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Health Outcomes and Volunteering: The Moderating Role of Religiosity

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Abstract In this paper, we examine whether and what extent public and private forms of religiosity act as moderators of the volunteering and well-being relationship in mid- to later-life. We use data from the second wave of the National Survey of Midlife Development in the United States (n = 1,805). We analyzed the relationships between volunteering and indicators of well-being (self-rated physical and mental health), and tested the moderating effects of public and private religiosity on the volunteering and well-being relationship. Our findings suggest that salubrious effects of volunteering on the self-perceived physical and mental health of middle- aged and older- aged adults varied by their participation in different forms of religiosity. In particular, volunteers who engaged in more public forms of religiosity reported significantly better physical and mental health than non-volunteers who engaged in these forms of religiosity. In other words, individuals who were actively engaged public forms of religious practices and who volunteered, maximized the associated health benefits.

Keywords Volunteering · Religiosity · Health outcomes

Research demonstrates a positive relationship between volunteering and health, particularly among middle- and older-aged adults (e.g., Li and Ferraro 2006; Lum and Lightfoot 2005; Martinson and Minkler 2006; Piliavin and Siegl 2007; van Willigen 2000). Indeed, a growing body of evidence now suggests that volunteering in mid- to later- life is not only associated with improved psychological and physical health outcomes but is also associated with a decreased risk of mortality (e.g., Konrath et al. 2011; Musick and Wilson

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2008). As a result of these health benefits, some gerontological researchers have begun to consider volunteering to be an important part of the positive psychology of ageing. Gottlieb and Gillespie (2008), for instance, have suggested that "by volunteering, older adults contribute in meaningful ways to both society and to their own health and quality of life" (p. 404), and other scholars have gone so far as to suggest that physicians should begin prescribing volunteering in order to promote healthy ageing in older adults (Hirschfelder and Reilly 2007).

National statistics of volunteer rates in the US have consistently shown that volunteering for religious organizations is, by far, the most common form of voluntary participation (Bureau of Labor Statistics 2011; Musick and Wilson 2003, p. 262).[1] In fact, volunteering has generally been found to be highest among middle- and older- aged adults over the age of forty who are actively involved in religious organizations and who attend religious services on a regular basis (Hodgkinson et al. 1990; Wilson and Janoski 1995). Additionally, more so than other forms of volunteering, volunteering for religious organizations has been shown to provide adults in later life with a greater sense of meaning and purpose (e.g., Morrow-Howell et al. 2003; Piliavin and Siegl 2007; Thoits and Hewitt 2001).

Despite the ubiquity of religiosity-oriented volunteering among this age group and the added benefits that this type of volunteering seems to provide, few studies have examined whether religiosity actually magnifies the well-being benefits derived from volunteering. Social and behavioral scientists, though, have long assumed a buffering role of religious involvement in contributing to positive well-being and to self-perceived quality of life (Thoresen 1999; Thoresen and Harris 2002).[2] Given this link, then, the purpose of this study is to build upon the well-established literature linking volunteering and well-being in mid- to later- life[3] by exploring the potential *moderating* role of religiosity.

Specifically, we examine the relative salience of public (i.e., institutional) and private (i.e., non-institutional) forms of religiosity as moderators of the volunteering and well-being relationship using data from the second wave of the National Survey of Midlife Development in the United States (MIDUS II) ($n = 1{,}805$). Although religion and spirituality scholars have long claimed that religiosity is a complex and multidimensional construct (Glock 1962; Idler et al. 2003; Einolf 2013), researchers exploring the association between volunteering and health have typically accounted for the influence of religiosity merely by controlling for uni-dimensional indicators of religiosity, such as the frequency of attendance at religious services (e.g., Li and Ferraro 2005; Musick et al. 1999; Musick and Wilson 2003; Oman et al. 1999; Thoits and Hewitt 2001; van Willigen 2000). Thus, these studies, although insightful, have not provided us with any information about whether greater religiosity actually enhances the health outcomes of volunteers.

[1] There is a difference between volunteering for a religious organization (e.g., teaching church school; serving in the temple soup kitchen) and volunteering through a religious organization (e.g., signing up for a Habitat build with congregation members.

[2] Although scholars have identified a positive link between religiosity and well-being, findings from this research have been far from conclusive (see, Thoresen and Harris 2002).

[3] Although we focus here on relationships between volunteering and health outcomes of both middle- and older- aged adults, it should be noted that some research suggests that the well-being benefits derived from volunteering may actually be stronger for older adults than for their middle-aged (and even younger) adult counterparts (e.g., Musick and Wilson 2003; van Willigen 2000). Volunteering in mid-life, however, still remains an important area of research as functional limitations and poor health may reduce the ability to volunteer in older age.

1 Review of Relevant Literature

In recent decades, research on the association between volunteering and health has increased; and, findings have generally shown that volunteering has a number of beneficial mental and physical health effects, particularly for middle- and older aged adults (for reviews of the literature on volunteering and its relationship to health, see Konrath and Brown 2012; Wilson 2000, 2012). Indeed, studies have consistently shown that volunteers in mid- to later- life tend to report fewer symptoms of depression (e.g., Borgonovi 2008; Glass et al. 2006; Kim and Pai 2010; Li and Ferraro 2005; Lum and Lightfoot 2005; Musick and Wilson 2003), increased life satisfaction (van Willigen 2000), and better functional ability and everyday well-being (Greenfield and Marks 2004; Piliavin and Siegl 2007; Thoits and Hewitt 2001). In addition to these beneficial mental and physical health effects, there has even been evidence to suggest that volunteering may contribute to a decreased risk of mortality (Konrath et al. 2011; Luoh and Herzog 2002; Oman et al. 1999).[4]

A number of studies have begun to explore potential mechanisms linking volunteering to better health outcomes, and have explained the relationship in terms of the presence (or, absence) of various psychosocial factors. For instance, some studies have suggested that the well-being benefits derived from volunteering are likely to occur as a result of reduced stress and "augmented psychological resources" (Wilson 2012, p. 23). Indeed, several studies have shown that volunteering is associated with an increased ability to cope with stress and stress-related events (Borgonovi 2008; Musick and Wilson 2003), particularly in mid- to- later life when shifting roles can result in a loss of identity and self-esteem (Greenfield and Marks 2004). Li and Ferraro (2005), for instance, found that older adults who volunteered reported fewer symptoms of depression than those who did not volunteer, and several researchers have found that volunteering in mid- to later- life increases volunteers' self-esteem, perceptions of personal control, sense of purpose in life, and feelings of self-efficacy (e.g., Morrow-Howell et al. 2003; Piliavin and Siegl 2007; Thoits and Hewitt 2001)—all of which have been linked to more positive health outcomes.

Other studies have suggested that volunteering may contribute to better health outcomes by integrating individuals into a social environment whereby they have access to more (or even better) forms of social support (Musick and Wilson 2003). Volunteer work, for instance, has consistently been shown to increase social network connections and to reduce social isolation (Midlarsky and Kahana 1994; Moen et al. 1992); and being less socially isolated has long been linked to lower levels of depression and other positive mental health outcomes (House et al. 1988; Lin et al. 1999; Cacioppo et al. 2010), particularly in mid- to later-life.

In addition to studies attempting to understand the mechanisms through which volunteering affects health, scholars have also begun to examine whether there are differential health effects of volunteering by exploring potential moderating influences. Some of these studies have found that individuals who have *fewer* social resources tend to reap the greatest health benefits from volunteering (Morrow-Howell et al. 2009; Musick et al. 1999; Piliavin and Siegl 2007), while other studies have found the opposite to be true: that is, the *more* social resources individuals have, the greater the associated health benefits they derive from participating in volunteer activities. On the one hand, for instance, Greenfield and Marks (2004) found that older adults who experienced greater role losses in later life

[4] For reviews of the literature on volunteering and health, see Grimm et al. (2007) Oman (2007).

(e.g., spousal, employment, parental) benefited more from volunteering than those who experienced fewer role losses in later life. On the other hand, however, Harris and Thoresen (2005) found that older adult volunteers who were more integrated into their social environments had a greater reduction in mortality risk than those who were less socially integrated. Similarly, Oman et al. (1999) found that the protective health effects of volunteering were greatest among older adult volunteers who had stronger social ties. Despite the conflicting nature of these findings regarding the role of social resources in the volunteering and well-being relationship, it is clear that that at least for some individuals, volunteering can result in more beneficial health outcomes than for others. What is less clear, though, is the extent to which religiosity, one of the most influential sociocultural factors motivating voluntary participation, moderates this relationship.

1.1 Religiosity, Volunteering and Health

Scholars have long acknowledged that service to others is a central tenet of most religious faiths, and that religious settings are the most fertile settings for voluntary participation (Bureau of Labor Statistics 2011; Musick and Wilson 2003, p. 262; Wilson 2012). As a result, studies of volunteering and well-being have typically included frequency of attendance at religious services as a control variable in order to test whether volunteering is merely an added benefit of being associated with a religious group (e.g., Harris and Thoresen 2005; Li and Ferraro 2005; Oman et al.; van Willigen 2000). Li and Ferraro (2005) examined the relationship between volunteering and depression in later life and found that church attendance was associated with a decreased risk of depression; and, van Willigen (2000) examined the differential health benefits of volunteering across the life course and found that the relationship between volunteering and self-perceived health increased when religious service attendance was included into the analysis.

The few studies that have examined the *moderating* influence of religious service attendance on the volunteering and well-being relationship have not produced entirely consistent results. For example, Harris and Thoresen (2005) found dramatically different effects of volunteering on mortality risk between religious service attenders and non-attenders; and, Oman et al. (1999) found that volunteering was more protective for individuals who attended religious services more frequently than for those who did not. Ayalon (2008), however, found no moderating effect of religious service attendance on the relationship between volunteering and mortality among older adults in Israel.

2 The Public and Private Nature of Religiosity

One potential explanation for the discrepancy in findings regarding the moderating role of religious service attendance on the volunteering and well-being relationship may result from how religiosity has been measured. To date, most studies have used frequency of attendance at religious services as the sole measure of religiosity. However, this measure tells us little about the actual depth of an individual's religious identity. In fact, religious service attendance is generally regarded as an *institutional* component of religiosity related to participation in organized religious life. As a result, this measure is unlikely to capture an individual's participation in other more private forms of religious or spiritual practices.

Indeed, several scholars have differentiated between public and private domains of religiosity (Einolf 2013; Husaini et al. 1999; Idler et al. 2003) and have argued that the concept of religiosity is much more complex than merely attending services at religious institutions (Glock 1962; Idler et al. 2003; Einolf 2013). Public domains have generally been thought to relate to institutional religious engagement, while private domains have typically been thought to relate to independent spiritual practices (i.e., religious practices occurring outside of an institution). Thus, it is possible that individuals who self-identify and affiliate with a particular religious community, but do not attend services on a regular basis may not necessarily internalize the norms and values of that community (Wilson and Janoski 1995, p. 138), while individuals who do not identify with any particular religious community, but who engage in private religious practices may still adhere to certain religious values and traditions.

Both types of religious practices may affect the relationship between volunteering and well-being—although possibly in different ways. Some research, for instance, suggests that while greater participation in public (more institutional) forms of religious practice can decrease the risk of negative health outcomes such as mortality, greater participation in private forms of religious practice may actually be associated with an increased risk of mortality and other adverse health effects (Musick et al. 2004). There has, however, been no research exploring whether the relationship between volunteering and health is magnified (or, attenuated) for individuals who engage in different forms of religiosity. Thus, the purpose of this research is to fill this void in the literature.

3 Method

3.1 Data

The data used for the current study comes from the 2005 National Survey of Midlife Development in the United States (MIDUS II). MIDSUS II is a longitudinal follow-up study conducted of a nationally representative sample, in the United States of America, of non-institutionalized adults aged 25 through 74, who were first interviewed in 1995. MIDUS II contains detailed questions on a wide variety of issues relating to predictors and consequences of midlife development in the areas of physical health, psychological well-being, and social responsibility.

Both MIDUS I and MIDUS II were obtained through random digit dialing (RDD), and included an over-sampling of older individuals and men. In addition to participating in the RDD telephone interviews, respondents to both surveys were invited to complete two self-administered questionnaires (SAQs). In total, 3,034 individuals from MIDUS I completed both the RDD telephone interview and the SAQs. In the second wave of the survey (MIDUS II), 2,257 individuals from the original survey participated in the main RDD telephone interview, and of those individuals 1,805 completed the SAQs.

Similar to previous studies examining the influence of religion and spirituality on aspects of health and well-being (e.g., Greenfield et al. 2009; Taniguch and Thomas 2011), the current study relies only on data collected in the second wave of the survey (MIDUS II), since several pertinent measures of religiosity were only included at that time ($n = 1{,}805$). Full details concerning the sample, response rate, weightings, and interview format for both MIDUS I and MIDUS II can be found in the MIDUS codebook, which is available for download from the MIDUS website: http://www.midus.wisc.edu/.

3.2 Dependent Variable(s)

Information on health outcomes was assessed using two separate indicators of well-being: self-rated physical health and self-rated mental health.[5] Specifically, respondents were asked *In general, would you say your physical health is excellent, very good, good, fair, or poor?* Respondents were also asked *In general, would you say your mental or emotional health is excellent, very good, good, fair, or poor?* Response options ranged from 1 to 5, where 1 was recoded to indicate "poor" health and 5 was recoded to indicate "excellent" health.

3.3 Independent Variables

3.3.1 Volunteer Proclivity

Respondents were asked to report how many hours in the past year they spent volunteering each month in four different areas of voluntary participation: (a) hospital, nursing home, or other health care oriented volunteer work; (b) school or youth-related volunteer work; (c) volunteer work for political organizations or causes; and, (d) volunteer work for any other organization, cause or charity. Volunteer participation was calculated by summing the number of hours across each area to create a single measure of volunteering. Similar to previous research (e.g., Greenfield and Marks 2004; Taniguch and Thomas 2011; Son and Wilson 2011), a dichotomous indicator of volunteer proclivity was then created where individuals with total volunteer hours of one hour or more per month were classified as "volunteers" (coded as "1"), while individuals with total volunteer hours of zero were classified as "non-volunteers" (coded as "0"). Fifty-three per cent of respondents in MIDUS II indicated that they had volunteered during the study period.[6]

3.3.2 Public Religiosity

A scale of public religiosity was created by calculating the standardized mean of four component items assessing aspects of public religious activities (alpha = .85). Higher scores on the scale indicated greater public religiosity. Public religiosity was measured by asking respondents to report their frequency of religious or spiritual service attendance, their frequency of participation in religious or spiritual activities. Response options were measured on an ordinal scale that was recoded to range from 1 ("never") to 6 ("once a day or more"). Respondents were also asked about the importance of religion in their life, and the degree to which they felt religious. Response options to these questions were also measured on an ordinal scale that was recoded to range from 1 ("not at all") to 4 ("very").

[5] Correlation between the dependent variables suggests that the measures, although related, are distinct indicators of well-being (r = .55).

[6] Given that the volunteering questions in the MIDUS survey were not mutually exclusive, it is uncertain whether or not individuals responded positively to a single volunteer experience by selecting multiple response options. For example, someone who volunteered with an environmental youth services organization may have indicated that he/she participated in "school or youth-related volunteer work" as well as "volunteer work for any other organization, cause or charity." Thus, although some scholars have used total volunteer hours from the MIDUS surveys as a variable in their analyses (see for instance, Einolf 2009), it is uncertain whether these values truly reflect the total time respondents actually spent participating in volunteer activities. As such, total number of volunteer hours was not included in this analysis.

3.3.3 Private Religiosity

A scale of private religiosity was created by calculating the standardized mean of five component items that assessed aspects of private religious activities (alpha = .77). Higher scores on the scale indicated greater private religiosity. Private religiosity was measured by asking respondents about the frequency that they: (a) prayed in private, (b) meditated or chanted, and (c) read the Bible or other religious literature. Response options were measured on an ordinal scale and recoded to range from 1 ("never") to 6 ("once a day or more"). Respondents were also asked about the importance of spirituality in their life and the extent to which they felt spiritual. Response options to these questions were also measured on an ordinal scale that was recoded to range from 1 ("not at all") to 4 ("very").

3.3.4 Control Variables

We controlled for a number of socio-demographic factors known to be associated with both volunteering and health. These included: age, measured as a continuous variable; gender, measured as a dichotomous indicator of female ("0") and male ("1"); education, measured as a twelve category continuous variable; and, income measured as a continuous variable and standardized.[7,8] In addition to these socio-demographic covariates, we also controlled for functional health limitations, as research has shown such limitations to reduce (or, even prevent) volunteering in mid- to later- life (Li and Ferraro 2005; Hank and Stuck 2008). Functional health limitations were assessed using a two-item standardized scale (alpha = .79). The first item asked respondents how much their health limited them in doing vigorous activity (such as running and lifting heavy objects). The second item asked respondents how much their health limited them in doing moderate activity (such as bowling and vacuuming).

3.4 Analytic Strategy

We modeled the relationship between volunteering and both indicators of well-being using ordinary least squares (OLS) regression.[9] Predictors were sequentially added to both models in order to identify the factors that partially, or fully, explained the relationship. In the first step, only volunteering was entered. In the second step, control variables were added followed by the third step in which predictors relating to both public and private forms of religiosity were added. Finally, to test the moderating effects of public and private

[7] Although other researchers (e.g., Einolf 2013; Son and Wilson 2011) have controlled for race when using MIDUS data, 90 per cent of the sample (in MIDUS II, in particular) is white; therefore, we excluded race from our analysis.

[8] We also estimated the models using the natural log of the income variable. The results (not shown) from these estimations did not alter the substantive findings.

[9] OLS regression can often be problematic when estimating a model on an ordinal outcome variable (Long 1997). However, with five or more categories OLS results (which are considered linear probability models, in this instance) can allow for simpler interpretation. Still, in order to verify that our results were not altered by model specification, we also estimated each of the models in this analysis using logit regression analyses. Only our models assessing predictors of mental health status passed the proportionality of odds assumption for ordered logit analysis. Therefore, we estimated our models of physical health status using multinomial regression techniques. In general, most substantive results held, thus leading us to believe that model specification is not a significant concern.

religiosity on the volunteering and well-being relationship, we included separate interaction terms for volunteer status and both forms of religiosity (Baron and Kenny 1986).[10]

4 Findings

Table 1 reports descriptive statistics for all study variables as well as the inter-correlations among the variables. The means for the dependent variables show that on average respondents rated their mental health status as being slightly better than their physical health. Just over half of the respondents indicated that they had engaged in volunteer service during the study period. Respondents indicated a greater tendency to engage in private forms of religious practice than in public forms of religious practice. This finding is in line with recent trends regarding national religious participation in the US, where studies have shown an overall decline in public religiosity and an increase in spirituality and other forms of private religious activities (e.g., Putnam 2000). The average age of the study sample was fifty-seven, and the sample was split nearly evenly between males and females. On average, respondents reported having some college education, and the average annual income of the sample was just over $40,000. Our measure of functional health limitations was slightly positively skewed.

Table 2 presents the results for the analyses assessing predictors of *self-rated physical health*. In Model 1, consistent with previous research (e.g., Kim and Pai 2010; Li and Ferraro 2006; Lum and Lightfoot 2005; Martinson and Minkler 2006; Piliavin and Siegl 2007; van Willigen 2000), volunteer proclivity is significantly related to respondents' self-perceptions of their physical health ($p < .001$, 95 % CI [.126, .310]). In Model 2, when controls are included, volunteer proclivity remains significantly related to self-rated physical health ($p = .041$, 95 % CI [.004, .170]). Moreover, higher income and education levels are also associated with higher ratings of self-perceived physical health status (income: $p < .001$, 95 % CI [.053, .144]; education: $p < .001$, 95 % CI [.019, .039]). Women reported being in better physical health than men ($p < .001$, 95 % CI [−.249, −.75]); and as expected, those with fewer functional health limitations reported being in better physical health than those with greater functional health limitations ($p < .001$, 95 % CI [.462, .562]).

In Model 3 when measures of religiosity are included, volunteering continues to remain a significant predictor of self-rated physical health status ($p = .021$, 95 % CI [.015, .190]). However, measures of religiosity are also found to influence respondents' ratings of their physical health and well-being. In particular, as engagement in public forms of religiosity increases, respondents are more likely to rate themselves as being in better physical health ($p = .004$, 95 % CI [.032, .174]). Interestingly, however, engaging in more private forms of religiosity is associated with *lower* self-perceptions of respondents' physical health status ($p < .001$, 95 % CI [−.65, −.14]).

To test whether either form of religiosity (i.e., public or private) acts as a moderator in the volunteering and physical health relationship, in Models 4 and 5 we include interaction terms between volunteer proclivity and both measures of religious participation. In Model 3, when volunteer proclivity and public religiosity are considered, the interaction term

[10] Missing values for most variables were <3.5 %, and in these cases respondents were excluded from the analysis. However, as is common in survey research, the household income variable had a relatively higher amount of missing data (approximately 8 %). As recommended by Allison (2001) the use of listwise deletion is sufficient for missing data <15 %.

Table 1 Descriptive statistics and inter-correlations

	Mean	SD	*n*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dependent variable(s)													
(1) Physical health	3.50	1.00	1,804	1.00									
(2) Mental health	3.77	0.93	1,804	0.55*	1.00								
Independent variable(s)													
(3) Volunteer proclivity	0.53	0.50	1,805	0.11*	0.10*	1.00							
(4) Public religiosity	2.76	1.00	1,759	−0.03	0.01	0.25*	1.00						
(5) Private religiosity	3.22	1.07	1,712	−0.10*	−0.05*	0.17*	0.70*	1.00					
Control variable(s)													
(6) Age	57.00	13.00	1,805	−0.16*	−0.05*	0.01	0.17*	0.11*	1.00				
(7) Sex	0.45	0.50	1,805	0.02	0.08*	−0.06*	−0.15*	−0.22*	0.02	1.00			
(8) Income	$41,847.50	$41,024.61	1,659	0.22*	0.19*	0.07*	−0.10*	−0.14*	−0.17*	0.30*	1.00		
(9) Education	7.26	3.94	1,803	0.19*	0.13*	0.12*	−0.06*	−0.05*	−0.06*	0.05*	0.21*	1.00	
(10) Functional limitations	2.96	0.97	1,781	0.49*	0.26*	0.09*	−0.06*	−0.07*	−0.38*	0.12*	0.25*	0.12*	1.00

Mean values represent percentages for binary variables; *$p < .05$

Table 2 Regression results (physical health)

	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β
Volunteer proclivity	.218***	.087*	.103**	.112**	.109**
	(.047)	(.042)	(.045)	(.045)	(.045)
Public religiosity	–	–	.103**	.040	.097**
	–	–	(.036)	(.048)	(.036)
Private religiosity	–	–	−.189***	−.186***	−.245***
	–	–	(.039)	(.039)	(.047)
Age	–	.002	.002	.002	.002
	–	(.002)	(.002)	(.002)	(.002)
Sex	–	−.162***	−.185***	−.186***	−.188***
	–	(.044)	(.046)	(.046)	(.046)
Income	–	.099***	.090***	.088***	.089***
	–	(.023)	(.023)	(.023)	(.023)
Education	–	.029***	.029***	.029***	.029***
	–	(.005)	(.005)	(.005)	(.005)
Functional limitations	–	.511***	.509***	.508***	.508***
	–	(.026)	(.026)	(.026)	(.026)
Volunteer proclivity × public religiosity	–	–	–	.104*	–
	–	–	–	(.053)	–
Volunteer proclivity × private religiosity	–	–	–	–	.115*
	–	–	–	–	(.056)
Constant	3.384	3.203	3.217	3.204	3.210
	(.034)	(.112)	(.115)	(.115)	(.115)
R^2	.012	.275	.282	.284	.284

Scholars often considered significance values ranging between .05 and .10 to represent marginal levels of significance (e.g., Mayou et al. 2000; Willson 1993)

Standard errors in parentheses

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

indicates that volunteers with higher public religiosity tend to rate their physical health status as being significantly better ($p = .049$, 95 % CI [.000, .208]) than otherwise comparable non-publicly religious volunteers. In Model 4, when the joint influence of volunteering and private religiosity is considered, the interaction term between volunteering and private religiosity is significant, which indicates that a higher level of private religiosity *among volunteers* is associated with *better* self-rated physical health status ($p = .040$, 95 % CI [.005, .224]). In other words, while private religiosity has a negative association with the self-perceived physical health of non-volunteers, it is actually beneficial for volunteers to engage in private forms of religiosity.

Table 3 presents the results for the analyses assessing predictors of *mental health*. In general, many of the same patterns hold as in the case of assessments of physical health. Indeed, engaging in both volunteering and public forms of religiosity is positively related to respondents' assessments of their mental health, while engaging in private forms of religious practice significantly decreases respondents' favorable assessments of their mental health status. The interaction term between volunteer proclivity and public religiosity is only marginally significant ($p = .087$, 95 % CI [−.014, .204]), such that volunteers who engage in more public forms of religiosity are more likely to rate their mental

Table 3 Regression results (mental health)

	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β
Volunteer proclivity	.183***	.134**	.138**	.146**	.142**
	(.044)	(.044)	(.047)	(.047)	(.047)
Public religiosity	–	–	.089**	.032	.086*
	–	–	(.038)	(.050)	(.038)
Private religiosity	–	–	−.127***	−.124**	−.167***
	–	–	(.040)	(.040)	(.049)
Age	–	.005**	.005**	.005**	.005**
	–	(.002)	(.002)	(.002)	(.002)
Sex	–	.035	.020	.019	.018
	–	(.046)	(.048)	(.049)	(.048)
Income	–	.103***	.101***	.100***	.101***
	–	(.024)	(.024)	(.024)	(.024)
Education	–	.016**	.016***	.015**	.016**
	–	(.006)	(.006)	(.005)	(.006)
Functional limitations	–	.229***	.234***	.233***	.233***
	–	(.027)	(.027)	(.027)	(.027)
Volunteer proclivity × public religiosity	–	–	–	.095†	–
	–	–	–	(.055)	–
Volunteer proclivity × private religiosity	–	–	–	–	.082
	–	–	–	–	(.058)
Constant	3.673	3.321	3.291	3.280	3.286
	(.0312)	(.117)	(.120)	(.121)	(.120)
R^2	.010	.091	.100	.102	.102

Standard errors in parentheses

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

health status more favorably. Unlike in the case of ratings of their physical health, however, the interaction term between volunteer proclivity and private religiosity is not statistically significant.

In order to examine these interactions more closely, we split the file by volunteers ($n = 826$) and non-volunteers ($n = 741$) and examined the effect of the different forms of religiosity within each group, while controlling for all previously mentioned covariates. Table 4 reports these results. As shown, volunteers who engaged in public forms of

Table 4 Regression: split sample volunteers and non volunteers and health outcomes

	Volunteers		Non-volunteers	
	Mental health	Physical health	Mental health	Physical health
Public religiosity	.111*	.113*	.054	.077
Private religiosity	–	−.152**	–	−.218***

† $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

religiosity reported significantly better mental ($p = .022$, 95 % CI [.016, .206]) and physical health ($p = .016$, 95 % CI [.021, .205]) than non-volunteers. Engaging in private forms of religiosity, however, was found to be associated with lower self-reports of positive physical health for both volunteers *and* non-volunteers—though, as shown from the interaction between volunteering and private religiosity in Table 2, these negative effects are slightly attenuated for privately religious volunteers.

5 Discussion

In this study we sought to explore the moderating influence of different forms of religiosity on the relationship between volunteering and health outcomes of middle-aged and older-adults. Using data from a nationally representative sample of adults in the United States, we replicated prior research and demonstrated that volunteers tend to report themselves as being in better mental and physical health than non-volunteers, even when controlling for a number of plausible confounding variables (e.g., Li and Ferraro 2006; Lum and Lightfoot 2005; Martinson and Minkler 2006; Piliavin and Siegl 2007; van Willigen 2000). We also separately replicated prior research that has found positive health effects associated with greater participation in more public forms of religiosity, and negative health outcomes associated with greater participation in more private forms of religiosity (Musick et al. 2004).

The most important contribution of the current research, however, is our finding that the salubrious effects of volunteering on the physical and mental health of middle- aged and older- adults varied by participation in different forms of religiosity. Indeed, when we examined the moderating influence of public religiosity in the volunteering and well-being relationship we found that volunteers who engaged in more public forms of religiosity reported being in significantly better physical and mental health than volunteers who engaged in less public forms of religiosity. In other words, in order to maximize the health benefits associated with volunteering, individuals also needed to be actively engaged in some form of public religious practice. Thus, not only may middle- and older- age adults be more likely to volunteer for religious organizations (as studies have consistently shown), but the public nature of their religious participation may also be linked to the beneficial health effects that they experience.

When we examined the moderating influence of private religiosity, the results are even more interesting. Although private religiosity was found to be associated with poor self-rated physical health status (but not mental health status) for both volunteers and non-volunteers; private religiosity was still associated with *better* self-rated physical health among volunteers. As a result, it is possible that in order to make up for the negative effects of engaging in more private forms of religiosity, individuals need to have the social outlet of volunteering—or, perhaps even other forms of social engagement.

One potential theoretical explanation for the moderating effects of these different forms of religiosity may be found in social support theory (Lakey and Cohen 2000). Indeed, it may be likely that publicly religious volunteers are not only giving support but also receiving support from a social group, while privately religious volunteers are giving support, but not necessarily receiving the social support they would get from a religious community. In other words, privately religious volunteers may be internalizing their issues, while publicly religious volunteers may be engaging in organizations that provide them with a network of social support and activities that buffer them from unhealthy environments and stressful situations.

Another potential explanation is that volunteers who are publicly religious may experience enhanced health benefits because of value congruence (Midlarsky and Kahana 2007). Most religious traditions strongly value pro-social behavior, and this is often operationalized as practical acts of love and service to others. Publicly religious individuals who volunteer may experience benefits from living in accordance with their personal values. Finally, it is also likely that volunteering and public religiosity involves "stepping out" of the house. Indeed research has found that older adults who are more religious have higher levels of physical activity compared to their less religious counterparts (Kim and Sobal 2004; Roff et al. 2005); and, volunteering has long been associated with increased physical activity (Tan et al. 2006, 2009).

Overall, however, these explanations are only speculative. Given the cross-sectional nature of the data used in this analysis we cannot determine whether healthier people are more likely to engage in volunteering or more likely to be involved in institutional religious activity. Moreover, given that respondents in the MIDUS survey were asked about their self-reported health status, it is possible that these reports do not align with their actual health. Thus, future research should explore the moderating influence of different forms of religiosity on the volunteering and well-being relationship using more objective measures, such as physician diagnosed illnesses, physiological indicators of health and well-being (e.g. cortisol, immune markers), and mortality. Future work should also employ longitudinal methods to increase our confidence in the causal direction of the effects. Despite these limitations, we uncovered an important pattern: volunteers who are publicly religious (or religious people who volunteer) experience the greatest health benefits. The practical implications of such findings are notable, and based on this study we would advise non-volunteers and privately religious individuals on the salubrious effects of "stepping out."

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