

THE EFFECT OF RELIGION ON HAPPINESS AND EDUCATIONAL ATTAINMENT AFTER
CONTROLLING FOR COMMUNITY ENGAGEMENT

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“Man is by nature a social animal; an individual who is unsocial naturally and not accidentally is either beneath our notice or more than human. Society is something that precedes the individual. Anyone who either cannot lead the common life or is so self-sufficient as not to need to, and therefore does not partake of society, is either a beast or a god.” -Aristotle, *Politics*

The role of religion as a predictor of pro-social behaviors and attitudes has a long history within the psychological and educational literature (Yonker, Schnabelrauch, & DeHaan, 2012). Recent studies have also found a link between religious activity and engagement in community activities (Bartkoski, Xu, & Levin, 2008; Pew Research Center, 2019). The presence of a connection between religious observance and activity within the community raises the question of whether it is something intrinsic to religion that prompts greater happiness, thoughts about meaning in life, and academic achievement, or if religion is an example of people engaging in behaviors to satisfy the “social animal” needs described by Aristotle.

This project contains two studies: the first study will use the World Values Survey data, this will chiefly look at religiosity, community engagement, and well-being. The other second study utilizes the Early Childhood Longitudinal Study data, looking at religiosity, community engagement, and academic achievement.

The hypothesis in both studies is that once community engagement is controlled for, the effects of religiosity will be greatly diminished.

Survey of literature

An important environmental factor that often permeates large parts of an individual's life is their religious affiliation and practice. While the number of Americans claiming membership in formal religion has dropped slightly from 77% identifying as Christian in 2012 to roughly 74% claiming a Christian identity in 2016 (Newport, 2012; Newport, 2016), religious faith is still prevalent to some degree for a majority of Americans. While the number claiming a Christian identity has dipped slightly in recent years, the number claiming no religious identity is still only 20% of the American population (Newport, 2016).

Religion is certainly prevalent, but it is also diverse in its manifestation. Gallup polls also found a wide variety of interpretations of the Christian faith prevalent in the U.S. population, though just under a majority identified as some form of Protestant and roughly a quarter identified as Catholic (Newport, 2016).

Relationship between religion and happiness/well-being

The elements that one might think are important often have no bearing on the outcome (e.g. level of self-reported belief). Various studies find either a weak relationship, no relationship, or a negative relationship between religion and happiness. The effects of religiosity on happiness has proven to be difficult to truly establish. Early work on the relationship provided some small evidence that those who had stronger religious convictions tended to be happier were often plagued by an inability to reproduce the results (Lewis & Cruise, 2006; Donelson, 1999). In the 1990s and 2000s a number of studies found contradictory evidence about the role of religion and its relationship to happiness (Lewis & Cruise, 2006).

A potential culprit to the contradictory evidence could be at the level of measurement. The operational definitions of "religiosity" and "happiness" likely plays an important role in the results from any study. A common operational measure of religion is the Francis Scale of Attitude towards Christianity (Francis, 1989; Francis, Lankshear, & Eccles, 2017). The scale measures the level at which respondents accept core tenets of the religious faith. The measure was the chief instrument used in

studies produced by both Lewis (Lewis & Cruise, 2006; Lewis, Maltby & Burkinshaw, 2000) and Francis (Francis, Ok, and Robbins, 2017; Francis, 1989). In an attempt to filter out the potentially problematic results Lewis and Cruise (2006) compared the results from fourteen studies comparing the relationship between religion and happiness, one of the criteria for inclusion in the study was the use of the Francis scale as the measure for religiosity (Lewis & Cruise, 2006). The happiness measures were the Oxford Happiness Inventory and the Depression-Happiness Scale. The findings were broadly inconclusive. Over the course of the studies examined, the Depression-Happiness Scale indicated no relationship between religiosity and happiness, while the Oxford Happiness Inventory typically indicated a significant positive relationship, though the effect sizes ranged from negligible to moderate strength (Lewis & Cruise, 2006). The Francis scale has also been modified to accommodate Muslim beliefs as opposed to focusing exclusively on Christianity (Francis, Ok, & Robbins, 2017). Using the modified scale, Francis, Ok, and Robbins found a significant relationship between Islam and happiness in students in Turkey.

Relationship between religion and academic achievement

A study of high school and college students in Turkey found no relationship between strength of religious conviction and educational achievement (Güven, 2013). However, other studies have found that greater religious commitment in black and hispanic students is indicative of a greater level of academic achievement (Jeynes, 1999). This evidence is yet another example of the fluctuation in results when using religion as a predictor for positive outcomes. Güven's (2013) evidence stands in direct contrast to the study from Jeynes (1999). Güven (2013) posits that this result may be the result of individuals who have high religious motivation may not expend energy pursuing achievements outside of a religious environment. Another potential confound is the relatively homogenous religious practice found in Turkey (Güven, 2013).

Religious practice and religious belief

One potential problem that may account for the discrepancies between the various studies could be the operational definition of religion. While the studies examined in Lewis and Francis (2006) tended to operationalize religion as the nature of the participants beliefs. What seems to consistently matter is the frequency of religious observance, rather than the nature and intensity of religious belief (Good & Willoughby, 2006). In fact, Good and Willoughby (2006) originally hypothesized that a mismatch in frequency of church attendance and level of belief would result in a reduction in happiness. Instead, what they found was that frequency of attendance had an effect on the target outcome regardless of the level of participant's beliefs. Using frequency of religious practice as the operational definition for religiosity may well provide more consistent results in evaluating the relationship between religion and well-being.

Correlation between religious practice and community engagement

Often a correlation between engagement in civic behavior and religious practice is reported as a part of the study. Much like with extracurricular activities in middle school (Broh, 2002; Stephens & Schaben, 2002), it may not matter what the nature of the community engagement is, just that there is engagement of some sort that leads to higher ratings of well-being and academic achievement.

Studies

World Values Survey Study

Materials

The World Values Study was conducted via phone interviews in nearly 100 countries in multiple waves 2011 through 2014. Participants were asked a wide variety of questions concerning attitudes about religion, politics, and social welfare (Inglehart, et al., 2014).

The variables from the World Values Survey extracted for this study included three variables concerning religion: membership in a religious organization, frequency attending religious services, and frequency of prayer. Membership in a religious organization had three levels: no membership, inactive membership, and active membership. Frequency of religious attendance was broken into seven levels of frequency ranging from never to more than once a week. Frequency of prayer had eight levels ranging from never to several times a day.

Analysis

Church membership had a slightly positive skew (1.08), though it had a significant Kolmogorov-Smirnov test, indicating that it was not normally distributed, despite the generally acceptable value for skew and kurtosis (-0.49). The disagreement in measures may be an artifact of the large sample size ($n = 88,725$).

Frequency of church membership had similar disagreement in indicators of normality with skew (-0.05) and kurtosis (1.45) falling within acceptable parameters and the Kolmogorov-Smirnov results indicating non-normality. The same pattern also held true for frequency of prayer (skew = -0.55, kurtosis = -1.29, K-S, $D(83840) = 0.22$, $p < .01$). As such, these variables were treated as non-normal for the purposes of correlation, though not for regression, as regression is slightly more forgiving of non-normal data especially with such large sample sizes.

Community engagement included membership variables similar to church membership for sports, art, labor unions, political parties, environmental organizations, professional organizations, humanitarian organizations, consumer organizations, self-help groups, and other organizations. The pattern continued with these variables of skew and kurtosis being generally acceptable and the normality tests indicating a non-normal distribution. Because of these results, the data were treated as non-normal for the correlations but treated as meeting the normality assumption when used in regression.

Community engagement was also measured using a frequency question of how many hours per month spent volunteering. This variable also had an inconsistent pattern in terms of normality with skew (-0.81) and kurtosis (-0.69) falling within generally acceptable ranges while tests for normality indicated an assumption violation, $D(88217) = 0.30, p < .01$.

The outcome variables used included a measure for happiness, thinking about meaning and purpose in life, highest education level, and an aggregated variable for worry. The worry variable was the mean score of four different variables asking how often the respondent worried about specific types of events (losing job, not providing good education for their children, wars, and terrorist attacks). Much like the independent variables, the outcome variables were non-normal based off of the Kolmogorov-Smirnov tests for normality, despite typically acceptable values for skew and kurtosis.

The assumptions were checked for all variables. All of the variables had significant normality issues, with all presenting a significant Kolmogorov-Smirnov test. As a result, the correlations between variables to establish a relationship between group membership/participation and the happiness, life purpose, and worry variables, a Spearman correlation was employed.

As was expected, the active membership in a religious organization was significantly correlated with each of the outcome variables. However, the correlation coefficients were fairly small, ranging from .02 for the aggregated worry measure to .09 for “thinking about purpose in life.” Frequency of church attendance was also significantly related to all outcome variables, and higher coefficients with worry and thinking about meaning in life both at 0.15 and highest education level having the weakest correlation coefficient at -0.08. Frequency of prayer followed a similar trajectory to frequency of church attendance. Hours spent volunteering was also significantly related to all of the outcome variables with strengths ranging from 0.05 (thinking about meaning in life) to 0.14 (worry).

Scatter plots were examined to check for linearity, with no apparent assumption violations.

Similar to the study from the Pew Charitable Trust (2019) there was a relationship between membership in a religious organization and membership in other community groups.

Multiple regression was used to control for the effect of hours per month volunteering on how predictive the various potential definitions provided by the survey were for the outcome variables. A substantial portion of respondents did not have a response for the question of volunteer hours, and a much smaller sample resulted for the regression analysis.

For the outcome variable of how often do you think about meaning or purpose in life, only the model containing hours of volunteering and active membership was significant, $F(2, 1493) = 3.03, p = .05$. Within that model, only volunteer hours had a significant effect on R^2 change (Table 1).

As a predictor of happiness, only membership in a religious organization had an overall significant effect (membership: $F(2, 1487) = 6.86, p < .01$; attendance: $F(2, 1090) = 2.15, p = .11$; prayer: $F(2, 1088) = 2.08, p = .13$). Within each model, only volunteer hours had a significant impact on the R^2 (Table 2).

As a predictor of worry, all models had an overall significant effect (membership: $F(2, 1495) = 19.8, p < .01$; attendance: $F(2, 1104) = 7.90, p < .01$; prayer: $F(2, 1100) = 5.31, p < .01$). For the models containing membership and prayer, only volunteer hours had a significant impact on the R^2 (Table 3). However, frequency of church attendance was also a significant predictor of worry. An interesting aspect of these results is that an increase in volunteer hours was tied to an increase in worry, while an increase in most of the religious variables indicated a decrease in worry. While non-significant, an increase in prayer was also indicative of an increase in worry.

As a predictor of academic attainment, all models had an overall significant effect (membership: $F(2, 1507) = 10.67, p < .01$; attendance: $F(2, 1109) = 11.14, p < .01$; prayer: $F(2, 1105) = 7.52, p < .01$). For this outcome, for each model, both volunteer hours and the religious predictors had a significant impact on the R^2 , with roughly half of the variance explained by either the engagement variable or the religious variable (Table 4).

Table 1

Meaning	DF	Parameter Estimate	t Value	Pr > t	Cumulative R-Square	Sequential Type I	
						F Value	Pr > F
Approximately how many total hours a month were you active in voluntary organizations	1	0.04227	2.03	0.0421	0.00301	4.51	0.0338
Active/Inactive membership: Church or religious organization	1	0.03401	1.24	0.2147	0.00404	1.54	0.2147
Approximately how many total hours a month were you active in voluntary organizations	1	0.01767	0.69	0.4885	0.00041303	0.45	0.5001
How often do you attend religious services	1	-0.01156	-0.85	0.3968	0.00107	0.72	0.3968
Approximately how many total hours a month were you active in voluntary organizations	1	0.01693	0.66	0.5090	0.00028560	0.31	0.5757
How often to you pray	1	0.02262	1.68	0.0935	0.00285	2.82	0.0935

Table 2

Happiness	DF	Parameter Estimate	t Value	Pr > t	Cumulative R-Square	Sequential Type I	
						F Value	Pr > F
Approximately how many total hours a month were you active in voluntary organizations	1	0.05543	3.48	0.0005	0.00765	11.46	0.0007
Active/Inactive membership: Church or religious organization	1	-0.03144	-1.50	0.1335	0.00915	2.25	0.1335
Approximately how many total hours a month were you active in voluntary organizations	1	0.03915	2.04	0.0419	0.00383	4.19	0.0409
How often do you attend religious services	1	0.00339	0.33	0.7408	0.00393	0.11	0.7408
Approximately how many total hours a month were you active in voluntary organizations	1	0.03920	2.03	0.0422	0.00382	4.17	0.0414
How often to you pray	1	-0.00034436	-0.03	0.9727	0.00382	0.00	0.9727

Table 3

Worry	DF	Parameter Estimate	t Value	Pr > t	Cumulative R-Square	Sequential Type I	
						F Value	Pr > F
Approximately how many total hours a month were you active in voluntary organizations	1	0.10391	6.29	<.0001	0.02553	39.19	<.0001
Active/Inactive membership: Church or religious organization	1	-0.01461	-0.67	0.5021	0.02582	0.45	0.5021
Approximately how many total hours a month were you active in voluntary organizations	1	0.06352	3.29	0.0010	0.00946	10.55	0.0012
How often do you attend religious services	1	-0.02346	-2.28	0.0226	0.01412	5.21	0.0226

Worry	DF	Parameter Estimate	t Value	Pr > t	Cumulative R-Square	Sequential Type I	
						F Value	Pr > F
Approximately how many total hours a month were you active in voluntary organizations	1	0.06269	3.22	0.0013	0.00912	10.13	0.0015
How often to you pray	1	0.00718	0.71	0.4807	0.00957	0.50	0.4807

Table 4

Academic Attainment	DF	Parameter Estimate	t Value	Pr > t	Cumulative R-Square	Sequential Type I	
						F Value	Pr > F
Approximately how many total hours a month were you active in voluntary organizations	1	0.18663	3.30	0.0010	0.00619	9.39	0.0022
Active/Inactive membership: Church or religious organization	1	-0.25641	-3.45	0.0006	0.01396	11.88	0.0006
Approximately how many total hours a month were you active in voluntary organizations	1	0.20938	3.11	0.0019	0.00818	9.15	0.0025
How often do you attend religious services	1	-0.12951	-3.61	0.0003	0.01970	13.04	0.0003
Approximately how many total hours a month were you active in voluntary organizations	1	0.19541	2.88	0.0040	0.00828	9.23	0.0024
How often to you pray	1	-0.08535	-2.40	0.0164	0.01343	5.77	0.0164

Early Childhood Longitudinal Survey Study

The second study used data from the Early Childhood Longitudinal Study. The cohort used for this study started kindergarten in 1998-1999 and were followed through eighth grade. The study interviewed and gathered information from students, parents and teachers. The study was constructed to provide a large, nationally representative sample of children across multiple years important to development.

The variables used for this study were the ARS scores for Literacy and Math collected at five points from Kindergarten through eighth grade. The ARS is a scale developed by the NCES rated from 1-5 in order to map effectively onto grading scales generally employed by most teachers. The current study also used scores for frequency of attending religious services, working on hobbies or sports, attending school activities, attending non-school activities, and attending sporting events.

Academic achievement measures were obtained in two ways. First was subtraction of initial scores on the relevant ARS score from the last. Second was an average of each of the available scores. Each observation ended up with four academic outcome measures: Literacy change, literacy average, math change, and math average.

Analysis

Much like the variables from the World Values Survey, all the variables used from the ECLS data set tested as non-normal when using a normality test. Once again, for the purposes of correlation, the data were treated as non-normal and measured via Spearman correlation and treated as normal for regression due to regression's more forgiving nature for non-normal data.

For the outcome variables intended to measure change in literacy, the only significant relationship was between change in literacy and frequency attending sporting events. All other correlations had p values ranging from .11 to .86. Change in Math was significantly related to both frequency working on hobbies and attending non-school activities. However, the averages scores for literacy and math were all significantly correlated with the predictor variables.

Scatter plots of the predictors and outcome variables gave no indication of a violation of the linearity assumption.

The change variables were discarded due to a lack of a relationship with the predictor variables in favor of the average scores, which did show evidence of a relationship.

A series of multiple regression analyses were used to gauge if some type of community engagement would account for an increase in scores in math and literacy (Table 5).

The first model consisted of time spent practicing hobbies or sports and frequency of religious attendance predicting average math scores over the from kindergarten to eighth grade. The overall model was significant, $R^2 = .02$, $F(2, 8687) = 99.67$, $p < .01$, though explained very little variance. The individual predictors, however do provide some insights. Time spent on hobbies had an R^2 of .02, while

frequency of religious attendance had an R^2 of .002. While tests indicate that the R^2 change was significant for both predictors, that may also be an artifact of the large sample size.

The second model consisted of frequency attending school activities and frequency of religious attendance predicting math scores. The overall model was significant, $R^2 = .02$, $F(2, 8688) = 87.65$, $p < .01$, though explained very little variance. Similar to the first model, the minority of the explained variance came from frequency of religious attendance. Participation in non-school activities had an R^2 of .02, while frequency of religious attendance had an R^2 of .002. While tests indicate that the R^2 change was significant for both predictors, that may also be an artifact of the large sample size.

The third model consisted of frequency attending non-school activities and frequency of religious attendance predicting math scores. The overall model was significant, $R^2 = .04$, $F(2, 8687) = 189.08$, $p < .01$. Similar to the other two models, the minority of the explained variance came from frequency of religious attendance. Participation in non-school activities had an R^2 of .04, while frequency of religious attendance had an R^2 of .0006. This result is perhaps most striking due to the profound disparity in the amount of variance explained by each of the predictors.

The next model consisted of frequency attending sporting events and frequency of religious attendance predicting math scores. The overall model was significant, $R^2 = .02$, $F(2, 8689) = 104.69$, $p < .01$. Once again the minority of the explained variance came from frequency of religious attendance. Attending sporting events had an R^2 of .02, while frequency of religious attendance had an R^2 of .001.

The models were each repeated to predict average literacy scores over the years measured. The results of those tests mirrored the same pattern as the math scores with each of the models being significant predictors, though the vast majority of the variance coming from the community related variable as opposed to the religious attendance variable.

Table 5

	Parameter				Cumulative R-Square	Sequential Type I	
	DF	Estimate	t Value	Pr > t		F Value	Pr > F
Predicting Average Math Scores							
HOW FRQ WORK ON HOBBY OR SPORT	1	0.10816	12.88	<.0001	0.02062	182.92	<.0001
HOW FRQ ATTEND RELIGIOUS SERVICE	1	0.02736	4.01	<.0001	0.02243	16.10	<.0001
HOW FRQ ATTEND NONSCHOOL	1	0.10002	11.95	<.0001	0.01797	159.00	<.0001
HOW FRQ ATTEND RELIGIOUS SERVICE	1	0.02735	4.00	<.0001	0.01978	16.04	<.0001
HOW FRQ ATTEND SCH ACTIVITIES	1	0.14119	18.55	<.0001	0.04116	372.98	<.0001
HOW FRQ ATTEND RELIGIOUS SERVICE	1	0.01525	2.24	0.0253	0.04172	5.01	0.0253
HOW FRQ ATTEND SPORTING EVNTS	1	0.08814	13.26	<.0001	0.02211	196.46	<.0001
HOW FRQ ATTEND RELIGIOUS SERVICE	1	0.02435	3.56	0.0004	0.02353	12.67	0.0004
Predicting Average Literacy Scores							
HOW FRQ WORK ON HOBBY OR SPORT	1	0.11503	12.98	<.0001	0.02190	195.09	<.0001
HOW FRQ ATTEND RELIGIOUS SERVICE	1	0.04800	6.66	<.0001	0.02685	44.37	<.0001
HOW FRQ ATTEND NONSCHOOL	1	0.11934	13.52	<.0001	0.02365	211.06	<.0001
HOW FRQ ATTEND RELIGIOUS SERVICE	1	0.04650	6.46	<.0001	0.02829	41.69	<.0001
HOW FRQ ATTEND SCH ACTIVITIES	1	0.16394	20.47	<.0001	0.05127	470.90	<.0001
HOW FRQ ATTEND RELIGIOUS SERVICE	1	0.03283	4.58	<.0001	0.05354	20.95	<.0001
HOW FRQ ATTEND SPORTING EVNTS	1	0.08610	12.24	<.0001	0.02028	180.39	<.0001
HOW FRQ ATTEND RELIGIOUS SRV	1	0.04604	6.36	<.0001	0.02480	40.41	<.0001

Discussion

The intention of this study was to examine how much of the relationship between religiosity and happiness, worry, and academic achievement was related more to engagement with the community as opposed to some characteristic unique to religion. The often contradictory results found in prior studies on religion can be partially explained by the operational definitions used that did not include frequency of religious attendance. By defining religiosity in terms of frequency, the results of similar studies tended to produce more consistent results. The relationship between religiosity and community engagement also hinted at the possibility that it is involvement with community that provides the pro-social support

necessary to increase happiness and encourage academic achievement, something suggested thousands of years ago by Aristotle.

For the largely adult population in the World Values Survey, hours spent volunteering was a stronger predictor of thinking about meaning in life, happiness, and worry than frequency of religious observance. For children, it is perhaps most telling that the greatest variance explained for both math and literacy scores come from attending school activities. Much like religious services, school activities provide a way to interact with one's immediate community in a previously structured environment. Religion may provide humans a way to engage with their community in a fashion where everyone understands their role within that community, as opposed to needing to invent a way to interact with others.

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