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The Effect of Religious Affiliation and Religiosity on Mental Health Help-Seeking Behaviors.

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The Effect of Religious Affiliation and Religiosity on Mental Health Help-Seeking Behaviors.

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An abstract of

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University

in partial fulfillment of the requirements for the degree of
Master of Public Health
in Epidemiology

2012

Abstract

The Effect of Religious Affiliation and Religiosity on Mental Health Help-Seeking Behaviors.

By Jennifer Lynn Blase

Purpose: This research evaluates whether religious affiliation and the degree of religiosity are significant predictors of mental health help-seeking behaviors in the general US population.

Methods: Cross-sectional survey data were used from The National Comorbidity Survey Replication (NCS-R). Analyses were restricted to respondents with at least one CIDI/DSM-IV diagnosed disorder over the previous 12-month period. All analyses were conducted using SAS and SUDAAN survey procedures to account for the complex sample design and weighting of the NCS-R. Four multiple logistic regression models were estimated, one for each exposure of interest (religious affiliation and religiosity) and one for each outcome (perceived need for mental health services and reason for not wanting mental health services).

Results: Compared to the reference category of no religious preference, Catholics were the only religious affiliation that had a significant difference in perceived need (OR, 0.57, 95% CI, 0.37 – 0.86). People over 50 years old were significantly less likely to perceive a need for mental health services while people of black and Hispanic races were significantly more likely to perceive need for services. In the model of perceived need regressed on religiosity, religiosity was not a significant predictor yet being female and older were.

A sub-analysis among participants who did not perceive a need for mental health treatment showed that mainline Protestants (OR, 0.39, 95% CI, 0.23 – 0.67) and fundamentalist Protestants (OR, 0.39; 95% CI, 0.17 - 0.92) were significantly less likely to believe in the inefficacy of counseling rather than to have low perceived need.

The last multinomial regression model showed religiosity was not a significant predictor of reason for not seeking help. People with moderately and highly severe mental illness were significantly more likely to want to handle the problem on their own or to not believe in the efficacy of counseling as compared to those having low perceived need.

Conclusions: Overall, religiosity and religious affiliation are not strong predictors of perceived need and reasons for low perceived need. Other factors such as age, sex, race and disorder severity may be more important predictors of help-seeking behaviors than religion.

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BACKGROUND

Mental Health in the United States

Mental illness is a significant concern in the United States and worldwide. In developed countries, mental illness accounts for a larger proportion of disability than any other group of illnesses, including cancer and heart disease (1). Data from the National Comorbidity Survey estimates the lifetime prevalence of any Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) or World Mental Health Composite International Diagnostic Interview (WMH-CIDI) disorder in the United States to be 57.4%, while 32.4% of people had a mental illness over the past the 12 months (2). This high prevalence of mental disorders leads to increased economic costs, physical health problems and mortality.

Research has shown a bidirectional relationship between mental health and physical conditions. Numerous studies have found increased mental health problems to be associated with HIV (3), chronic illnesses (4) and coronary heart disease (CHD) (5). A prospective cohort study found that high levels of post-traumatic stress disorder (PTSD) symptoms increased the risk of CHD-related morbidity and mortality by over three fold (6). Another study found that cancer survivors report poorer mental health outcomes than people who have never had cancer (7). This direct link between mental and physical health is evidenced in a study of over 42 million medical records that showed physician visits and health care costs, exclusive of psychiatric visit costs, to be substantially higher on average for patients with psychiatric disorders than those who do not have them (8).

Mental illness also indirectly affects physical health by influencing behaviors that lead to poorer health outcomes. Persons with mental illness are known to have high rates of

cigarette smoking (9), inconsistent medication adherence (10), increased rates of overweight and obesity, harmful levels of alcohol consumption and lack of exercise (11). These findings illustrate the importance and interconnectedness of mental and physical health.

Given the large number of people with mental disorders, economic costs are extreme. Unlike medical illnesses, mental disorder costs tend to be more indirect (i.e. reduced labor supply, public income support payments, reduced educational attainment and other costs associated with incarceration and homelessness) and hence more difficult to measure (12). In 2002 alone, mental illness cost the United States an estimated $317 billion in lost earnings and wages, disability benefits, and health care expenditures. Although this cost is high, the estimate is conservative given that this figure excludes costs associated with comorbid conditions, incarceration, homelessness and early mortality (12).

Mental Health and Help-Seeking Behavior

Despite the high prevalence of mental disorders in the United States, only a small percentage of people access the formal mental health system (13). Two main reasons for not initiating help are lack of access, whether it is financial or physical accessibility, and knowledge, attitudes, and beliefs (KABs). Studies consistently show KABs to be important barriers to initiating help and they are often more significant than material or financial access barriers (14-16). Attitudinal barriers vary from person to person and can encompass different components such as stigma, low perceived need, belief of the ineffectiveness of therapeutic interventions and desire to handle the problem on one's own.

Stigma is a common attitudinal barrier that is an influential obstacle towards help seeking. One study found that 20% of the population would probably or definitely not seek

treatment if they had serious emotional problems. Additionally, almost half of survey participants claimed they would be embarrassed if their friends knew about their use of mental health services (17). Other studies have explored stigma in-depth and found two different types of stigma, personal and perceived public stigma, to have different effects on help-seeking behaviors. Perceived public stigma is defined as an individual's perception of negative stereotypes and prejudice about mental illness held collectively by people in a society or community (18). Personal stigma is an individual's stigmatizing attitudes which may or may not concur with perceived public stigma. Eisenberg et al. found public stigma to be much more common than personal stigma. Personal stigma was inversely associated with help seeking, whereas perceived public stigma was not related to help seeking (19). Regardless of the type of stigma, studies show that negative attitudes towards mental health care in the United States are widespread.

Beyond stigma, low perceived need has also been recognized as a barrier to mental health treatment. Among people diagnosed with at least one DSM-IV or CIDI disorder, one study showed that low perceived need was reported by 44.8% of respondents, making it the most prevalent barrier to mental health service utilization (14). Several additional studies have documented the importance of low perceived need in impeding access to mental health services (20-22).

Among people who perceive a need for mental health services many prefer not to seek professional help. One study found that desire to handle the problem on one's own was the most common reason for not seeking treatment (14). Reasons for not wanting to seek professional help include belief in the inefficacy of psychological treatment (23) and

preference for other types of counselors such as clergy (24), in addition to many other factors.

Religion in the United States

Historically, religion has been a foundational aspect of American culture and it continues to be pervasive throughout society. There are more Americans involved in religious denominations than any other kind of voluntary association including labor unions and ethnic organizations (25). Despite widespread claims of religion's decline in an era of science, a majority of Americans (65%) say that religion is an important part of their daily lives (26). When asked about belief in God, that number increased to 92% with 71% holding this belief with "absolute certainty" (27). Although young adults, ages18-29, pray less often than their elders currently, the proportion of young people that said they pray every day is similar to the proportion of young people who said that in prior decades. This may indicate that there is not necessarily a decline in religion among young people but that people tend to place greater emphasis on religion as they age (27). As religion remains an important factor in the United States, researchers have cited the need for religious issues to be included in the investigation of psychological help-seeking (24).

Religion and Demographic Characteristics

Despite the overall importance of religiosity in American culture, certain demographic groups are typically more religious than others. One important demographic characteristic that should be considered in any analysis of religion is gender. Although some studies have found no association between gender and religiosity (28), research overwhelmingly shows women to have higher levels of religiosity (29-31), higher reported

frequency of religious service attendance (32), and higher levels of religious participation than men (33).

Race and ethnicity has also been found to be associated with religiosity. Many studies show that blacks have higher rates of religiosity than whites (30, 34). When comparing Hispanic populations to blacks and whites, data shows that blacks were still the most religious group, with Hispanics being the next highest group and significantly more religious than whites (35). These differences in religiosity by race have been shown in different age groups ranging from high school students to older adults (age 55 and over) (30, 33, 34).

Religiosity also varies by marital status, income, education level and social network. Overall, married individuals (33, 36) with higher income (36, 37) tend to be more religious. Studies have also shown an association between religiosity and education level although there is a general disagreement on whether greater religiosity is associated with higher education levels (36) or lower education levels (33). Other research shows conservative denominations such as Fundamentalist, Pentecostal or sectarian Christians draw a larger proportion of poorer, less educated believers to their faith (31).

Beyond controversies about education levels, research overwhelmingly shows that people of higher religiosity have greater social support (38). Across several measures of social support including social network size, contact with network members, types of social support received, and perceptions of supportive quality of relationships, those with increased church attendance showed higher levels of each construct (39, 40).

An important connection exists between age and religiosity. Younger people are less likely to affiliate with any religious tradition or to identify themselves as part of a Christian

denomination yet among people who are affiliated, generational differences in church attendance are very small. Overall, fewer young people report that religion is important in their daily lives than older adults. Given the decreased religiosity in younger generations, an anomaly exists surrounding other measures of religious belief. When examining belief systems, young people often hold the same if not more powerful beliefs as their older counterparts, in life after death, heaven, hell and miracles (27).

In addition to the abovementioned demographic characteristics, some studies have found religiosity to be associated with disorder severity. A negative association is generally found between disorder severity and positive religious coping (41, 42). When considering negative religious coping and negative religious support, as one study with adolescent psychiatric patients did, religiosity was found to have a detrimental effect on those with mental disorders (43).

Mental Health and Religion

Given the widespread belief of religion in the United States and the large number of people affected by mental disorders, the effects of religion on mental health are well documented in academic research. Although there is some disagreement, overall, studies on religion's effect on mental health show significantly lower depressive symptoms among the more religious (41, 44). Another study concluded that not just religiosity but a confident worldview, found in confidently religious and atheist persons, is the most important predictor of mental health (45). The belief in atheism has also been noted as an orienting worldview and should therefore be included as a consideration in mental health outcomes (46).

Mental Health and Decision Making

In addition to religion's direct effect on mental health, religion has also been shown to be influential in decision-making. Higher level of religious involvement has been associated with increased reliance upon the Bible for guidance in decision-making (47). Other studies have shown religion to play an important role in making decisions especially with regards to medical treatment (48, 49). These studies highlight the socially integrative aspects and importance of religious experience.

Religion and Help Seeking

Past research documents the influence of religion on decision-making and associations between religion and mental health. More recent research focuses on the melding of these two subjects to explore the influence of religion on how people make mental health decisions. The effect of religion on help seeking behaviors has been explored in many specialty groups including international populations (50, 51), ultra-orthodox Jews (52), university students (50), Black American churchgoers (53), Filipino Americans (54) and several other groups. None of these studies have compared help seeking behaviors across religions in a large, representative US national sample. This research will evaluate whether different religious affiliations and the degree of religiosity are significant predictors of mental health help seeking behaviors in the general US population by answering the following questions.

1. Among people with a 12 month DSM-IV diagnosed disorder, do religious affiliation and religiosity affect perceived need for mental health services?

2. Among people with a 12 month DSM-IV diagnosed disorder that did not perceive a need for mental health services, are religious affiliation and religiosity significant predictors of the reason for not wanting to see a professional?

METHODS

Sample

The National Comorbidity Survey Replication (NCS-R) contains cross-sectional data on the prevalence and correlates of mental disorders from 9,282 respondents. In-person interviews of United States residents over 17 years old were conducted between February 5, 2001 and April 7, 2003. All participants are English-speaking, non-institutionalized adults living in the contiguous United States. A core diagnostic assessment and a service use questionnaire were administered to all respondents (55). Analyses were restricted to respondents with at least one CIDI/DSM-IV diagnosed disorder over the previous 12-month period. Although people without a diagnosed disorder were also asked about help-seeking behaviors, this analysis was limited to those with a disorder to capture people who have an identifiable need for mental health services. Participants with the following 12-month disorders were included in the analysis: adult separation anxiety disorder, agoraphobia without panic disorder, alcohol abuse, alcohol dependence, attention deficit disorder, bipolar disorder (bipolar 1 and bipolar II), conduct disorder, drug abuse, drug dependence, dysthymia, general anxiety disorder, intermittent explosive disorder, major depressive disorder, oppositional-defiant disorder, panic disorder, posttraumatic stress disorder, social phobia, specific phobia, binge eating disorder, bulimia nervosa, and anorexia nervosa. Obsessive-compulsive disorder diagnoses were unavailable due to a problem with the skip logic which caused the disorder to be underestimated. Psychotic Disorders and Pervasive Developmental Disorders were not assessed in this study.

Exposures

NCS-R contains several questions on religious affiliation. Fourteen demarcations of religious affiliation were found among respondents including options for 'no religious preference', 'no religion', 'atheist or agnostic', or 'other'. If participants mentioned multiple religions, they were categorized using the first religion mentioned. These categories were further grouped according to Steensland's methods which subdivide religious denominations into historically and politically meaningful groups (56). The categorizations include i) no religious preference; ii) Catholic; iii) mainline Protestant including Lutheran, Presbyterian, Episcopal, Methodist and nondenominational protestants; iv) fundamentalist protestants including Baptist and Pentecostal and v) others. People who indicated 'no religion' in the survey were grouped with those of 'no religious preference' after a chi-square test indicated that these groups did not differ significantly with respect to the outcome ($\chi^2 = 1.73$; $p = 0.1749$). In addition to these groupings atheism/agnosticism is included as a religious 'affiliation' because atheism, like religion, is an orienting worldview that is often chosen by its adherents (46).

Reiland and Lauterbach's (2008) scale measure that represents religiosity by utilizing four variables from the NCS was adapted for use with NCS-R data. The four factors are church attendance, perceived importance of spiritual beliefs to one's life, frequency of seeking spiritual comfort, and tendency to rely on God for guidance. The items were phrased as (1) "In general, how important are religious or spiritual beliefs in your daily life?", (2) "How often do you usually attend religious services?", (3) "When you have problems or difficulties in your family, work, or personal life, how often do you seek comfort through religious or spiritual means, such as praying, meditating, attending a religious or spiritual

service, or talking to a religious or spiritual advisor?" and 4) "When you have decisions to make in your daily life, how often do you think about what your religious or spiritual beliefs suggest you should do?" The first item, pertaining to importance of beliefs, included response options of 4: Very important, 3: Somewhat important, 2: Not very important, and 1: Not at all important. The response options for church attendance included 5: More than once a week, 4: About once a week, 3: One to three times a month, 2: Less than once a month, and 1: Never. Those for seeking spiritual comfort and seeking spiritual guidance included 4: Often, 3: Sometimes, 2: Rarely, and 1: Never. The sum of ratings from the four items formed a religiosity index, with a possible range from 4 to 17. If a participant answered at least two of the four scale questions, average values were imputed for the missing values. Scores of 4 to 9 were coded Low Religiosity, 10 to 13 as Medium Religiosity, and 14 to 17 as High Religiosity. Categories of low, medium, and high to represent religiosity have been used frequently (e.g. (57, 58)).

Outcomes

Perceived need for mental health services is operationalized as a binary outcome variable measured by the question, “Was there ever a time during the past 12 months when you felt that you might need to see a professional because of problems with your emotions or nerves [(or your use of alcohol or drugs)]?”. Participants were regarded as perceiving a need for professional help if they answered this question affirmatively. Participants who answered negatively were asked the following question, “Which of these three statements best describes why you didn't want to see a professional: You didn't th
You had a problem, but you thought you could handle it on your own? Or you thought that you needed help but didn't believe professional treatment would be helpful?” Respondents to

this question comprised the sample for the second categorical outcome, reason for not wanting to see a professional.

Sociodemographic predictor variables

Sociodemographic variables included age (18-34, 35-49, 50-64, ≥ 65 years), sex, race–ethnicity (non-Hispanic white, Hispanic, non-Hispanic black, other), years of education (0–11, 12, 13–15, 16), disorder severity (mild, moderate, severe) adopted from Mojtabai, et al. (14) social network (low, medium, high) and marital status (married/cohabitating, separated/widowed/divorced, never married). The income variable was created from the 2001 Census family income to needs ratio, which was divided into quartiles (low, low-average, high-average, high).

Statistical Analysis

All analyses were performed using SAS version 9.3 (SAS Institute, Cary, North Carolina) and SUDAAN version 10.0.1 (Research Triangle Institute, North Carolina). Descriptive statistics were calculated using SAS survey procedures to account for the complex sample design and weighting of the NCS-R. Univariate and bivariate statistics were computed for the total study population, then among people who did not believe they needed to see a mental health professional and specified a reason for not wanting to see one. Chi-square tests were used to determine whether covariates differed significantly among participants of varying religious affiliation, levels of religiosity and the outcome variables. Using chi-square test results, covariates that were significantly related to both the exposure and outcome were considered as potential confounders in the modeling process. Four multiple logistic regression models were estimated, one for each exposure of interest (religious affiliation and religiosity) and one for each outcome (perceived need for mental

health services and reason for not wanting mental health services). Backwards elimination, with a criterion of a significance level of $p < 0.05$, was used to successively assess all two way interactions between exposures and covariates. The Gold Standard model was defined as the model containing all possible confounders identified during bivariate analyses. Confounders were then assessed in the models by dropping one covariate at a time and assessing whether the reduced model was within 10% of the assumed “Gold Standard” Model. If the OR’s did not change by over 10% when each variable was dropped, the covariate was eliminated and only those that changed over 10% were kept in the model to control for confounding in the final model.

RESULTS

Descriptive Analysis of Perceived Need

1478 participants met the criteria for a 12-month DSM-IV mental disorder and answered the question of whether they perceived a need for professional mental health treatment over the past year. Among those participants, a majority (72.64%) did not perceive a need for treatment (Table 1). The most prevalent religious affiliations are mainline Protestants (27.89%; SE, 1.42) followed by Catholics (23.61%; SE, 1.73), fundamentalist Protestants (20.05%; SE, 1.32) and then people with no religious preference, others, and atheists/agnostics. Since the groups were divided into tertiles to categorize level of religiosity, fairly evenly weighted percentages of the low, medium and high religious categories were shown with medium having the largest percentage (34.81%; SE, 1.19). Among people who have had a mental disorder over the past year, religious affiliation (χ^2 = 0.0564) and level of religiosity (χ^2= 0.0603) were borderline insignificantly related to perceived need for professional help.

Univariate analysis revealed that participants in the sample for outcome 1 were more likely to be women (54.89%; SE, 1.15), young, between the ages of 18-34 (45.04%; SE, 1.48), and of non-Hispanic white race (68.50%; SE, 2.45). In this sample a majority of participants completed high school (32.77%; SE, 2.22) or some college (29.54%; SE, 1.36) and were married or cohabiting (50.16%; SE, 1.45). Participants were also more likely to be of low-average income level (30.31%; SE, 1.38), have high social support networks (38.81%; SE, 1.67) and have mild mental disorders (55.50%; SE, 2.21).

Chi-square tests showed that both religious affiliation and perceived need differ significantly by sex, age, race, and income (for all covariates $p<0.05$) (Tables 2 & 3). Given

the associations between the exposure and outcome, these four covariates were considered as potential confounders during the modeling process. Upon examination of religiosity and perceived need, chi-square statistics showed that sex, age, race and disorder severity were all significantly related to the exposure and outcome, hence all four covariates were considered as potential confounders (Tables 3 & 4).

Regression Analysis of Perceived Need

Initially, two interaction terms were significant during backwards elimination (religious affiliation*race and religious affiliation*income), yet no clear or interpretable pattern across the categories involved in the interaction was evident and hence the decision was made to report a main-effects model. In the logistic model of perceived need for professional help regressed on religious affiliation, income was dropped after confounding assessment. Using the participants with no religious preference as a reference, participants in all religious groups were less likely to perceive a need for mental health services with Catholics, mainline Protestants and fundamentalist Protestants much less likely to perceive a need than atheists/agnostics or those in the 'other' group (Table 5). Controlling for age, sex and race, only Catholics showed a statistically significant relationship between religious affiliation and perceived need (OR, 0.57, 95% CI, 0.37 – 0.86). In this model, age among older participants compared to younger participants, aged 18-34, was a significant predictor of perceived need. Those in the 50-64 age group (OR, 0.47; 95% CI, 0.26 – 0.83) and ≥ 65 age group (OR, 0.25; 95% CI, 0.13 – 0.47) were significantly less likely to perceive a need for mental health services. Participants of non-Hispanic black race were 60% more likely to perceive a need for mental health services than whites (OR, 1.59; 95% CI, 1.15 – 2.19) while

people of Hispanic origin were 84% more likely to perceive a need (OR, 1.84; 95% CI, 1.19 – 2.82) than white non-Hispanic participants.

In the model of perceived need regressed on religiosity, sex and age were kept in the model to control for confounding. Although religiosity was found not to be a significant predictor of perceived need for mental health services, the final model showed that participants of medium religiosity were more likely to perceive a need for mental health services than those of low religiosity (OR, 1.15; 95% CI, 0.76 - 1.73) but participants of high religiosity were less likely than those of low religiosity to perceive a need for professional help (OR, 0.84; 95% CI, 0.56 – 1.27) (Table 5). Females were significantly more likely to perceive a need for mental health services than males (OR, 1.61; 95% CI, 1.26 – 2.05). Similar to the above model, participants in the 50-64 age range (OR, 0.42; 95% CI, 0.24 – 0.73) and the ≥ 65 (OR, 0.22; 95% CI, 0.11 – 0.43) group were significantly less likely than younger participants to acknowledge a need for mental health services.

Descriptive Analysis of Reason for Not Wanting Mental Health Services

Of the 1041 participants who did not perceive a need for professional treatment, a subset of 1005 people gave a specific reason for not wanting treatment. Among this population, most people answered that they did not think they had a problem (47.93%; SE, 2.01), closely followed by those who preferred to handle the problem on their own (45.12%; SE, 1.78) and those who did not believe in the efficacy of counseling (6.94%; SE, 0.84) (Table 6). Similar to outcome 1, the largest group by religious affiliation were mainline Protestants (28.75%; SE, 1.70), followed by Catholics (24.91%; SE, 2.14), fundamentalist Protestants (20.63%; SE, 1.52), those of no religious preference (16.65%; SE, 1.74), others

(7.52%; SE, 0.97) and then atheists/agnostics (1.32%; SE, 0.44). Within this subset, people of higher religiosity (34.17%; SE, 2.01) were slightly more prevalent than those of medium religiosity (33.42%; SE, 1.52) and low religiosity (28.69%; SE, 1.93). Among participants with a 12-month DSM-IV diagnosis who did not perceive a need for professional treatment, the reasons for not perceiving a need differed significantly by religious affiliation (χ^2 = 0.0117) yet not for level of religiosity (χ^2 = 0.7130).

Given that the sample for outcome 2 is a large subset of that for outcome 1, univariate statistics were very similar. Participants in this sample were more likely to be women (52.64%; SE, 1.25), young, between the ages of 18-34 (41.83%; SE, 1.91), and of non-Hispanic white race (71.42%; SE, 2.57). Participants were also more likely to have completed high school (32.91%; SE, 2.63) or some college (29.24%; SE, 1.65), be married or cohabiting (51.23%; SE, 1.99), be of low-average income level (30.18%; SE, 1.37), have high social support networks (41.37%; SE, 2.02) and have mild severity of mental illness (63.27%; SE, 2.08) (Table 6).

Chi-square tests show that religious affiliation and outcome 2 both differ significantly with respect to education and therefore education was considered as the only potential confounder in the model (Tables 7 & 8). Both level of religiosity and outcome 2 differ with respect to social network and severity so these covariates were considered during confounding assessment (Tables 8 & 9).

Regression Analysis of Reason for Not Wanting Mental Health Services

A sub-analysis was performed among participants who did not perceive a need for mental health treatment to learn whether religious affiliation affected reasons for

imperceptions of a need. Multinomial logistic regression was performed with the reference outcome of low perceived need. In all multivariate models, interaction terms were removed during backwards elimination. Using bivariate associations as a guide, the only covariate considered as a potential confounder was education, which was dropped in the final model. Therefore the final model is the unadjusted model of religious affiliation regressed on reason for non-help seeking. In this model, both mainline Protestants (OR, 0.39, 95% CI, 0.23 – 0.67) and fundamentalist Protestants (OR, 0.39; 95% CI, 0.17 - 0.92) as compared to people of no religious preference, are significantly less likely to believe in the inefficacy of counseling than to have low perceived need (Table 10). Associations for all other religions included in this multinomial regression model were non-significant.

A multinomial regression analysis was also conducted for religiosity and reason for not wanting professional mental health services. Covariates considered for the model include social network and disorder severity, which were both retained in the final model. Although religiosity was not found to be significantly associated with reason for not seeking help, people of moderate and high severity were significantly more likely to want to handle the problem on their own or to not believe in the efficacy of counseling as opposed to having low perceived need (Table 10).

DISCUSSION

In many ways, the demographics of the study population accurately represent the general US population. The sample had the highest percentages of mainline Protestants followed by Catholics, fundamentalist Protestants, and many fewer people of no religious preference, 'others' and atheists/agnostics. Although Protestants comprise the largest religious affiliation in both the sample and the US population, statistics from a national sample paint a slightly different picture. The Pew Forum on Religion and Public Life reported the largest denomination to be fundamentalist Protestants followed by Catholics, mainline Protestants, people with no religious preference and a close tie between 'others' and atheists/agnostics (27).

Overall, females, younger adults, and people of white race were more likely to be diagnosed with a mental illness, which has also been found in other national studies (59, 60). In this sample, people with a mental illness were more likely to be married or cohabiting, contradicting previous research that shows increased rates of mental disorders in the unmarried (59).

Although most religious affiliations did not predict perceived need, Catholics were almost half as likely to perceive a need for mental health treatment than people of no religious preference. This association may be due to various reasons including a lack of knowledge about mental illness, mental illness symptomology, and professional treatments for mental disorders. This information is useful when working with people of the Catholic faith who present with mental disorders. It shows that an educational component about

mental illness may be an effective intervention with people of the Catholic faith. Further studies should also be performed to validate this finding.

It is interesting to observe that people of any Christian faith who meet DSM-IV criteria for a 12-month mental disorder as diagnosed in this study were between 34% and 43% less likely to perceive a need for mental health services than those of no religious preference. While the 'other' and atheist/agnostic groups were also less likely to perceive a need than people of no religious preference, they were between 1% and 7% less likely. This difference may be attributable to other factors including treatment provider preference, a lack of knowledge about mental health, or the belief that prayer and spirituality can resolve mental health issues. This gap between Christians and people of other faiths presents a greater need for mental health education and advocacy work. Working with clergy to decrease stigma surrounding mental illness, providing training to recognize mental disorder symptoms and training for effective counseling may be useful tools to improve the overall wellbeing of the population.

In the model of perceived need regressed on religious affiliation, age among individuals over 50 years old was a significant predictor of a lack of perceived need for mental health services. This finding is reflected in other studies showing that older people are less likely to perceive a need for mental health services than their younger counterparts (14). Lower perceived need among the older population may be due to the traditional perceptions of mental illness as a weakness although mental health treatment seeking has become more acceptable and perceived stigma with it has declined in recent years (61, 62).

Despite religiosity not significantly predicting perceived need, sex is significantly related with women being almost 60% more likely to perceive a need for mental health services than men. This finding aligns with past research showing that women often perceive a higher need and are more willing to seek mental health treatment (14, 19, 63, 64).

Assessing the relationship between religious affiliation and reason for not wanting to seek help, mainline and fundamentalist Protestants were significantly less likely to perceive a need for services than to believe in the inefficacy of counseling. This finding suggests that education on mental disorder symptomology may be a more important focal point for interventions than addressing perceptions of mental health counseling. Given these findings, implementation of educational campaigns on mental illness in Protestant churches may be an effective method of reaching this population.

The last model showed that religiosity was not a significant predictor of reason for not wanting to seek help. Interestingly, moderate and severe disorder severity were significant predictors of citing reasons other than low perceived need. This finding makes sense given that the more severe the disease, the more likely someone will perceive a need for treatment (14). Among people with moderate and severe disorders, researchers should further explore reasons for overall reluctance to seek help. For example, gaining more detail from the people who said they would prefer to handle the problem on their own, such as how they would handle it and why they would prefer not to seek professional help, may guide interventions and educational campaigns for a mentally ill population. This finding also underscores the importance of aiming interventions towards improving the public's perceptions of mental health treatments and decreasing stigma associated with mental illness.

Limitations

This study has several noteworthy limitations. One constraint is related to the collection of data on religious affiliation. While we had hoped to separate data of atheists and agnostics since atheism has been noted as an orienting worldview (46) that may help to predict mental health help-seeking behaviors, the data for these two categories were aggregated during data collection. This category is also limited due to its small sample size. Atheists and agnostics had to be dropped from models predicting the reason for not wanting mental health treatment because the small sample size led to unreliable parameter estimates. Another limitation of the religious affiliation categorization is that Jewish, Hindu and other faiths, less prevalent in the US, were combined into an 'other' category, making it impossible to examine the effect of each individual religion on each outcome. On the whole, religious affiliation also had many missing observations (n= 856) that were excluded from the analysis.

Limitations measuring religiosity exist given the complexity and the many different factors that often encompass religiosity. While this study used measures of church attendance, perceived importance of spiritual beliefs to one's life, frequency of seeking spiritual comfort, and tendency to rely on God for guidance as pertinent measures of religiosity, other studies site the importance of additional aspects including differences between positive and negative religious coping (43) and dimensions of spirituality (65).

Limitations also exist in the analysis portion of this study. Since only publicly available data were used for analysis, certain requirements for the disorder severity scale were inaccessible. Where these measures could not be assessed the severity index was set to

missing. Also, after backwards elimination of the interaction terms in the perceived need modeling process, two significant interactions remained, one for religious affiliation and race and one for religious affiliation and income. There were no clear or interpretable patterns across the categories involved in the interactions, and the decision was then made to report main-effects models.

In the context of these limitations, the data provide a broad overview of the effect of religious affiliation and religiosity on mental health help-seeking behaviors. Although many past studies cite the influence of religion on mental health and on help-seeking behaviors, the above analysis indicates that overall, religiosity and religious affiliation are not strong predictors of perceived need and reasons for low perceived need. Other factors such as age, sex, race and disorder severity may be more important predictors of help-seeking behaviors than religion.

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TABLES

Table 1. Descriptive statistics of all National Comorbidity Survey Replication (NCS-R) participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

Indicator		**No.**	**Wgt %**	**SE**
Perceived need for professional help in the past 12 months				
	Yes	437	27.36	1.49
	No	1041	72.64	1.49
Religious affiliation				
	No Religious Preference	252	18.36	1.51
	Catholic	351	23.61	1.73
	Mainline Protestant	421	27.89	1.42
	Fundamentalist Protestant	313	20.05	1.32
	Others	112	8.40	0.81
	Atheist/Agnostic	23	1.41	0.35
	Missing	6	0.29	0.09
Religiosity[1]				
	Low	410	29.06	1.62
	Medium	508	34.81	1.19
	High	496	31.98	1.71
	Missing	64	4.15	0.63
Sex				
	Male	608	45.11	1.15
	Female	870	54.89	1.15
Age				
	18-34	678	45.04	1.48
	35-49	451	31.45	1.35
	50-64	249	17.28	1.13
	≥ 65	100	6.23	0.75
Race				
	White	1004	68.50	2.45
	Black	216	12.42	1.43
	Hispanic	169	13.71	1.89
	Other	89	5.36	0.99
Education (years)				
	0-11	255	18.31	1.34
	12	468	32.77	2.22
	13-15	451	29.54	1.36
	≥ 16	304	19.39	1.27
Marital Status				
	Married/cohabiting	783	50.16	1.45
	Divorced/separated/widowed	308	19.14	1.01
	Never married	387	30.70	1.49
Income				
	Low	347	23.36	1.71
	Low-average	444	30.31	1.38
	High-average	351	23.62	1.25
	High	336	22.71	1.01

Table 1 continued. Descriptive statistics of all National Comorbidity Survey Replication (NCS-R) participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

Indicator	No.	Wgt %	SE
Social Network			
Low	417	29.67	2.34
Medium	391	26.42	1.78
High	590	38.81	1.67
Missing	80	5.10	0.83
Disorder Severity[2]			
Mild	765	55.50	2.21
Moderate	485	30.64	1.77
Severe	226	13.69	1.49
Missing	2	0.17	0.12

[1] Score cut points for religiosity measure: Low: < 10, Medium: 10 – 13, High: > 13
[2] Severity scale adopted from Mojtabai, et al. (14)

Table 2. Demographic characteristics by religious affiliation among participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

		Exposure - Religious Affiliation																				
		No Religious Preference			Catholic			Mainline Protestant			Fundamentalist Protestant			Others			Atheist/ Agnostic			Missing			
Indicators		**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Sex																						0.0000
	Male	142	25.08	2.16	143	21.72	2.02	159	26.67	2.05	108	16.89	1.46	41	7.58	1.13	13	1.86	0.56	2	0.20	0.14	
	Female	110	12.84	1.56	208	25.15	2.11	262	28.89	1.73	205	22.65	1.74	71	9.08	0.92	10	1.03	0.36	4	0.36	0.12	
Age																						0.0000
	18-34	152	23.09	2.07	160	23.90	1.96	176	25.21	1.87	131	18.70	1.97	45	7.31	1.19	9	1.25	0.51	5	0.54	0.17	
	35-49	81	21.06	2.64	95	20.10	2.52	130	27.98	1.85	90	18.23	2.00	43	10.47	1.56	11	2.01	0.69	1	0.15	0.15	
	50-64	16	7.11	1.91	68	26.10	2.60	82	32.81	3.50	65	25.28	3.69	15	7.49	2.73	3	1.20	0.68	0	.	.	
	≥ 65	3	1.70	0.99	28	32.27	6.04	33	33.18	6.66	27	24.46	4.88	9	8.40	2.17	0	.	.	0	.	.	
Race																						0.0000
	White	201	21.71	1.70	222	20.60	1.45	317	31.25	1.54	165	16.65	1.56	77	7.88	0.85	21	1.84	0.48	1	0.07	0.07	
	Black	25	11.00	2.77	15	6.70	2.41	44	19.43	2.94	119	57.15	3.43	10	4.53	1.80	0	.	.	3	1.18	0.64	
	Hispanic	15	10.14	3.00	103	58.29	5.24	26	14.54	2.78	14	7.25	2.50	9	9.19	3.44	1	0.27	0.27	1	0.32	0.32	
	Other	11	13.60	3.99	11	12.52	4.66	34	38.73	7.58	15	10.19	3.61	16	22.05	5.54	1	2.04	2.02	1	0.87	0.87	
Education (years)																						0.0005
	0-11	42	18.63	2.79	60	28.45	4.29	57	18.89	2.95	79	27.37	3.58	13	5.35	2.21	2	0.78	0.60	2	0.53	0.37	
	12	77	18.40	2.54	104	21.56	2.54	124	25.61	2.21	127	25.46	2.56	32	8.15	1.59	3	0.65	0.37	1	0.17	0.17	
	13-15	85	18.35	2.46	97	20.60	2.28	147	33.42	2.67	74	16.09	1.83	40	10.25	2.15	6	0.98	0.45	2	0.31	0.21	
	≥ 16	48	18.04	3.81	90	27.07	3.63	93	31.81	3.26	33	10.01	1.80	27	8.91	1.94	12	3.91	1.15	1	0.24	0.24	

Table 2 continued. Demographic characteristics by religious affiliation among participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

	Exposure - Religious Affiliation																					
		No Religious Preference			Catholic			Mainline Protestant			Fundamentalist Protestant			Others			Atheist/ Agnostic			Missing			
Indicators		**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Marital Status																						0.1293
	Married/ cohabiting	123	16.06	1.42	198	24.41	2.21	238	30.37	2.04	149	18.46	1.85	64	9.39	1.52	11	1.32	0.38	0	.	.	
	Divorced/ separated/ widowed	42	16.80	3.53	62	22.84	3.37	96	28.65	2.08	80	23.53	2.15	23	6.86	1.08	4	1.08	0.57	1	0.24	0.24	
	Never married	87	23.10	2.83	91	22.78	2.23	87	23.37	2.43	84	20.47	2.67	25	7.74	1.69	8	1.76	0.73	5	0.79	0.25	
Income																						0.0014
	Low	47	15.02	2.34	67	22.87	4.01	85	23.45	2.48	110	27.86	3.12	30	8.83	1.32	6	1.56	0.96	2	0.41	0.29	
	Low-average	83	18.94	2.10	108	25.63	2.50	121	26.04	2.20	92	20.20	2.74	32	7.61	1.43	6	1.25	0.56	2	0.33	0.23	
	High-average	62	21.09	3.54	87	20.45	2.03	113	31.96	3.40	64	19.16	1.95	21	6.31	1.65	3	0.84	0.50	1	0.19	0.19	
	High	60	18.19	2.29	89	24.95	2.12	102	30.69	3.33	47	12.73	2.13	29	11.20	2.44	8	2.04	0.71	1	0.21	0.21	
Social Network																						0.0835
	Low	83	20.83	2.47	95	24.71	2.85	99	23.83	2.59	100	19.99	2.44	31	9.19	1.66	5	0.81	0.43	4	0.64	0.32	
	Medium	70	19.17	2.92	96	23.15	2.84	102	26.88	2.27	83	21.00	1.97	30	7.21	1.37	8	2.22	1.01	2	0.37	0.27	
	High	85	15.96	1.90	139	22.34	1.91	197	31.73	2.00	114	19.74	1.79	46	8.92	1.40	9	1.32	0.44	0	.	.	
	Missing	14	18.08	5.16	21	29.22	6.17	23	27.46	5.25	16	17.84	3.65	5	6.07	2.73	1	1.32	1.35	0	.	.	
Disorder Severity[1]																						0.0968
	Mild	114	16.48	1.71	183	24.27	2.04	235	30.31	2.24	144	18.05	1.80	64	9.05	1.27	15	1.67	0.47	2	0.16	0.12	
	Moderate	90	18.37	2.32	121	24.94	2.49	124	24.93	2.01	110	22.48	2.30	31	7.96	1.23	5	0.99	0.48	2	0.33	0.23	
	Severe	46	26.05	3.92	46	19.55	3.00	60	24.61	2.94	55	21.77	3.83	14	5.96	1.85	3	1.36	0.83	2	0.71	0.52	
	Missing	0	.	.	0	.	.	1	47.96	35.30	0	.	.	1	52.04	35.30	0	.	.	0	.	.	

[1] Severity scale adopted from Mojtabai, et al. (14)

Table 3. Demographic characteristics among participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

Outcome - Perceived Need for Mental Health Services							
		Yes			No		
Indicators		**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Religious Affiliation								0.0564
	No religious preference	94	33.69	3.65	158	66.31	3.65	
	Catholic	95	24.51	2.41	256	75.49	2.41	
	Mainline Protestant	114	24.50	3.17	307	75.50	3.17	
	Fundamentalist Protestant	88	25.88	2.98	225	74.12	2.98	
	Others	36	33.13	4.43	76	66.87	4.43	
	Atheist/Agnostic	7	31.08	11.46	16	68.92	11.46	
	Missing	3	49.02	24.17	3	50.98	24.17	
Religiosity[1]								0.0603
	Low	122	27.74	2.68	288	72.26	2.68	
	Medium	169	30.96	2.66	339	69.04	2.66	
	High	125	22.55	2.65	371	77.45	2.65	
	Missing	21	31.45	7.87	43	68.55	7.87	
Sex								0.0008
	Male	147	23.61	1.64	461	76.39	1.64	
	Female	290	30.43	1.85	580	69.57	1.85	
Age								0.0001
	18-34	237	33.20	2.13	441	66.80	2.13	
	35-49	141	27.48	3.23	310	72.52	3.23	
	50-64	47	18.08	4.08	202	81.92	4.08	
	≥ 65	12	10.20	2.59	88	89.80	2.59	
Race								0.0027
	White	266	23.98	1.66	738	76.02	1.66	
	Black	81	33.50	3.01	135	66.50	3.01	
	Hispanic	60	35.62	4.30	109	64.38	4.30	
	Other	30	35.09	7.08	59	64.91	7.08	
Education (years)								0.8110
	0-11	85	29.70	3.45	170	70.30	3.45	
	12	130	26.12	2.14	338	73.88	2.14	
	13-15	132	27.83	2.62	319	72.17	2.62	
	≥ 16	90	26.52	3.32	214	73.48	3.32	

Table 3 continued. Demographic characteristics among participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

Outcome - Perceived Need for Mental Health Services							
	Yes			No			
Indicators	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Marital Status							0.3784
Married/cohabiting	220	25.68	2.28	563	74.32	2.28	
Divorced/separated/ widowed	88	26.42	2.96	220	73.58	2.96	
Never married	129	30.67	2.83	258	69.33	2.83	
Income							0.0063
Low	131	34.01	3.22	216	65.99	3.22	
Low-average	133	28.50	2.12	311	71.50	2.12	
High-average	89	21.90	1.92	262	78.10	1.92	
High	84	24.66	2.52	252	75.34	2.52	
Social Network							0.0001
Low	151	34.90	2.91	266	65.10	2.91	
Average	114	26.76	2.01	277	73.24	2.01	
High	149	21.87	1.85	441	78.13	1.85	
Missing	23	28.30	5.99	57	71.70	5.99	
Disorder Severity[2]							0.0000
Mild	136	17.20	1.48	621	82.80	1.48	
Moderate	172	36.02	2.09	311	63.98	2.09	
Severe	127	50.02	4.53	99	49.98	4.53	
Missing	0	.	.	2	100	0.00	

[1] Score cut points for religiosity measure: Low: < 10, Medium: 10 – 13, High: > 13
[2] Severity scale adopted from Mojtabai, et al. (14)

Table 4. Demographic characteristics by religiosity among participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

Exposure - Level of Religiosity[1]													
		Low Religiosity			Medium Religiosity			High Religiosity			Missing			
Indicators		**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Sex														0.0000
	Male	231	38.08	2.44	201	32.23	2.41	141	23.90	2.38	35	5.80	1.04	
	Female	179	21.66	1.84	307	36.92	2.13	355	38.62	2.79	29	2.79	0.66	
Age														0.0000
	18-34	232	35.47	2.69	253	37.78	2.09	152	20.55	1.98	41	6.20	1.18	
	35-49	121	28.26	3.24	153	34.23	2.76	160	34.31	2.24	17	3.20	0.95	
	50-64	45	19.70	3.19	74	30.04	3.24	125	48.41	4.02	5	1.85	0.90	
	≥ 65	12	12.80	3.63	28	29.39	4.89	59	57.35	5.08	1	0.46	0.46	
Race														0.0000
	White	324	33.27	1.87	320	31.84	1.18	308	30.28	1.83	52	4.60	0.79	
	Black	24	11.79	2.33	76	36.92	3.63	112	49.58	3.27	4	1.70	0.63	
	Hispanic	41	24.48	4.68	72	44.43	6.24	51	26.86	4.17	5	4.23	1.95	
	Other	21	27.01	5.73	40	43.14	7.38	25	26.07	4.31	3	3.78	2.38	
Education (years)														0.1385
	0-11	75	33.57	3.98	102	37.60	2.62	69	24.38	3.32	9	4.45	1.88	
	12	128	28.38	3.39	166	36.52	2.58	153	31.28	2.28	21	3.81	1.06	
	13-15	128	28.16	2.84	141	32.61	3.94	165	35.78	3.21	17	3.44	0.85	
	≥ 16	79	27.33	2.83	99	32.60	2.77	109	34.57	3.45	17	5.50	1.62	
Marital Status														0.0002
	Married/cohabiting	225	29.08	1.76	264	33.84	1.86	269	34.53	2.31	25	2.56	0.59	
	Divorced/separated/ widowed	63	22.96	3.29	94	30.44	3.17	138	41.99	4.13	13	4.61	1.50	
	Never married	122	32.85	3.25	150	39.11	2.81	89	21.59	2.40	26	6.45	1.26	
Income														0.2399
	Low	78	26.36	3.90	139	38.92	2.46	118	30.19	3.16	12	4.53	1.41	
	Low-average	126	26.97	2.34	149	34.78	2.70	148	33.70	2.54	21	4.56	1.12	
	High-average	103	31.56	2.90	115	32.65	3.30	120	32.39	3.61	13	3.39	0.82	
	High	103	32.05	2.71	105	32.86	2.11	110	31.11	2.52	18	3.98	1.16	

Table 4 continued. Demographic characteristics by religiosity among participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who indicated whether they perceived a need for mental health services (n=1478).

Exposure - Level of Religiosity													
	Low Religiosity			Medium Religiosity			High Religiosity			Missing			
Indicators	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Social Network													0.0008
Low	117	30.29	2.65	152	38.47	2.02	120	25.45	2.52	26	5.80	1.23	
Medium	122	32.88	3.53	131	32.97	2.42	121	30.64	2.81	16	3.51	0.96	
High	148	25.66	2.13	197	33.30	2.07	221	37.79	1.94	19	3.25	0.81	
Missing	21	28.12	4.88	23	30.49	6.45	31	35.97	6.56	3	5.43	4.24	
Disorder Severity[2]													0.0199
Mild	203	27.14	1.82	241	33.50	2.03	278	35.13	2.36	35	4.22	0.81	
Moderate	140	30.94	2.26	172	36.29	2.21	153	29.87	2.01	18	2.91	0.79	
Severe	65	33.02	3.83	88	34.44	4.16	62	25.60	3.13	11	6.93	2.07	
Missing	0	.	.	2	100.00	0.00	0	.	.	0	.	.	

[1] Score cut points for religiosity measure: Low: < 10, Medium: 10 – 13, High: > 13
[2] Severity scale adopted from Mojtabai, et al. (14)

Table 5. Adjusted logistic regression models of perceived need for professional mental health services regressed on religious affiliation and level of religiosity among a population diagnosed with a DSM-IV disorder in the past 12 months.

Model 1: Perceived need regressed on religious affiliation.			
		OR	**95% CI**
Religious Affiliation			
	No Religious Preference	1.00	
	Catholic	0.57	0.37-0.86
	Mainline Protestant	0.66	0.42-1.06
	Fundamentalist Protestant	0.65	0.40-1.07
	Other	0.93	0.54-1.59
	Atheist/Agnostic	0.99	0.36-2.72
Sex			
	Male	1.00	
	Female	1.65	1.34-2.04
Age			
	18-34	1.00	
	35-49	0.79	0.54-1.14
	50-64	0.47	0.26-0.83
	≥ 65	0.25	0.13-0.47
Race			
	White	1.00	
	Black	1.59	1.15-2.19
	Hispanic	1.84	1.19-2.82
	Other	1.54	0.76-3.14

Model 2: Perceived need regressed on religiosity.			
		OR	**95% CI**
Religiosity			
	Low	1.00	
	Medium	1.15	0.76-1.73
	High	0.84	0.56-1.27
Sex			
	Male	1.00	
	Female	1.61	1.26-2.05
Age			
	18-34	1.00	
	35-49	0.75	0.51-1.10
	50-64	0.42	0.24-0.73
	≥ 65	0.22	0.11-0.43

Table 6. Descriptive statistics of all National Comorbidity Survey Replication (NCS-R) participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who did not believe they needed to see a mental health professional over the past year (n=1005).

Indicator	**No.**	**Wgt %**	**SE**
Reason for Not Wanting Help			
Didn't think they had a problem	448	47.93	2.01
Desire to handle the problem on their own	474	45.12	1.78
Didn't believe in efficacy of counseling	83	6.94	0.84
Missing			
Religious Affiliation			
No Religious Preference	151	16.65	1.74
Catholic	251	24.91	2.14
Mainline Protestant	294	28.75	1.70
Fundamentalist Protestant	219	20.63	1.52
Others	72	7.52	0.97
Atheist/Agnostic	15	1.32	0.44
Missing	3	0.21	0.12
Religiosity[1]			
Low	276	28.69	1.93
Medium	332	33.42	1.52
High	358	34.17	2.01
Missing	39	3.72	0.83
Sex			
Male	445	47.36	1.25
Female	560	52.64	1.25
Age			
18-34	433	41.83	1.91
35-49	295	31.06	2.20
50-64	195	19.58	1.68
≥ 65	82	7.54	0.94
Race			
White	711	71.42	2.57
Black	130	11.37	1.59
Hispanic	105	12.27	1.56
Other	59	4.94	1.11
Education (years)			
0-11	166	17.98	1.61
12	323	32.91	2.63
13-15	306	29.24	1.65
≥ 16	210	19.88	1.57
Marital Status			
Married/cohabiting	542	51.23	1.99
Divorced/separated/widowed	211	19.21	1.29
Never married	252	29.56	2.09
Income			
Low	206	21.08	1.83
Low-average	304	30.18	1.37
High-average	254	25.56	1.42
High	241	23.18	1.20

Table 6 continued. Descriptive statistics of all National Comorbidity Survey Replication (NCS-R) participants diagnosed with a DSM-IV disorder in the 12 months preceding survey who did not believe they needed to see a mental health professional over the past year (n=1005).

Indicator	**No.**	**Wgt %**	**SE**
Social Network			
Low	258	26.80	2.50
Medium	271	26.94	1.82
High	423	41.37	2.02
Missing	53	4.89	1.04
Disorder Severity[2]			
Mild	602	63.27	2.08
Moderate	298	26.99	1.95
Severe	95	9.49	1.56
Missing	2	0.25	0.17

[1] Score cut points for religiosity measure: Low: < 10, Medium: 10 – 13, High: > 13
[2] Severity scale adopted from Mojtabai, et al. (14)

Table 7. Demographic characteristics by religious affiliation among participants who did not perceive a need for professional mental health services and were diagnosed with a DSM-IV disorder in the 12 months preceding survey (n=1005).

	Exposure - Religious Affiliation																				
	No Religious Preference			Catholic			Mainline Protestant			Fundamentalist Protestant			Others			Atheist/ Agnostic			Missing			
Indicators	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Sex																						0.0000
Male	97	24.72	2.87	108	22.51	2.50	122	27.46	2.75	82	17.75	1.72	27	5.83	1.46	9	1.74	0.68	0	.	.	
Female	54	9.39	1.56	143	27.08	2.41	172	29.92	1.94	137	23.22	2.07	45	9.05	1.45	6	0.95	0.43	3	0.40	0.23	
Age																						0.0000
18-34	91	22.23	2.54	103	24.39	2.22	116	25.85	2.33	85	18.90	2.03	28	6.68	1.23	7	1.45	0.68	3	0.50	0.28	
35-49	49	20.26	3.07	68	21.24	3.29	86	28.21	2.37	58	18.09	2.80	28	10.65	2.19	6	1.55	0.75	0	.	.	
50-64	9	4.91	1.87	55	28.11	3.06	66	34.61	4.01	54	26.97	4.46	9	4.21	1.53	2	1.19	0.80	0	.	.	
≥ 65	2	1.35	0.97	25	34.68	6.74	26	31.85	6.95	22	24.22	5.10	7	7.91	2.78	0	.	.	0	.	.	
Race																						0.0000
White	128	19.75	1.65	163	21.24	1.82	233	32.79	1.83	120	16.95	1.96	53	7.63	1.09	14	1.63	0.59	0	.	.	
Black	10	7.34	3.58	12	9.37	3.61	22	16.49	3.92	78	61.36	4.56	5	3.60	1.79	0	·	·	3	1.83	0.97	
Hispanic	7	9.94	4.93	70	65.12	6.63	14	13.02	4.26	10	7.66	2.82	4	4.27	2.13	0	.	.	0	.	.	
Other	6	9.96	4.53	6	13.93	6.21	25	37.64	7.43	11	12.27	4.86	10	23.06	6.99	1	3.14	3.12	0	.	.	
Education (years)																						0.0001
0-11	27	19.76	4.78	45	30.69	4.54	35	18.21	3.54	51	26.66	4.06	6	3.53	1.51	1	0.79	0.79	1	0.36	0.36	
12	47	16.86	2.74	74	22.31	3.29	92	27.46	2.79	88	26.04	3.25	19	6.38	1.90	2	0.71	0.48	1	0.24	0.23	
13-15	53	16.06	2.62	70	22.63	2.83	99	33.09	2.44	55	17.85	2.00	24	9.10	1.95	4	1.04	0.51	1	0.22	0.22	
≥ 16	24	14.36	4.47	62	27.35	4.24	68	34.04	4.33	25	10.30	1.99	23	10.71	2.62	8	3.23	1.20	0	.	.	

Table 7 continued. Demographic characteristics by religious affiliation among participants who did not perceive a need for professional mental health services and were diagnosed with a DSM-IV disorder in the 12 months preceding survey (n=1005).

	Exposure - Religious Affiliation																				
	No Religious Preference			Catholic			Mainline Protestant			Fundamentalist Protestant			Others			Atheist/ Agnostic			Missing			
Indicators	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Marital Status																						0.3501
Married/ cohabiting	74	13.55	1.68	138	24.87	2.71	166	31.32	2.40	112	20.28	2.19	45	8.74	1.53	7	1.23	0.41	0	.	.	
Divorced/ separated/ widowed	28	18.05	4.59	47	25.82	4.08	67	29.10	2.57	55	21.50	3.00	12	4.84	1.42	2	0.70	0.50	0	.	.	
Never married	49	21.13	3.34	66	24.41	2.74	61	24.06	2.87	52	20.66	2.98	15	7.16	1.75	6	1.88	0.96	3	0.70	0.39	
Income																						0.0009
Low	25	16.05	3.43	46	24.97	4.44	50	21.89	2.96	66	27.09	3.68	14	7.86	1.86	4	1.83	1.43	1	0.31	0.30	
Low-average	48	15.18	2.36	81	28.43	3.61	88	28.66	3.65	61	19.81	3.27	20	6.16	1.47	4	1.29	0.63	2	0.47	0.33	
High-average	42	20.19	3.73	58	18.82	2.15	84	32.69	3.79	50	20.50	2.49	18	7.24	1.94	2	0.56	0.40	0	.	.	
High	36	15.23	2.71	66	27.00	2.96	72	30.77	3.88	42	15.95	2.73	20	9.30	2.05	5	1.75	0.72	0	.	.	
Social Network																						0.4103
Low	45	19.21	3.21	66	28.05	3.17	67	25.31	3.73	58	17.85	2.27	18	8.51	2.19	2	0.58	0.41	2	0.49	0.34	
Average	39	15.86	2.70	68	23.49	3.20	74	28.69	2.92	62	22.86	2.30	21	6.74	1.43	6	2.07	1.23	1	0.29	0.29	
High	58	15.31	2.39	104	23.38	2.60	139	31.51	2.51	85	20.58	2.50	30	7.76	1.64	7	1.47	0.54	0	.	.	
Missing	9	18.39	6.95	13	28.57	8.44	14	24.61	5.69	14	23.97	5.27	3	4.47	2.66	0	.	.	0	.	.	
Disorder Severity[1]																						0.1008
Mild	85	15.24	1.81	148	24.63	2.21	185	30.03	2.35	123	19.76	2.03	49	8.70	1.58	11	1.52	0.50	1	0.10	0.10	
Moderate	44	14.86	2.21	81	28.14	3.20	83	27.25	2.65	69	22.92	2.19	15	4.92	1.36	4	1.38	0.74	2	0.53	0.37	
Severe	21	32.05	7.40	22	21.14	3.96	24	23.85	4.40	23	17.91	4.52	5	5.06	2.22	0	.	.	0	.	.	
Missing	0	.	.	0	.	.	1	47.96	35.30	0	.	.	1	52.04	35.30	0	.	.	0	.	.	

[1]Severity scale adopted from Mojtabai, et al. (14)

Table 8. Demographic characteristics among participants who did not perceive a need for professional mental health services and were diagnosed with a DSM-IV disorder in the 12 months preceding survey (n=1005).

Outcome - Reason for Not Wanting Professional Help											
		Low Perceived Need			Desire to handle the problem on their own			Didn't believe in efficacy of counseling			
Indicators		**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Religious Affiliation											0.0117
	No religious preference	57	42.84	3.94	70	44.56	4.16	24	12.60	2.54	
	Catholic	101	44.44	4.96	132	49.86	4.12	18	5.70	1.72	
	Mainline Protestant	152	53.33	4.36	122	40.55	4.16	20	6.12	1.33	
	Fundamentalist Protestant	105	51.19	3.47	98	42.93	2.86	16	5.88	1.74	
	Others	27	45.05	10.67	40	48.93	10.33	5	6.02	3.01	
	Atheist/Agnostic	6	33.74	9.64	9	66.26	9.64	0	.	.	
	Missing	0	.	.	3	100.00	0.00	0	.	.	
Religiosity[1]											0.7130
	Low	124	46.62	3.45	132	46.15	3.13	20	7.23	1.60	
	Medium	132	46.49	4.89	172	47.52	4.52	28	5.99	0.98	
	High	179	51.15	2.35	153	42.72	2.56	26	6.13	1.28	
	Missing	13	41.50	8.86	17	37.71	8.83	9	20.79	7.20	
Sex											0.2657
	Male	211	50.62	2.66	199	42.73	2.43	35	6.65	1.29	
	Female	237	45.52	2.40	275	47.27	2.34	48	7.21	0.91	
Age											0.4969
	18-34	196	47.08	3.23	197	44.36	2.66	40	8.56	1.62	
	35-49	121	48.03	4.04	155	47.42	3.91	19	4.55	1.22	
	50-64	87	48.20	4.42	89	43.82	4.17	19	7.98	2.16	
	≥ 65	44	51.56	5.71	33	43.27	5.81	5	5.18	3.18	
Race											0.7302
	White	317	46.92	2.03	337	46.15	1.77	57	6.94	1.00	
	Black	62	52.88	5.28	56	39.74	4.79	12	7.39	2.07	
	Hispanic	44	52.29	8.49	53	42.84	7.16	8	4.88	2.38	
	Other	25	40.46	9.50	28	48.40	9.61	6	11.14	4.30	
Education (years)											0.0388
	0-11	60	36.84	3.99	89	55.08	4.32	17	8.08	2.26	
	12	143	46.77	3.36	158	46.91	2.97	22	6.32	1.31	
	13-15	145	54.62	3.90	130	37.23	3.17	31	8.15	1.73	
	≥ 16	100	50.06	4.59	97	44.76	4.76	13	5.18	1.53	
Marital Status											0.3671
	Married/cohabiting	240	48.57	2.80	261	44.80	2.64	41	6.63	1.01	
	Divorced/separated/ widowed	86	42.29	3.22	103	49.94	2.80	22	7.77	1.62	
	Never married	122	50.50	3.80	110	42.55	3.24	20	6.95	1.75	
Income											0.2438
	Low	90	46.90	3.18	91	42.74	3.63	25	10.35	2.64	
	Low-average	129	44.86	3.16	149	48.22	2.78	26	6.92	1.51	
	High-average	121	52.44	3.05	114	41.29	3.31	19	6.27	1.51	
	High	108	47.90	3.90	120	47.47	3.79	13	4.62	1.39	

Table 8 continued. Demographic characteristics among participants who did not perceive a need for professional mental health services and were diagnosed with a DSM-IV disorder in the 12 months preceding survey (n=1005).

Outcome - Reason for not wanting professional help										
	Low Perceived Need			Desire to handle the problem on their own			Didn't believe in efficacy of counseling			
Indicators	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Social Network										0.0234
Low	105	42.58	3.46	129	50.77	2.79	24	6.64	1.84	
Average	117	45.62	3.36	130	45.78	3.53	24	8.59	1.81	
High	208	54.87	2.68	187	39.55	2.44	28	5.58	1.13	
Missing	18	31.30	8.37	28	57.61	8.56	7	11.09	4.15	
Disorder Severity[2]										0.0028
Mild	300	52.96	2.00	266	42.06	1.83	36	4.98	0.98	
Moderate	111	40.01	3.61	156	50.72	3.34	31	9.27	1.75	
Severe	30	32.01	8.21	49	53.62	6.57	16	14.37	5.68	
Missing	2	100.00	0	0	.	.	0	.	.	

[1] Score cut points for religiosity measure: Low: < 10, Medium: 10 – 13, High: > 13
[2] Severity scale adopted from Mojtabai, et al. (14)

Table 9. Demographic characteristics by level of religiosity among participants who did not perceive a need for professional mental health services and were diagnosed with a DSM-IV disorder in the 12 months preceding survey (n=1005).

	Exposure - Level of Religiosity[1]												
	Low			Medium			High			Missing			
Indicators	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Sex													0.0000
Male	176	39.71	3.05	145	30.66	2.18	105	24.62	2.79	19	5.01	1.22	
Female	100	18.77	2.13	187	35.91	2.71	253	42.76	3.42	20	2.56	0.83	
Age													0.0000
18-34	154	36.91	2.74	156	35.61	2.38	95	20.68	2.62	28	6.80	1.77	
35-49	79	27.22	5.02	95	33.66	3.89	113	36.85	3.36	8	2.26	1.06	
50-64	35	20.36	3.78	57	29.22	3.64	101	49.72	5.04	2	0.70	0.53	
≥ 65	8	10.72	4.57	24	31.18	5.75	49	57.56	6.10	1	0.54	0.54	
Race													0.0008
White	225	32.31	2.07	220	31.84	1.78	235	32.15	2.11	31	3.70	0.87	
Black	10	9.35	3.50	48	37.48	5.80	69	51.28	5.55	3	1.89	1.10	
Hispanic	27	26.53	6.02	40	37.57	6.76	35	30.62	5.41	3	5.27	3.11	
Other	14	26.18	6.01	24	36.58	6.85	19	32.76	4.71	2	4.48	3.27	
Education (years)													0.1626
0-11	50	34.75	6.51	61	32.91	4.42	48	26.75	4.04	7	5.60	2.73	
12	88	28.35	3.17	114	36.28	2.65	112	33.00	2.49	9	2.37	0.93	
13-15	89	27.44	2.99	89	30.35	4.91	114	37.87	3.49	14	4.34	1.17	
≥ 16	49	25.60	4.15	68	33.68	3.86	84	37.37	4.22	9	3.36	1.50	
Marital Status													0.0001
Married/cohabiting	157	28.83	2.34	174	32.42	2.07	196	36.67	2.64	15	2.08	0.56	
Divorced/separated/widowed	41	22.66	4.30	54	26.34	3.74	109	47.43	4.94	7	3.57	1.71	
Never married	78	32.35	3.09	104	39.76	3.11	53	21.22	2.55	17	6.67	1.84	
Income													0.2150
Low	46	28.60	4.83	79	33.81	3.27	74	32.70	4.21	7	4.89	2.05	
Low-average	82	23.79	2.45	104	36.66	3.20	106	35.93	3.10	12	3.62	1.29	
High-average	72	30.09	3.32	80	32.38	4.29	94	34.66	4.14	8	2.87	0.88	
High	76	33.59	3.49	69	30.00	2.34	84	32.68	2.85	12	3.74	1.29	

Table 9. Demographic characteristics by level of religiosity among participants who did not perceive a need for professional mental health services and were diagnosed with a DSM-IV disorder in the 12 months preceding survey (n=1005).

	Exposure - Level of Religiosity												
	Low			Medium			High			Missing			
Indicators	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**No.**	**Wtd %**	**SE**	**P-Value**
Social Network													0.0026
Low	84	35.86	4.74	88	33.99	3.13	72	25.38	3.31	14	4.77	1.74	
Medium	85	32.17	3.95	91	32.56	2.73	87	32.71	3.81	8	2.56	1.03	
High	94	22.20	2.30	140	34.32	2.55	174	39.94	2.22	15	3.55	1.14	
Missing	13	25.09	5.82	13	27.45	7.79	25	41.61	7.97	2	5.85	5.61	
Disorder Severity[2]													0.0323
Mild	165	27.40	2.10	184	32.28	2.49	228	36.58	2.42	25	3.75	0.96	
Moderate	76	28.05	2.40	108	35.82	2.78	103	33.15	2.73	11	2.98	1.02	
Severe	33	39.57	6.35	34	29.86	6.04	25	24.35	4.38	3	6.22	3.39	
Missing	0	.	.	2	100	0	0	.	.	0	.	.	

[1] Score cut points for religiosity measure: Low: < 10, Medium: 10 – 13, High: > 13
[2] Severity scale adopted from Mojtabai, et al. (14)

Table 10. Multinomial logistic regression models of reason for not wanting professional help regressed on religious affiliation and level of religiosity among a population with a DSM-IV diagnosis in the past 12 months.

Model 3: Reason for not wanting help regressed on religious affiliation.

Outcome	Indicator	OR	95% CI
Wanted to handle the problem on their own	**Religious Affiliation**		
Low Perceived Need (ref)	No Religious Preference	1.00	
	Catholic	1.06	0.62-1.82
	Mainline Protestant	0.73	0.45-1.19
	Fundamentalist Protestant	0.80	0.50-1.30
	Other	1.03	0.36-2.90
Belief in inefficacy of counseling	**Religious Affiliation**		
Low Perceived Need (ref)	No Religious Preference	1.00	
	Catholic	0.43	0.17-1.05
	Mainline Protestant	0.39	0.23-0.67
	Fundamentalist Protestant	0.39	0.17-0.92
	Other	0.46	0.13-1.56

Model 4: Reason for not wanting help regressed on religiosity.

Outcome	Indicator	OR	95% CI
Wanted to handle the problem on their own	**Religiosity**	1.00	
Low Perceived Need (ref)	Low	1.00	
	Medium	1.11	0.68-1.80
	High	0.93	0.67-1.29
	Social Network		
	Low	1.00	
	Medium	0.91	0.64-1.29
	High	0.68	0.49-0.94
	Severity		
	Mild	1.00	
	Moderate	1.50	1.10-2.06
	Severe	2.55	1.24-5.28
Belief in inefficacy of counseling	**Religiosity**	1.00	
Low Perceived Need (ref)	Low	1.00	
	Medium	1.05	0.58-1.92
	High	0.95	0.53-1.72
	Social Network		
	Low	1.00	
	Medium	1.42	0.61-3.31
	High	0.97	0.41-2.27
	Severity		
	Mild	1.00	
	Moderate	2.26	1.12-4.57
	Severe	6.61	1.83-23.85

APPENDIX A

EMORY UNIVERSITY

Institutional Review Board

December 6, 2011

Jennifer Blase
Rollins School of Public Health
1518 Clifton Road
Atlanta, GA 30322

RE: **Determination: No IRB Review Required**
IRB00054561 – ***The effect of religious affiliation and degree of religiosity on mental health help-seeking behaviors***
PI: Jennifer Blase

Dear Ms. Blase:

Thank you for requesting a determination from our office about the above-referenced project. Based on our review of the materials you provided, we have determined that it does not require IRB review because it does not meet the definition of research involving "human subjects" as set forth in Emory policies and procedures and federal rules, if applicable. Specifically, in this project, you will be reviewing de-identified data from the publicly available National Comorbidity Replication Survey (2001-2003) in order to learn about the effects of religious affiliation and degree of religiosity on mental health-seeking behaviors. With the data set you access, you will be unable to determine any individuals' identities. Accordingly, IRB review is not required.

45 CFR Section 46.102(f) defines "human subject" as follows:

> Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information.

This determination could be affected by substantive changes in the study design, subject populations, or identifiability of data. If the project changes in any substantive way, please contact our office for clarification.

Thank you for consulting the IRB.

Sincerely,

Tom Penna, MTS
IRB Analyst Assistant
This letter has been digitally signed