

Mindfulness and its Moderating Effect on the Relation of Religiosity to Psychological Health

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Religion is a large point of interest in our society. Its dominant influence throughout history and current presence in the media has led to both positive and negative stereotypes about the psychological health of those who are religious.¹ Consequently, researchers have investigated the relation of religiosity to psychological health. The underlying dimensions of religiosity and the mediating or moderating roles of other variables have been examined.

Religiosity

Meta-analyses of the research on the relationship between religiosity and psychological health have been conducted, although they have yielded inconsistent results. Wong, Rew, and Slaikeu (2006) found that 90% of the 20 studies conducted between 1998 and 2004 showed that high levels of religiosity are associated with better mental health in adolescents.²

In contrast, Bergin (1991) concluded in his meta-analysis that there was no relation between religiosity and mental illness or better mental health. However, he explained that this may have been due to studies that did not differentiate between separate dimensions of religiosity.³ Ryan, Rigby, and King (1993) support this notion by asserting that religiosity can only be related to psychological health when we consider in what way a person is religious.⁴ Similarly, Hackney and Sanders (2003) found that researchers find different results depending on the way that they define religiosity.⁵ Therefore, in order to fully explore religiosity and its relation to psychological health, it is necessary to examine its underlying dimensions.

Koenig, Parkerson, and Meador (1997) claim that there are three commonly accepted dimensions of religiosity: organizational, nonorganizational, and subjective (intrinsic). Organizational religiosity refers to attendance at religious meetings such as a church or synagogue. Non-organizational religiosity refers to engagement in independent religious activities such as prayer or meditation. Subjective religiosity indicates the extent to which a person incorporates his or her religious beliefs into daily life.⁶

All three dimensions of religiosity have been simultaneously linked to psychological health. Frazier, Mintz, and Mobley (2005) and Levin, Chatters, and Taylor (1995) found all three

dimensions of religiosity to be related to several measures of psychological well-being in an African American sample.^{7,8} Religiosity as a whole has also been shown to be unrelated to psychological distress.⁹

Organizational religiosity has been linked to fewer depressive symptoms and higher positive affect,¹⁰ as well as linked with an improvement and maintenance of good mental health.¹¹ Nonorganizational religiosity has been found to be a mediator between religiosity and psychological well-being.¹² Subjective religiosity has been shown to be positively related to psychological adjustment, relative to people who are non-religious.¹³

There is also evidence suggesting that the three dimensions of religiosity are not all related to psychological health. Storch, Storch, and Welsh (2002) found that only subjective religiosity was negatively correlated to symptoms of depression.¹⁴ Also, Dezutter, Soenens, and Hutsebaut (2006) found that subjective religiosity predicted well-being, while the organizational dimension did not.¹⁵

The role of a third variable in the relation between religiosity and psychological health has also been explored. Meaning in life was found to be a mediator between religiosity and several positive psychological outcomes (Steger & Frazier, 2005).¹⁶ In addition, Tix and Frazier (2005) found personal strivings to be mediators in the negative relation between intrinsic religiosity and hostility, and also found religious tradition to be a moderator of the relation between intrinsic religiosity and both anxiety and depression.¹⁷ In this research, the possibility of a third variable in the relation between religiosity and psychological health has been supported.

To summarize, researchers have not agreed on which, if any, dimensions of religiosity are related to psychological health and which aspects of psychological health are associated with religiosity.¹⁸ Most importantly, the mediating or moderating roles in this relationship of other variables have not yet been adequately investigated. Mindfulness is a variable that could play an important role in the relationship between religiosity and psychological health.

Mindfulness

Mindfulness is the purposeful and non-judgmental focus of attention and awareness on the present moment (Kabat-Zinn, 1994). The practice of mindfulness meditation is a fundamental teaching of Buddhism, but it is also practiced both by those with other religious orientations and by those who practice no religion. Kabat-Zinn (1994) stated that “mindfulness has little to do with religion, except in the most fundamental meaning of the word, as an attempt to appreciate the deep mystery of being alive and to acknowledge being vitally connected to all that exists” (p. 6).¹⁹ In this manner, mindfulness may have a role in the effect of religiosity on psychological health. It is a characteristic that can be appreciated by and applied to any religious orientation.

Empirical evidence supports the apparent positive nature of mindfulness by association with positive psychological outcomes. Brown and Ryan (2003) found that mindfulness promotes both well-being and self-regulated behavior.²⁰ Also, advanced practitioners of mindfulness meditation reported greater positive mood than beginning practitioners.²¹ Finally, mindfulness has also been related to increased activity in the left anterior portion of the brain, which has been associated with a positive affect.²²

Religiosity, in conjunction with mindfulness, may be associated with psychological health. Specifically, the inherent positive characteristics of mindfulness and its relation to self-regulated behavior facilitate an optimal religious practice that is deep, purposeful, and satisfying.²⁰ Such a practice will likely be associated with positive psychological outcomes. In contrast, a religious practice without mindfulness will leave a “void” of unawareness and a lack of self-regulated behavior in religious experience. This will be associated with religious activities and beliefs that are automatic, without true intent, and ultimately unsatisfying. Therefore, religiosity will be less strongly related to psychological health when it is not accompanied by mindfulness.

Exploration of the moderating role of mindfulness may explain the contradictory findings of past research on religiosity. Steger and Frazier (2005) and Tix and Frazier (2005) have already demonstrated the critical role that a third variable may play in the relation of religiosity to psychological health, and mindfulness is an ideal variable to test.^{16,17} Its link to well-being and self-regulated behavior has already been demonstrated²⁰ and the positive inherent characteristics of mindfulness, such as awareness and attention to the present moment, make it a plausible factor in the relation between religiosity and psychological health. Mindfulness will be related to an ideal religious practice that will be accompanied by psychological health.

I hypothesize that mindfulness will have a moderating effect on the relationship between religiosity and psychological health (i.e., religiosity will be related to psychological health only when it is accompanied by a high level of mindfulness). Once the moderating effect of mindfulness has been explored, the relationship between religiosity and psychological health can be further elucidated.

Method

Participants

Participants were 132 undergraduate students (84 women,

34 men, 14 who did not indicate gender). The average age was 20.25 ($SD = 1.56$) and ranged between 18 and 25. The majority of the sample identified themselves as “White” (75.0%), while the rest were “Asian American or Pacific Islander” (3.8%), “Latino” (3.8%), “African American” (3.8%), “Other” (3.0%), and 14.0% who did not indicate ethnicity. The predominant religious affiliation of the sample was Christianity (58.3%), while the rest did not actively practice a religion (35.6%), were Jewish (3.0%), or practiced a religion other than Christianity or Judaism (3.0%). Participants completed an online survey that lasted approximately thirty minutes in exchange for extra credit in a psychology course. Participants were recruited through a psychology research bulletin sign-up.

Materials

Mindfulness. The Mindful Attention Awareness Scale (MAAS)²⁰ assessed trait levels of mindfulness (15 items; e.g., It seems I am “running on automatic,” without much awareness of what I’m doing). Responses were made on a 6-point Likert-type scale, ranging from 1 (almost always) to 6 (almost never). The reliability was $\alpha = .94$.

Religiosity. The Duke Religion Index (DRI)⁶ measured three dimensions of religiosity. The first was organizational religiosity (1 item; i.e., How often do you attend church, synagogue, or other religious meetings?). Responses were made on a 6-point Likert-type scale, ranging from 1 (never) to 6 (more than once a week). The second dimension was nonorganizational religiosity (1 item; i.e., How often do you spend time in private religious activities, such as prayer, meditation or Bible study?). Responses were made on a 6-point Likert-type scale, ranging from 1 (rarely or never) to 6 (more than once a day). The third dimension was subjective or intrinsic religiosity (3 items; e.g., My religious beliefs are what really lie behind my whole approach to life). Responses were made on a 5-point Likert-type scale, ranging from 1 (definitely not true) to 5 (definitely true). The reliability was $\alpha = .75$.

Mood. The Positive and Negative Affect Scale (PANAS)²³ measured positive (10 items; e.g., excited) and negative (10 items; e.g., scared) affect. Responses were made on a 7-point Likert-type scale, ranging from 0 (never) to 6 (extremely). The reliability for both positive and negative affect was $\alpha = .87$.

Life Satisfaction. The Temporal Satisfaction with Life Scale (TSWLS)²⁴ measured life satisfaction in the past (5 items; e.g., If I had my past to live over, I would change nothing), present (5 items; e.g., I would change nothing about my current life), and future (5 items; e.g., There will be nothing that I will want to change about my future). Responses were made on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The reliability for each subscale ranged from $\alpha = .91$ to $.93$.

Subjective Vitality. The Subjective Vitality Scale (SV)²⁵ was used to assess vitality (7 items; e.g., I feel alive and vital). Responses were made on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The reliability ranged from $\alpha = .84$ to $.86$.

Self-esteem. The Rosenberg Self-esteem Scale (SES)²⁶ was used to measure self-esteem (10 items; e.g., I feel that I am a person of worth, at least on an equal basis with others). Responses were made on a 4-point Likert-type scale, ranging from 1 (strongly disagree) to 4 (strongly agree). The reliability was $\alpha = .77$.

Self-Actualization. The Self-Actualization Index (SAI)²⁷ was used to measure self-actualization (25 items; e.g., I am loved because I give love). Responses were made on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The reliability was $\alpha = .65$.

Depression. The Center for Epidemiological Studies Depression Scale (CES-D)²⁸ was used to measure depressive symptomatology (6 items; e.g., I feel sad). Responses were made on a 7-point Likert-type scale, ranging from 1 (not at all) to 7 (very much). The reliability ranged from $\alpha = .84$ to .85.

Anxiety. The Profile of Mood States Scale (POMS)²⁹ was used to measure anxiety (9 items; e.g., Tense). Responses were made on a 5-point Likert-type scale, ranging from 0 (not at all) to 4 (extremely). The reliability ranged from $\alpha = .63$ to .96.

Results

Out of 132, 10 participants were excluded from analysis due to insufficient data.

Hierarchical regression was used to analyze the main and interaction effects of religiosity and mindfulness on psychological health. The religiosity and mindfulness variables were first centered, and the interaction term was created as the product of these two variables.³⁰

Anxiety. Using hierarchical regression, anxiety was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2, 112) = 15.24, p < .01, \Delta R^2 = .21$. Although religiosity was not related to anxiety ($\beta = -.03, ns$), mindfulness was negatively related to anxiety ($\beta = -.46, p < .01$). However, in step 2 of the regression analysis, the interaction term was not a significant predictor ($\beta = .00, ns$). The interaction effect was $F(1, 111) = 0.00, ns, \Delta R^2 = .00$.

Self-actualization. Using hierarchical regression, self-actualization was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2, 109) = 13.17, p < .01, \Delta R^2 = .20$. Although religiosity was not related to self-actualization ($\beta = .04, ns$), mindfulness was positively related to self-actualization ($\beta = .44, p < .01$). In step 2 of the regression analysis, the interaction term was a significant predictor ($\beta = -.19, p < .05$). The interaction effect was $F(1, 108) = 4.75, p < .05, \Delta R^2 = .03$. Those both low and high in religiosity were higher in self-actualization as their level of mindfulness increased.

Figure 1: Interaction between self-actualization and mindfulness.

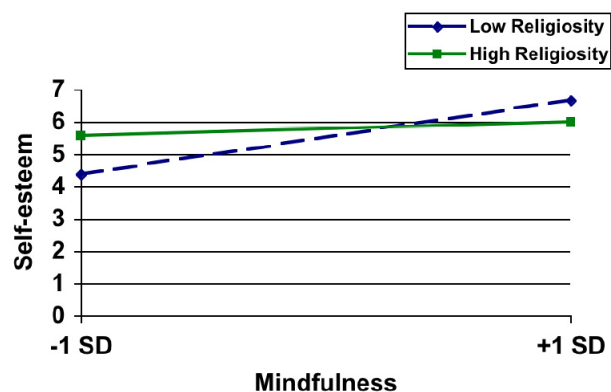
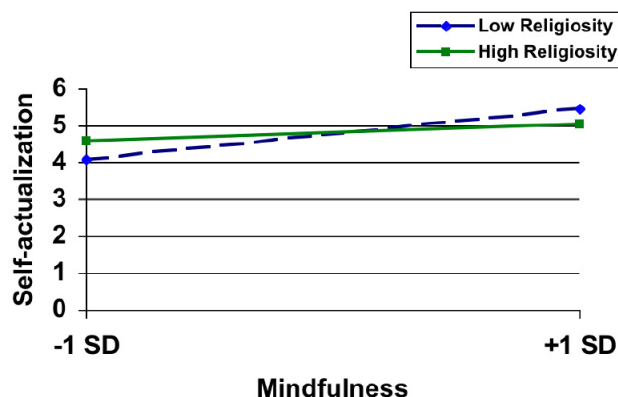


Figure 2: Interaction between self-esteem and mindfulness.

The simple slopes of this interaction, plotted at ± 1 standard deviation of mindfulness, appear in Figure 1.

Self-esteem. Using hierarchical regression, self-esteem was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2, 111) = 13.92, p < .01, \Delta R^2 = .20$. Although religiosity was not related to self-esteem ($\beta = .14, ns$), mindfulness was positively related to self-esteem ($\beta = .41, p < .01$). In step 2 of the regression analysis, the interaction term was a significant predictor ($\beta = -.23, p < .01$). The interaction effect was $F(1, 110) = 7.91, p < .01, \Delta R^2 = .05$. Those both low and high in religiosity were higher in self-esteem as their level of mindfulness increased. The simple slopes of this interaction, plotted at ± 1 standard deviation of mindfulness, appear in Figure 2.

Subjective Vitality. Using hierarchical regression, subjective vitality was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2, 114) = 13.13, p < .01, \Delta R^2 = .19$. Religiosity was positively related to subjective vitality ($\beta = .18, p < .05$) and mindfulness was positively related to subjective vitality ($\beta = .38, p < .01$). In step 2 of the regression analysis, the interaction term was a significant predictor ($\beta = -.17, p < .05$). The interaction effect was $F(1, 113) = 4.33, p < .05, \Delta R^2 = .03$. This interaction was slightly less pronounced than the interactions for self-actualization and self-esteem. When the level of mindfulness increased, those high in religiosity showed a higher level of subjective vitality than those low in religiosity. The simple slopes of this interaction, plotted at ± 1 standard deviation of mindfulness, appear in Figure 3.

Depression. Using hierarchical regression, depression was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2, 112) = 16.46, p < .01, \Delta R^2 = .23$. Religiosity was negatively related to depression ($\beta = -.18, p < .05$) and mindfulness was negatively related to depression ($\beta = -.43, p < .01$). In step 2 of the regression analysis, the interaction term was a significant predictor ($\beta = .23, p < .01$). The interaction effect was $F(1, 111) = 8.00, p < .01, \Delta R^2 = .05$. Those high in religiosity were lower in depression as their level of mindfulness increased. However, those low in religiosity were more depressed as their level of mindfulness increased. The simple slopes of this interaction, plotted at ± 1 standard deviation of mindfulness, appear in Figure 4.

Life Satisfaction. Using hierarchical regression, life satisfaction

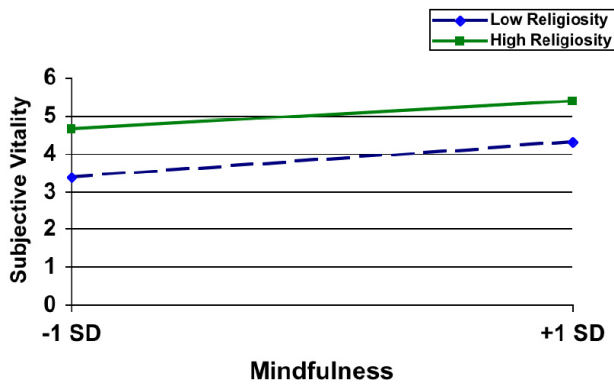


Figure 3: Interaction between subjective vitality and mindfulness.

was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2,106) = 9.93, p < .01, \Delta R^2 = .16$. Religiosity was related to life satisfaction ($\beta = .19, p < .05$) and mindfulness was positively related to life satisfaction ($\beta = .33, p < .01$). However, in step 2 of the regression analysis, the interaction term was not a significant predictor ($\beta = -.15, ns$). The interaction effect was $F(1, 105) = 2.75, ns, \Delta R^2 = .02$.

Positive Affect. Using hierarchical regression, positive affect was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2,115) = 7.70, p < .01, \Delta R^2 = .12$. Religiosity was not related to positive affect ($\beta = .14, ns$) and mindfulness was positively related to positive affect ($\beta = .31, p < .01$). However, in step 2 of the regression analysis, the interaction term was not a significant predictor ($\beta = -.05, ns$). The interaction effect was $F(1, 114) = .35, ns, \Delta R^2 = .00$.

Negative Affect. Using hierarchical regression, positive affect was regressed onto the religiosity and mindfulness variables in step 1. The overall model for this step was significant, $F(2,115) = 14.57, p < .01, \Delta R^2 = .20$. Religiosity was not related to negative affect ($\beta = -.03, ns$) and mindfulness was positively related to negative affect ($\beta = -.45, p < .01$). However, in step 2 of the regression analysis, the interaction term was not a significant predictor ($\beta = .05, ns$). The interaction effect was $F(1, 114) = .43, ns, \Delta R^2 = .00$.

Discussion

The moderating effect of mindfulness on the relation between religiosity and psychological health was explored. Significant interactions were found for self-actualization, self-esteem, subjective vitality, and depression. For those high in religiosity, mindfulness was positively related to self-actualization, self-esteem, and subjective vitality, and was negatively related to depression. For those low in religiosity, mindfulness was positively related to self-actualization, self-esteem, and subjective vitality, but was positively related to depression. As a result of the moderating effect of mindfulness, the religious practice of those high in religiosity was optimized and was accompanied by psychological health.

In addition, mindfulness was positively related to all of the positive indicators of psychological health: self-actualization, self-esteem, subjective vitality, life satisfaction, and positive affect. It was also negatively related to all of the negative indicators of psychological health, including anxiety,

depression, and negative affect. Religiosity was negatively related to depression and positively related to subjective vitality and life satisfaction.

The interaction of both low religiosity and mindfulness on depression was unexpected. Depression may have been positively related to mindfulness for those with low religiosity because they are more intensely aware of their feelings and surroundings. This intensified awareness may have brought attention to unpleasant feelings, memories, or present experiences, resulting in emotional conflict. With no religious practice or beliefs to help resolve this conflict, levels of depression may have increased. Mindfulness has inherently positive qualities, but may make an individual more aware of unpleasantness that would not be as troublesome to a less mindful individual.¹⁹

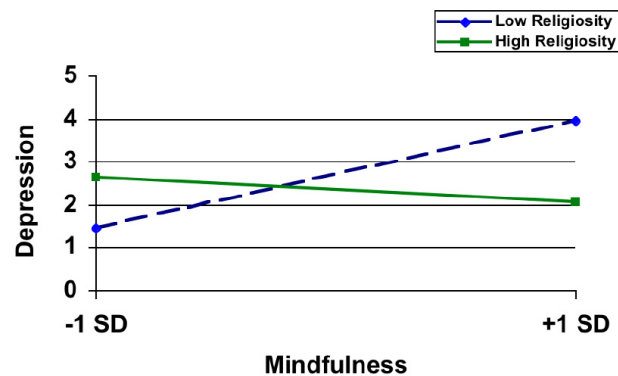
Another limitation of this study is the use of an online survey. The participants were not in a controlled environment while completing the survey and could have been distracted, or they may not have completed the survey in one session. An ideal setting for the use of an online survey would be in a controlled environment. This may sacrifice the convenience with which participants could access the survey, but would offer more reliable data.

The results of this study raise several questions that could be investigated in future research. For instance, mindfulness and religiosity did not have a significant interaction effect on anxiety, life satisfaction, positive affect, or negative affect. Future research could attempt to replicate these findings in an effort to determine if the relations between religiosity and these particular measures of psychological health persist without being moderated by mindfulness. If such replication effects occur, the nature of these measures of psychological health could be further investigated. Ultimately, a distinction could be made between the measures of psychological health that have interaction effects and the measures that do not. This distinction could explain why such interaction effects do or do not occur.

The present study used a college undergraduate sample that was almost entirely either Christian or non-religious. These results could be found in other Christian samples, but the moderating role of mindfulness in the relation between religiosity and psychological health should also be explored in those with other religious orientations.

A point of interest could be Buddhism, which offers practices of mindfulness meditation as a fundamental teaching.³¹ In a

Figure 4: Interaction between depression and mindfulness.



Buddhist sample, it is likely that religiosity and mindfulness would be positively related. High religiosity in other religious orientations is less clearly related to mindfulness. Based on the present findings, Buddhism, in comparison to other religions, would be most strongly related to psychological health because of its inherent association with mindfulness.

The present results also raise the question of whether there are differences in psychological health between participants high in mindfulness and those either low or high in religiosity. In a future study, two mindful samples (one religious and one non-religious) could be examined in order to determine if higher levels of psychological health are associated with those who are mindful and religious or with those who are only mindful.

Finally, the correlational nature of this study still leaves the question of the causality between mindfulness and psychological health unanswered. An experimental study using a mindfulness priming effect (such as a meditation instruction session) may be able to further explain this matter. In addition, a longitudinal study tracking the psychological health of a participant learning to meditate could further elucidate the nature of this relationship. Clinical studies using Mindfulness Based Stress Reduction (MBSR) already support this notion. Carlson and Garland (2005) reported reductions in sleep disturbance, stress, mood disturbance, and fatigue for cancer outpatients throughout an 8-week MBSR program.³² A non-clinical population may also report positive psychological outcomes when learning mindfulness meditation over a period of time.

There has been a great deal of research done on the clinical applications of mindfulness and how it can reduce negative symptoms.³³ However, relatively little research has been done exploring mindfulness and its relationship to positive psychological outcomes. This study indicates the importance of mindfulness on one's psychological health both on its own and in relation to religiosity. The present results can encourage other researchers to explore mindfulness not merely as a clinical treatment, but also as a crucial component of psychological health for all individuals.

Future research could explore mindfulness and its relationship to other positive psychological variables such as compassion, openness to experience, honesty, and authenticity. Just as religiosity is considered to have sub-components, future research on mindfulness should consider a multi-faceted approach in order to most accurately and effectively discover its relationship to other positive variables.³⁴

The present findings suggest the moderating role of mindfulness as a way to understand the relation between religiosity and psychological health. The empirical study of mindfulness is still in its infancy,²⁰ and there is still much to be learned from it. Empirical data on mindfulness will facilitate an accurate and appreciative mainstream understanding of its potential for psychological health. Indeed, the Buddha once said, "there is one road, one path for beings to purify themselves, to transcend sorrow and grief, to overcome suffering and melancholy, to attain the right way, to realize nirvana: that is the . . . establishment of mindfulness."³¹

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be able to show them what I did and to answer their questions about my study.

jur: Do you have any advice you can give to fellow undergraduates who would like to do this kind of research, or any research in general?

For the conduction of research in general, my best advice is to stay obsessively organized and to make backup copies of everything. This project took months of work and I quickly learned that all of that work could go to waste if I wasn't very careful with all of the files I was working with. I would also say that it is extremely important to have an interest in your area of research that goes beyond mere curiosity. That enduring interest and passion in your work will keep you motivated throughout the arduous months that it takes to successfully complete a research project.

About the Author

Matthew D. Della Porta graduated from the University of Rochester in 2006 and was awarded high honors in research in psychology. He plans on obtaining his Ph.D. in social/personality psychology and to work as a faculty member at a college or university. His research interests include many facets of positive psychology such as mindfulness, long-term positive affect, and creativity.

jur: What is your research about? What applications does it have?

My research concerns the role of mindfulness in optimal psychological health. Jon Kabat-Zinn defines mindfulness as the purposeful and nonjudgmental focus of attention and awareness on the present moment. In this case, I am examining mindfulness as a variable that moderates the relationship between religiosity and psychological health. This is just one example of the research being conducted exploring the important role of mindfulness in optimal psychological health. Such research can bring further attention to the importance of being focused on the present moment and to the practice of mindfulness meditation.

jur: How did you become interested in this area of research? What motivated you to do this research?

The notion of mindfulness can be traced back to many sources in Eastern religion and philosophy, which has been an area of my personal interest for many years. Learning about mindfulness offered a drastically different approach to everyday living compared to the relatively frantic pace of modern society. I feel that mindfulness has a tremendous potential to improve and enrich our daily lives. Research provides empirical support to demonstrate this potential and exposes mindfulness to other researchers and the general public.

jur: How does this research relate to your major, future plans, and interests?

One focus of my future research will be concerned with optimal psychological health. I will always consider mindfulness an important factor in this empirical initiative.

jur: While doing this research project, what was your biggest obstacle and how did you overcome it?

Completion of this research project went very smoothly. Perhaps the only serious obstacle in the completion of this project was making sure that I had enough participants. I was able to ensure this by making a constant effort to advertise my survey and by using the online system Sona to recruit participants from the U of R's psychology courses.

jur: After completing your project, what do you think was your most fulfilling experience?

The most fulfilling experience of completing this project was having the opportunity to present my results to the faculty of the department of psychology. The audience for my presentation was filled with outstanding researchers and it was truly an honor to