



## God, Love, and Health: Findings from a Clinical Study

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# GOD, LOVE, AND HEALTH: FINDINGS FROM A CLINICAL STUDY

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*This study identifies a significant health effect of a loving relationship with God. Based on work by Sorokin, an eight-item scale was developed and validated to assess what he termed "religious love:" the feeling of loving and being loved by God. Using a sample of 205 family practice outpatients, hierarchical OLS regression was used to investigate the effect of this construct on a standard self-rating of health. Several sets of factors were hypothesized to mediate the relationship between religious love and self-rated health: religious involvement, social resources, psychological resources, objective health status, and sociodemographic factors. These effects were controlled for in six successive models. In the end, despite controlling for effects of 15 variables and scales that accounted for nearly 40% of the variance in self-rated health, the statistically significant association between religious love and self-rated health at baseline ( $\beta = .33, p < .001$ ) remained strong, significant, and only marginally affected ( $\beta = .24, p < .05$ ). These findings provide evidence that loving and being loved by God exerts a positive influence on perceptions of health.*

Research on religious factors in health and well-being has grown considerably throughout the past decade. A sign of this growth is the differentiation of work in this area into several vibrant fields of study. These include investigations of mental health and clinical psychiatric outcomes (see Gartner, Larson, and Allen 1991); empirical research by social scientists on topics in religious gerontology (see Krause 1997); and population studies of health indicators and rates of illness in a field that has come to be known as the "epidemiology of religion" (Levin and Vanderpool 1987). Yet despite the proliferation of research in this area, there is a troubling sameness to most investigations.

Throughout the many hundreds of published studies that constitute the broader religion and health field, there has been an overreliance upon measures of religious affiliation and public religious behavior, and considerably less attention to more subjective, intrinsic, interior, or experiential domains of human spiritual life. This is so widely recognized that calls for researchers to move beyond these simple measures of religiousness to consider more personal markers of spirituality or experience of the divine or transcendent are almost *de rigueur* in the various literature reviews and government and foundation reports that have summarized this work (Futterman and Koenig 1995; Levin 1997; Larson, Swyers, and McCullough 1998; Fetzer Institute 1999). Yet despite this near unanimity of

opinion by experts in this field, few studies have ever attempted to delve into the health consequences of features of the inner religious life of people.

The ultimate indicator of one's spirituality is the status of one's connection or relationship with God or the divine or transcendent. On this point, religious scholars are in agreement. Indeed, this more or less defines spirituality. Just how exactly this can be operationalized for social or epidemiologic research is a much trickier matter. A few studies, however, have attempted to assess the "vertical relationship" and then examine its impact on health or well-being.

Researchers from Penn State examined the effect of beliefs about God among 1,400 middle-aged Pennsylvanians (Willits and Crider 1988). Five questions assessed belief in God and that "God knows our every thought and movement," "God controls everything that happens everywhere," religion is "better than logic for solving life's important problems," and to "build a good society" people need "divine or supernatural help." A high score signified "belief in God as a controlling, caring force," and strongly predicted overall life satisfaction, in both sexes.

Another interesting study, conducted at UCLA using nationally representative data from the NORC General Social Survey, took things one step further (Pollner 1989). Rather than ask people to affirm belief in God, they were asked who God *is*. Respondents were asked, "When you think about God, how likely are each of these images to come to your mind?" There were 12, grouped into three scales: ruler (including master, king, and judge); relation (lover, mother, father, spouse, and friend); and remedy (redeemer, creator, liberator, and healer). Perceptions of God as a remedy — as a being or force that releases people from or resolves problems of living — were most strongly associated with a higher level of life satisfaction, a composite measure which included assessment of satisfaction with one's health and physical condition. By contrast, perceptions of God as a ruler — through metaphors of hierarchy — were least associated with both life satisfaction and global happiness.

More recently, a study from the University of Michigan, using North American data from the World Values Survey, extended research in this area well beyond investigation of the effects of beliefs in or about God (Krause 1993). Respondents were asked to affirm statements characterizing humans' relationship to God and to each other, operationalized as ten items endorsing all of the first and second tablets, respectively, of the Ten Commandments. These constructs did not exert direct effects on the study outcome, a measure of life satisfaction, but they did contribute to the total effects captured by a sophisticated multifactorial model that also included measures of organizational and subjective religiosity and belief in the devil.

These studies share a focus on the belief dimension of religion — belief in God, beliefs about God, beliefs affirming a scriptural relationship with God. They clearly allow a glimpse of something fundamentally more internal or personal than do studies of church membership or attendance. Still, the emotional or experiential aspects of a human-God relationship are left unapproached by questions of belief. Tapping this domain would require asking respondents to describe the nature of their relationship with God — for example, whether they love God or feel loved by God. An instrument assessing such a construct would contribute nicely not just to the epidemiology of religion, but to empiri-

cal social and behavioral science, in general, where the concept of love has been long neglected, as have the other human virtues.

### **Religious Love and Health Status**

The psychological study of love has existed as a small field only since about the middle 1970s. It has produced several distinct mid-range theoretical perspectives, and a similar number of scales and indices (see Sternberg and Barnes 1988). Nearly all of these, however, have implicitly defined love in terms of romantic, marital, and/or sexual relations (see Levin 2000). By contrast, the great sociologist, Pitirim Sorokin (1950, 1954), took an entirely different approach to love. In a body of work covering a decade of articles, books, symposia, and edited volumes, Sorokin developed a complex, multidimensional theoretical model of love encompassing a variety of features and components. The romantic part of love was only one of many domains of Sorokin's overall view of love, which also included something he called "religious love." By this, Sorokin meant giving love to God or the absolute and receiving it in return. This construct thus implies a two-way loving interaction between a human and God.

In his writing on this topic, Sorokin (1954) asserted more than once that his conception of love had likely implications for health. He even resorted to epidemiologic language to describe the effects of love: it is "contagious" (Sorokin 1954, p. 58); it is an "energy" that can be "accumulated or stored" (p. 45), as in a reservoir; it can be "released" and "distributed," just as an agent is transmitted; and it exhibits a "curative power" (p. 61). Sorokin meant this literally, in relation to "physical and mental disorders" (Sorokin 1954, p. 61). The implications of Sorokin's views on love for epidemiologic research are provocative and are explored in depth elsewhere (Levin 2000).

The possibility that loving and being loved by God may be of health significance is an exciting idea to consider. Investigating the health effects of this construct — what Sorokin termed religious love — would serve to open up the vertical relationship for exploration by researchers seeking to understand linkages between religion and health. It would also provide an opportunity to further examine the "why question" — the identification of those characteristics, functions, expressions, and manifestations of being religious and practicing religion that are health-related (Levin 1996b) — or, in other words, "mechanisms" of effect. The possibility of a significant connection between religious love and health, moreover, also raises new why questions of its own. Foremost among these is the identification of those factors that mediate and account for an apparent association between health status and love of God.

Investigation of the health impact of a loving relationship with God also provides an opportunity to examine empirically the presumptions of classical and contemporary religious skeptics within psychiatry and psychology. Figures such as Ellis (1988) and Freud (1962, 1964) have been vitriolic in their denunciation of belief in, faith in, and love of God not just as deleterious for emotional well-being but as actual markers of psychopathology and behavioral disorder. Despite a lack of empirical support for these extreme views (see Levin, Chatters, Ellison, and Taylor 1996; Koenig 1998), this perspective still holds sway among many clinicians (see Peck 1993). Much of the counter evidence from research on religious factors in health and well-being derives, as noted earlier, from studies of public

religious participation. Without more direct consideration of the inner life of religious believers, such as a perceived relationship with God or the sacred, as in this study, the reality of the skeptical viewpoint cannot be adequately addressed.

### **Hypothesized Mediating Factors**

The present study seeks (a) to explore the association between experiencing a loving relationship with God and global self-ratings of health, and (b) to identify potential mediating factors in the association between religious love and health. This is achieved through a strategy of hypothesis-driven hierarchical analyses. In attempting to understand how and why loving and being loved by God might impact on self-rated health (whether positively or negatively), five distinct hypotheses are proposed. Three of these hypotheses are based upon respective psychosocial mechanisms currently known or believed to represent mediators or connecting links between the principal independent and dependent constructs.

**Hypothesis 1: Religious Involvement.** A positive association between religious love and self-rated health can be explained by the health effects of religious involvement. Several dimensions of religious involvement have been repeatedly shown through cross-sectional and longitudinal studies to exert an influence on indicators of physical and mental health (Levin et al. 1996). These include formal or organizational religious participation (e.g., religious service attendance), informal or nonorganizational religious participation (e.g., private prayer), and subjective assessments of religiousness (e.g., self-rated religiosity). Findings linking measures of these constructs to health and well-being are by now a staple of research in medical sociology, social gerontology, health psychology, and social epidemiology (see Larson et al. 1998). Specifically, it is hypothesized that potential health effects of religious love are due to its being an antecedent or correlate of high levels of religious involvement.

**Hypothesis 2: Social Resources.** A positive association between religious love and self-rated health is due to the presence of socially supportive resources provided by religion. The tangible and emotional supports provided by friends and family members are widely known to be associated with positive health and well-being outcomes. These range from indicators of mental health, such as depression, to self-ratings of physical health status and even rates of longevity (House, Landis, and Umberson 1988). The presence of socially supportive resources, in turn, is a sequela or function of the sorts of active religious involvements (Ellison 1994; Ellison and George 1994) that are likely correlates or outcomes of religious love (as in Hypothesis 1, above). Specifically, it is hypothesized that potential health effects of religious love are due to the mediating effects of satisfactory support from family and friends.

**Hypothesis 3: Psychological Resources.** A positive association between religious love and self-rated health is due to high levels of certain salutary personal psychological traits that themselves are reflective of a strong relationship with God. Psychological resources such as self-esteem and mastery (i.e., personal efficacy) have been shown to have religious determinants (Krause and Tran 1989; Watson, Hood, and Morris 1985), and are themselves believed to be protective factors against physical and emotional distress (Lin and Ensel 1989; Mirowsky and Ross 1986). Specifically, it is hypothesized that potential

health effects of religious love are due to its engendering of salutary levels of these psychological resources.

**Hypothesis 4: Objective Health Status.** An inverse association between religious love and self-rated health can be explained by the commonly made observation that reports of greater religiousness may in part reflect poorer health according to more objectively assessed and validated physical health status measures. In other words, chronically ill, functionally disabled, or highly symptomatic individuals may tend to reach out to God and religion as a response to their physical condition (Tobin 1991). A statistically significant inverse association between affected religious measures and self-ratings of health thus may be an artifact of the former serving as a proxy or marker for physical pathology (Levin 1989). Specifically, it is hypothesized that potential health effects of religious love are due to its elevation in the face of physical illness.

**Hypothesis 5: Sociodemographic Factors.** A positive association between religious love and self-rated health is a function of shared social-class and sociodemographic correlates of health status and religiousness. Social, behavioral, and epidemiologic research on religion, health, and the relationship between them repeatedly has identified a fairly common set of determinants or correlates, including age, race and ethnicity, gender, marital status, and educational attainment (Taylor 1988; Williams 1990). While the magnitude and directionality of effects differs according to the religious and health constructs under study, these variables consistently have manifested statistically significant associations throughout this literature. Specifically, it is hypothesized that potential health effects of religious love are due to the effects of a common set of antecedent sociodemographic factors.

## METHODS

### *The Sample and Data Collection*

The present study utilizes data collected as part of a clinical pilot study of love and health. The principal objectives of the original study were to develop a multidimensional instrument to assess the concept of love as described by sociologist Pitirim Sorokin and to investigate its relationship with indicators of physical health and psychological well-being. A longer-term goal was to encourage development of the “epidemiology of love” (Levin 2000) as a new area of research. The study was conducted in the Tidewater area of Virginia, in 1997-98, and consisted of several stages. These included a review of prior theoretical and empirical work, meeting with project consultants, developing an item pool, creating a measurement instrument, pretesting the instrument, identifying a systematically delineated sampling frame, and implementing a survey.

The study sample was gathered through distribution of a self-administered survey instrument to a sample recruited from the outpatient population of an academic medical-center-based family practice clinic. The sample was limited to primary care patients (excluding children and excluding patients presenting with acute illnesses which would interfere with survey completion), and the sampling frame comprised patients invited to participate over a period of approximately one academic year. Because the project represented a preliminary psychometric validation study for a measurement instrument intended for use with similar populations, this nonprobability but systematically drawn sample

of respondents was of a type considered satisfactory for these purposes (see Bailey 1982). The final sample size was 205 respondents.

Surveys were distributed by a research assistant who approached potential respondents with study information and an IRB-approved consent form and questionnaire packet. The research assistant underscored the anonymity of responses, and answered any questions that arose. Administration of the survey was conducted with implied consent. Upon completion, respondents placed their completed survey in a sealed envelope and dropped it in a box on the intake registration table in the clinic waiting room. The survey was completed by most respondents in about 15-20 minutes, while waiting for their appointment. No names or any other forms of personal identification appeared anywhere on the survey; thus all responses are completely anonymous.

The average age of respondents was 37.8 years, about 90% of the sample was evenly split between Caucasians and African Americans, three-quarters of respondents were female, just under half were married and living together, respondents averaged 1.7 children and a year of post-high-school education, three-quarters were currently employed, gross annual household income averaged about \$25,000, about two thirds of respondents grew up in an urban area, and over 80% currently resided in a city. Respondents were somewhat less formally religious than national norms, but exhibited normal levels of private religiousness. Nearly half prayed at least once a day, about a third read the Bible at least weekly, a little over half of the respondents reported being fairly or very religious, while considerably more defined themselves as fairly or very spiritual. Three-quarters of respondents described themselves as fairly or very close to God, and nearly a quarter stated that their religious faith was the most important part of their life. Data on health and psychological well-being described a relatively healthy and well-adjusted sample. Nearly three-quarters of respondents stated that they were in good or excellent health, only 8% reported worrying about their health a lot, only about a sixth of the sample reported being physically limited in activities most of or all the time, and the current prevalence of self-reported diagnoses of chronic diseases was minimal.

## *Measures*

In the present study, analyses were based on a set of items created to tap what Sorokin (1950, 1954) termed “religious love.” Questions assessing religious love were among a pool of 72 items developed in conjunction with the study consultant through a careful reading of Sorokin’s written descriptions of what he meant by love. Through pretesting, these were reduced to 67 items. These items were written to coincide, as closely as possible, with the exact words and phrases used in Sorokin’s descriptions of the seven “aspects” (i.e., dimensions) of love: religious, ethical, ontological, physical, biological, psychological, and social. For each of these dimensions, items were written to cover each of what Sorokin termed the five “dimensions” (i.e., characteristics) of love: intensity, extensity, duration, purity, and adequacy. Each item consisted of a brief statement, coded on a five-point Likert index (1 = strongly disagree, 2 = disagree, 3 = undecided or no opinion, 4 = agree, 5 = strongly agree). The resulting multidimensional instrument, validation work still ongoing, has been named the Sorokin Multidimensional Inventory of Love Experience, or SMILE.

Psychometric analyses of SMILE subscales provide strong confirmation of reliable measures for most of the hypothesized dimensions of love. Results of reliability analyses using the CORR procedure and ALPHA option in SAS 6.12 identify an extremely high internal consistency reliability score especially for the multi-item measure of *religious love* ( $\alpha$ -reliability = .96), this study's principal independent construct. This unidimensional measure comprises eight items (total scale range: 8-40), each of which has a factor loading of at least .85 (calculated using principal components analysis with the FACTOR procedure in SAS 6.12): "I love God," "God loves all living beings," "I feel loved by God (or a higher power)," "When I experience God's love, I feel perfect contentment," "God's love never fails," "God's love helps me feel part of something bigger than myself," "God always helps me when I help myself," and, "God's love is eternal."

All other variables and scales used in the present study were operationalized based on existing and validated measurement instruments or standard single-item questions. Sociodemographic and health-related items were modeled after similar items in large-scale social and health surveys, such as the NORC General Social Survey or the NCHS Health Interview Survey.

The principal dependent variable, *self-rated health*, was assessed in the standard way ("In general, how would you rate your overall health?"; coded: 1 = poor, 2 = fair, 3 = good, 4 = excellent). Other health-related variables were used as covariates, and include *activity limitation* ("In general, about how much of the time does bad health, sickness, or pain stop you from doing the things you would like to be doing?"; coded: 1 = never or almost never, 2 = once in awhile, 3 = most of the time, 4 = all the time), *current prevalence of chronic disease* (self-report of a list of 11 physician-diagnosed health problems: arthritis or rheumatism, ulcers, cancer, high blood pressure, diabetes, emphysema, kidney disease, stroke, cirrhosis of the liver, hepatitis, heart condition; coded: 1 = yes, 0 = no [total scale range: 0-11]), and the *enervation* subscale of the General Well-Being Scale (Levin 1994). The latter measure, which assesses lack of physical energy, consisted of a combination of three items ( $\alpha$ -reliability in this sample = .70): "Have you been waking up fresh and rested?" (coded: 1 = every day, 2 = most every day, 3 = fairly often, 4 = less than half the time, 5 = rarely, 6 = none of the time); "Have you felt tired, worn out, used-up, or exhausted?" (coded: 1 = all of the time, 2 = most of the time, 3 = a good bit of the time, 4 = some of the time, 5 = a little of the time, 6 = none of the time); and, "How much energy, pep, vitality have you felt?" (coded on an 11-point ladder scale from 0 [no energy at all, listless] to 10 [very energetic, dynamic]). This scale was recoded so that all three items were equally weighted and high scores represented greater enervation (total scale range: 3-18).

Religious items were derived from major datasets used by the principal investigator in his NIH-funded research program on religious factors in health (see, e.g., Levin and Chatters 1998). These included *religious attendance* ("How often do you attend religious services?"; coded: 1 = never, 2 = about once per year, 3 = several times per year, 4 = about once per month, 5 = 2-3 times per month, 6 = once a week, 7 = more than once a week), *prayer* ("About how often do you pray?"; 1 = never, 2 = less than once per month, 3 = about 2-3 times per month, 4 = about once per week, 5 = several times per week, 6 = once a day, 7 = more than once a day), and *self-rated religiosity* ("How religious would you say

you are?” coded; 1 = not religious at all, 2 = not too religious, 3 = fairly religious, 4 = very religious).

Psychosocial and sociodemographic constructs were assessed in accepted ways through popular scales or standard items. *Self-esteem* was measured by the 10-item short version of the Rosenberg scale, using a 4-point Likert agreement metric ( $\alpha$ -reliability in this sample = .86; total scale range: 10-40) (Rosenberg 1965). *Mastery* was measured by the 7-item Pearlin scale, using an identical metric ( $\alpha$ -reliability in this sample = .75; total scale range: 7-28) (Pearlin, Menaghan, Lieberman, and Mullan 1981). *Social support* was measured by the two-dimensional APGAR scale, which assesses frequency of satisfaction with support from family and friends through respective 5-item scales with three response categories ( $\alpha$ -reliabilities in this sample = .90 [family] and .91 [friends]; total scale ranges: 5-15) (Smilkstein, Ashworth, and Monantano 1982). Other variables included *age* (in years), *race/ethnicity* (1 = African American or Black, 2 = White or Caucasian, 3 = Hispanic or Latino, 4 = Asian or Asian American, 5 = other; recoded to 1 = Caucasian, 0 = non-Caucasian), *gender* (1 = female, 0 = male), *marital status* (1 = never married, 2 = married, 3 = separated, 4 = divorced, 5 = widowed; recoded to 1 = married and living together, 0 = non-married), and *education* (years of schooling).

### **Data Analysis**

This study uses a strategy of hierarchical OLS regression to examine the association between religious love and self-rated health net of the effects of the several sets of hypothesized mediating factors identified earlier in the description of study hypotheses. Model I represents the baseline bivariate relationship between the two constructs. Each successive model introduces respective covariates in order to test a particular hypothesis. Model II controls for effects of three measures of religious involvement (a test of Hypothesis 1), Model III adds controls for effects of two scales assessing social resources (a test of Hypothesis 2), Model IV adds controls for effects of two scales of psychological resources (a test of Hypothesis 3), Model V adds controls for effects of three measures of objective health status (a test of Hypothesis 4), and Model VI adds controls for effects of five sociodemographic variables (a test of Hypothesis 5).

All analyses are conducted using the PC version of SAS 6.12. Descriptive statistics are calculated using the UNIVARIATE procedure, bivariate correlations are calculated using the CORR procedure, and hierarchical regression analyses are conducted using the REG procedure.

## **FINDINGS**

In Table 1, descriptive statistics and bivariate correlations are shown for the principal study constructs, religious love and self-rated health, as well as the study covariates. Statistically significant correlates of religious love include religious attendance ( $r = .34, p < .001$ ), prayer ( $r = .59, p < .001$ ), and self-rated religiosity ( $r = .46, p < .001$ ); self-esteem ( $r = .30, p < .001$ ) and mastery ( $r = .19, p < .05$ ); and activity limitation ( $r = -.21, p < .01$ ). In addition, while not reported in the table, other significant correlates of religious love among constructs included in the overall dataset, but not used in the present study, include

**TABLE 1**  
**Descriptive Statistics and Bivariate Correlations\* of Study Variables**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Religious Love																	
2 Self-Rated Health	29 <sup>c</sup>																
3 Religious Attendance	34 <sup>c</sup>	13															
4 Prayer	59 <sup>c</sup>	13	53 <sup>c</sup>														
5 Self-Rated Religiosity	46 <sup>c</sup>	10	52 <sup>c</sup>	56 <sup>c</sup>													
6 Family Support	14	31 <sup>c</sup>	04	06	10												
7 Friends Support	15	26 <sup>c</sup>	05	06	01	40 <sup>c</sup>											
8 Self-Esteem	30 <sup>c</sup>	36 <sup>c</sup>	16 <sup>a</sup>	14	13	36 <sup>c</sup>	42 <sup>c</sup>										
9 Mastery	19 <sup>a</sup>	15 <sup>a</sup>	08	-02	-04	26 <sup>c</sup>	25 <sup>b</sup>	64 <sup>c</sup>									
10 Activity Limitation	-21 <sup>b</sup>	-49 <sup>c</sup>	-05	-05	-01	-32 <sup>c</sup>	-19 <sup>a</sup>	-43 <sup>c</sup>	-27 <sup>c</sup>								
11 Chronic Disease	14	02	08	00	07	-16	-04	-17	-05	02							
12 Enervation	03	-23 <sup>b</sup>	-21 <sup>b</sup>	02	01	-16 <sup>c</sup>	-15 <sup>a</sup>	-25 <sup>c</sup>	-29 <sup>c</sup>	-14	21 <sup>a</sup>						
13 Age	05	-05	10	20 <sup>b</sup>	22 <sup>b</sup>	08	-08	01	-02	-04	12	-02					
14 Caucasian	-13	05	-31 <sup>c</sup>	-21 <sup>b</sup>	-15 <sup>a</sup>	10	25 <sup>c</sup>	03	01	-03	-05	07	11				
15 Female	-01	01	13	08	02	05	26 <sup>c</sup>	04	-07	-04	08	03	-13	05			
16 Married	10	07	-03	07	13	15 <sup>a</sup>	-06	-02	-01	-09	16	-02	26 <sup>c</sup>	08	-10		
17 Education	-10	15 <sup>a</sup>	-03	-07	-11	13	13	05	10	-05	-08	00	02	15 <sup>a</sup>	-02	08	
Mean	33.0	2.84	3.64	4.71	2.51	11.4	11.7	32.0	21.7	1.92	0.72	9.46	37.8	0.46	0.79	0.45	13.3
sd	8.68	0.73	2.03	2.06	0.87	3.12	3.03	6.04	3.77	0.79	2.11	2.82	12.6	0.50	0.41	0.50	2.42

Note: Decimal points were deleted in order to simplify the presentation of findings in this table.

a=p < .05 (2-tailed); b=p < .01; c=p < .001.

**TABLE 2**  
**Results of Hierarchical OLS Regression of Self-Rated Health on Religious Love**

Variable	Model I			Model II			Model III			Model V			Model IV			Model VI		
	b	se	$\beta$	b	se	$\beta$	b	se	$\beta$	b	se	$\beta$	b	se	$\beta$	b	se	$\beta$
Religious Love	.03	.01	.33 <sup>c</sup>	.03	.01	.37 <sup>c</sup>	.03	.01	.28 <sup>b</sup>	.03	.01	.28 <sup>b</sup>	.03	.01	.28 <sup>b</sup>	.02	.01	.24 <sup>a</sup>
Religious Attendance				.08	.04	.21 <sup>a</sup>	.07	.04	.20 <sup>a</sup>	.07	.04	.19	.06	.03	.17	.07	.03	.20 <sup>a</sup>
Prayer				-.04	.04	-.12	-.03	.04	-.07	-.04	.04	-.10	-.03	.04	-.08	-.02	.04	-.04
Self-Rated Religiosity				-.08	.10	-.08	-.06	.09	-.06	-.10	.09	-.10	-.06	.09	-.06	-.03	.09	-.03
Family Support							.08	.02	.33 <sup>c</sup>	.08	.02	.34 <sup>c</sup>	.05	.02	.19 <sup>a</sup>	.03	.02	.14
Friends Support							.02	.02	.07	.00	.02	.02	.02	.02	.08	.03	.02	.12
Self-Esteem							.03	.01	.28 <sup>a</sup>	.03	.01	.28 <sup>a</sup>	.01	.01	.08	.01	.01	.09
Mastery							-.05	.02	-.25 <sup>a</sup>	-.05	.02	-.25 <sup>a</sup>	-.05	.02	-.26 <sup>a</sup>	-.05	.02	-.27 <sup>b</sup>
Activity Limitation													-.30	.08	-.34 <sup>c</sup>	-.32	.08	-.35 <sup>c</sup>
Chronic Disease													-.08	.06	-.09	-.08	.07	-.10
Enervation													-.05	.02	-.21 <sup>b</sup>	-.05	.02	-.19 <sup>a</sup>
Age																-.00	.01	-.03
Caucasian																.11	.12	.08
Female																-.26	.15	-.14
Married																.15	.12	.10
Education																.03	.03	.09
R <sup>2</sup>		.11			.14			.28		.32				.45				

Key: b = unstandardized regression coefficient; se = standard error;  $\beta$  = standardized regression coefficient.

a =  $p < .05$  (2-tailed); b =  $p < .01$ ; c =  $p < .001$ .

several measures of religious attitudes and behaviors ( $r$ 's = .31 to .68,  $p < .01$ )<sup>1</sup> and the depressed affect subscale of the General Well-Being Scale ( $r = -.24$ ,  $p < .01$ ).

In Table 2, results are shown for the hierarchical OLS regression of self-rated health onto religious love. Model I contains "gross" findings from the baseline bivariate regression. The standardized regression coefficient representing the structural effect of religious love on self-rated health was strong and statistically significant ( $\beta = .33$ ,  $p < .001$ ). Each subsequent model introduces controls for effects of variables or scales pertaining to respective hypotheses positing mediating factors between religious love and health. In each of these successive models, variables are added that prove important in explaining the variance of self-rated health ( $R^2$  increases from .11 to .49). Nevertheless, despite these comprehensive controls, religious love maintains a moderately strong and statistically significant association with self-rated health.

Models II through VI contain "net" findings from multivariable regression analyses. Model II controls for effects of religiousness; the effects of religious love remain strong and statistically significant ( $\beta = .37$ ,  $p < .001$ ). Model III adds controls for effects of family and friends support, with similar results ( $\beta = .28$ ,  $p < .01$ ). Model IV adds controls for effects of self-esteem and mastery, again with similar results ( $\beta = .28$ ,  $p < .01$ ).<sup>2</sup> Model V adds controls for objective measures of physical health status; once again, strong and significant effects of religious love remain ( $\beta = .28$ ,  $p < .01$ ). Finally, Model VI adds controls for effects of five sociodemographic variables. The effect size of religious love is reduced slightly, but still remains strong and statistically significant ( $\beta = .24$ ,  $p < .05$ ).<sup>3</sup>

## DISCUSSION

To summarize, these findings point to a strong, statistically significant association between a loving relationship with God and positive self-ratings of health. Moreover, this association withstands controlling for the effects of several hypothesized mediating factors, including multiple dimensions of religious involvement, satisfaction with social support, self-esteem and mastery, objective measures of physical health status, and several sociodemographic variables. These covariates taken together (15 scales or variables in all) accounted for nearly 40% of the variance in self-rated health, yet reduced the structural effect of religious love on self-rated health only marginally (from  $\beta = .33$ ,  $p < .001$ , to  $\beta = .24$ ,  $p < .05$ ).

It bears emphasizing that because the effects of "hard" or objective measures of physical health status were controlled for in these analyses, these results imply an association between religious love and *perceptions* of health, not health status proper. A statistically significant effect is identified on self-rated health net of respondents' level of disability, their current prevalence of chronic disease, and their extent of enervation, or lack of physical energy. Notwithstanding their "actual" health, those respondents who most strongly affirm that they love God and that God loves them experience their health in more positive terms. Something about experiencing a loving relationship with God is apparently capable of influencing how one's health is perceived, and for the better. What might this be?

Differences in what people mean or are referring to when they offer global self-ratings of health have been identified in prior research (Strain 1993; Krause and Jay 1994;

Lawton and Lawrence 1994; Andersen and Lobel 1995; Jylhä et al. 1998). Some people are assessing the presence or absence of specific conditions, others their overall level of functioning, and still others their energy level (see Krause and Jay 1994). These referents, in turn, seem to differ across certain sociodemographic groups (Krause and Jay 1994). Interestingly, in the present study, the effects of measures of each of these constructs were controlled, and yet self-rated health still varied by level of religious love. As to why this is, several speculative hypotheses come to mind.

First, it could be that affirming a loving relationship with God encourages a sense of *denial*, as in the old Marxian adage of religion as an “opiate.” Because of a strong religious faith, respondents may be unable to acknowledge the existence of real health problems, which would be seen as impossible among those in a state of grace. Alternatively, because of a fear of God, respondents may be hesitant to admit publicly to health problems that they are well aware of and that they believe to be a sign of personal failings such as lack of faith or uncertain belief in God. This is similar in some respects to what has been termed “new age guilt” — a lethal reluctance in many self-admitted “spiritual” individuals to seek medical care in response to symptoms out of guilt over not having been spiritual enough to prevent their illness (Dossey 1991).

Second, on a more positive note, it could be that loving and being loved by God instills a sense of *optimism or positive expectation*. This, in turn, perhaps through something akin to the placebo effect, might actually suppress symptoms of disease to the point that they are not experienced as serious problems. This phenomenon has also been described by the phrase “positive illusions” (Taylor 1989), and health psychologists and clinical researchers have provided evidence of the role of expectation in manifestations of illness (see Taylor 1989; Dossey 1991). Respondents might indeed be aware of problematic physical conditions, at least at some level of consciousness, but because their overall well-being is not affected, they would be less likely to rate their health in poorer terms.

Third, it could be that God-connected people may have such a *strong sense of self* that they would not find their identity threatened by disease. Idler (1995) has explored this issue in depth in a fascinating article. If respondents’ sense of who they are included non-physical elements, such as their relationship with God, and if their global assessment of health encompassed their sense of self, then functional or chronic conditions might be less likely to color their health perceptions. Respondents who perceived their health, and themselves, in this way may rate their health positively, even in the face of serious illness (see Idler 1995).

Fourth, hypothetically, it could be that love of and by God results in more positive perceptions of health, regardless of actual physical health status, because of some sort of *divine blessing*. Naturally, the existence of a “supernatural” influence cannot be verified empirically, by definition. Recent anomalous findings from double-blinded clinical research on prayer, however, have encouraged medical scientists to begin considering the possibility of therapeutic and salutogenic mechanisms outside the bounds of mainstream biobehavioral theories (see Levin 1996a). Such unusual-but-naturalistic mechanisms have been termed “superempirical” (Levin and Vanderpool 1989)—they invoke forces or energies not yet accepted by all scientists, but which, if real, could be investigated empirically provided subtle enough instrumentation existed. Although not currently verifiable, it could be that in the present study the association between religious love and self-rated

health is due to a blessing accrued through obedience to God, expressed through either supernatural or superempirical means.

The results of this study underscore the merit of extending consideration to previously underinvestigated domains of religiousness for research in the epidemiology of religion. Evidence linking measures of exoteric religion — public religious behavior, religious affiliation, private religious practices, prayer — to indicators of health and well-being is by now fairly overwhelming (Dossey 1999). A strong need exists, however, to continue exploration of concepts related to more esoteric religious expression—religious experiences, spirituality, mysticism, transcendence, loving and being loved by God — if our knowledge about the “religion-health connection” (Ellison and Levin 1998) is to continue to advance. Despite considerable theoretical work postulating psychosocial mediators of health effects of exoteric religiousness (e.g., Levin 1996b), empirical verification has been less forthcoming (see George and Ellison 1999). The phenomenon of love may serve as a useful psychospiritual bridge between exoteric and esoteric religious determinants of health (Levin 1993).

Besides their implications for research on religion and health, these findings also point to the salience of love and related constructs as determinants of health. There is great potential for “classical sources of human strength” — hope, self-control, forgiveness, gratitude, humility, wisdom, spirituality, love — to find their place in theories of health and healing and in concomitant research programs (see McCullough and Synder 2000). This potential will remain largely unrealized, though, until proponents of a “positive psychology” (Synder and McCullough 2000) begin to postulate the sorts of multifactorial theoretical models that will show clearly the relevance of these constructs for research in epidemiology and the medical social and behavioral sciences. This may be easier said than done, as “psychology has focused much of its collective attention on the ‘dark side’ of human beings during the last several decades” (McCullough and Synder 2000, p. 9). These findings demonstrate that the interface of religion, health, and one such classical source of strength — love — holds considerable promise and is deserving of further exploration.

## NOTES

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1. These moderate to strong associations between religious love and such a variety of religious measures raise the possibility of conceptual overlap, or at least similarity, between this construct and other markers or dimensions of attainment of

a state of spirituality, as classically defined (see Levin in press). Constructs such as existential certainty (i.e., absence of ontological doubt), faith in God (in terms of both quality and quantity), reconciliation with God (e.g., as through forgiveness), religious motivation (i.e., intrinsic religiousness), and theological worldview (e.g., a generally optimistic and loving perspective on humans as innately good) might be useful starting points for reflection and future empirical investigation.

2. The inverse effect of mastery ( $-.25, p < .05$ ) is likely due to multicollinearity between mastery and the closely related ( $r = .64, p < .001$ ) construct of self-esteem.
3. Model VI was initially run including three additional sociodemographic variables: *current employment* (1 = working full-time, 2 = working part-time, 3 = not employed, 4 = retired; recoded to 1 = currently employed, 0 = not currently employed), *annual gross household income* (11 categories from “under \$4,000” to “\$50,000 or above”), and *current residence* (1 = city, 2 = small town, 3 = suburbs, 4 = country/rural area; recoded to 1 = urban, 0 = non-urban). These variables were excluded from the information presented in Table 2 because (a) theory linking these variables to religious constructs was weaker than for the other sociodemographic variables; (b) Model VI had become unwieldy with eight sociodemographic variables; and, (c) inclusion of these variables made no substantive difference in any of the other parameters in the model.

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