was associated with higher levels of non-organizational religiosity, as were caregiving and absence of marital problems. Poor health was associated with lower levels of organizational religiosity: as Williams (1994) has noted, it is difficult to be active in a religious organization when one is in poor health. These findings are also consistent with Ellison's (1994) contention that more conservative lifestyles and shared values mean that religious persons will experience fewer health and marital problems.

Adjusting for physical health had little impact on the protective association between organizational religiosity and depression, although the observed relationship was not a particularly strong one. However, we found no association between non-organizational religiosity and depression. Taken together these results question those who argue that lack of religiosity should be considered a risk factor for poor mental health in general (Levin at al., 1996; Reyes-Ortiz, Ayele, & Mulligan, 1996). Because religiosity may be associated with some forms of mental health (particu-

larly life satisfaction) but not necessarily others, it would be prudent to specify the particular form of mental health under consideration when making associative claims.

Our finding that religiosity buffers or exacerbates the effects of stressors on depression depending on the type of stressor helps explain the inconsistent results reported in two studies using stressor scales in examining religiosity and stress in terms of a life-stress paradigm. The study that reported a buffering effect for religiosity had no family stressors in the health problems scale and only three family stressors among the 28 items in the life events scale (Williams et al., 1991). The study that showed no buffering effect had a stressor scale where 30% of the items were family stressors (Krause & Van Tran, 1989). Shams and Jackson (1993) found a buffering effect with a single non-family stressor (unemployment). Utilizing individual stressors for such analyses in place of stressor scales appears to be the prudent course.

Our finding that religiosity buffered associations between non-family stressors and depression is consistent with the rationales presented in the introduction that religion can help in times of stress by providing a larger meaning for seemingly random events and support in dealing with problems such as financial difficulties and illness. Such stressors are frequent and are also rarely seen as the fault of the person experiencing them. Many religious groups have mechanisms in place precisely to help members cope with such difficulties.

What may need more explaining is why religiosity would exacerbate the effect of family stressors on depression. As noted earlier, Ellison (1994) provided a clue by arguing that stressors that raise conflicts with the values emphasized by religious organizations may be especially problematic for members to confront. To the extent that family cohesiveness is valued and expected, conflict within the family may be both surprising when it occurs and additionally stressful to resolve. Faced with unruly children, difficult marriages, or problems caring for an older parent, religious persons may feel more at fault themselves, both because problems in these areas are not perceived as likely to happen to them and because the advice they receive from clergy and fellow congregation members may involve acquiescence over more active conflict resolution. They may even feel stigmatized by other members for experiencing problems in an area that is supposed to be harmonious. In some religious groups, family problems may be seen as an indication that the member is somehow failing in his or her relationship with God. Caregiving is a case in point. Conflict with other family members for those providing care to dependent parents is common and associated with increased stress (Strawbridge & Wallhagen, 1991), yet many religious groups stress such family-provided care for older relatives over institutionalization.

The rationales just provided for the exacerbating results fit organizational religiosity more than non-organizational religiosity. Interestingly enough, while we found that organizational religiosity both buffered or exacerbated associations between more stressors and depression than did non-organizational religiosity, the results for the two forms of religiosity were nearly always in the same direction. However, we also found that measures of organizational religios-

ity and non-organizational religiosity were only modestly correlated. Further research is needed to clarify to what extent non-organizational religiosity measures tap a unique dimension of religiosity compared with the more widely used organizational involvement measures. What is obvious in our data is that there is a group of persons who never take part in organized religion yet who also express the importance of religious or spiritual values for their lives.

We were able to assess buffering/exacerbating associations with depression for nine stressors. Further research is needed to ascertain the impact of religiosity on associations with depression for other stressors, such as death of a spouse, death of a child, job-related problems, legal difficulties, mental illness, and relocation to assisted-living facilities or nursing homes. It is also likely that variations exist among various religious groups and among different ethnic groups and ages on the buffering/exacerbating issue. Particularly interesting would be an examination of gender differences, because the argument we made for organized religion's stress on compliance versus conflict resolution as a possible source of added stress for those facing family problems might apply more to women than to men.

All of the analyses reported here are based on cross-sectional associations. The depression items, the non-organizational religiosity questions, and the question on frequency of participation in organized religious activities other than attendance were not asked in previous waves of the Alameda County Study. It is thus impossible to know the chronological patterns for stressors, depression, and religiosity. Future waves of data using these same measures are necessary to assess questions of causal order.

In summary, we found no association between non-organizational religiosity and depression but a negative relationship between organizational religiosity and depression even when physical health was taken into account. We found evidence that non-organizational and organizational religiosity have some overlap but also may tap different dimensions of religiosity. Finally, we found evidence that both forms of religiosity buffer or exacerbate associations between stressors and depression, depending on the type of stressor involved. For non-family stressors, religiosity appears to buffer associations with depression, whereas for family stressors it appears to exacerbate associations with depression. Clearly, the relationships between religiosity and mental health are complex. As an antidote for depression though, religiosity should be prescribed with great care; it might make the patient better, but it also just might make things worse.

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