

HEY GOD IT'S ME:
DEVELOPMENT AND INITIAL VALIDATION OF THE PERSONAL
PRAYER CONTENT SCALE

By

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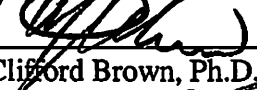
This dissertation was prepared under the direction of the candidate's dissertation advisor, Dr. Robin R. Vallacher, Department of Psychology, and has been approved by the members of his supervisory committee. It was submitted to the faculty of the Charles E. Schmidt College and was accepted in partial fulfillment of the requirements for the degree Doctor of Philosophy.


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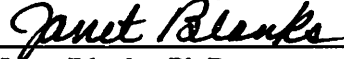

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ABSTRACT

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I present the development and initial validation a new measure designed to assess specific personal prayer content. I used feedback from men and women, along with a review of the relevant literature, to identify specific prayer content for inclusion in the Personal Prayer Content Scale (PPCS) (Study 1). I administered the PPCS to a sample of participants from southeast Florida and southeast Michigan allowing for a cross-national investigation of the specific content of the thoughts that individuals privately direct towards a god, gods, or god-like entity (Study 2). I compared men's and women's responses (Study 3) and responses between Christians and non-Christians (Study 4) on the PPCS. The results provide evidence for the reliability and discriminant validity of the PPCS by demonstrating that personal prayer content predicts aspects of religiosity and is equally valid for men and women and Christians and non-Christians. A validated PPCS may be of theoretical, empirical, and practical value.

HEY GOD’S IT’S ME: DEVELOPMENT AND INITIAL VALIDATION OF THE
PERSONAL PRAYER CONTENT SCALE

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I. INTRODUCTION

According to William James (1902/1994), private prayer is the soul and essence of religion. Praying to a god appears to be a universal act practiced by individuals across time and cultures (Hood, Morris, & Watson, 1989; Lindgren, 2005). In the United States, 58% of U.S. citizens pray at least once per day (Religious Landscape Survey, Pew Research Religion and Public Life Project, 2013), and in a secularized society, such as the Netherlands, a majority of its' citizens pray, even though church membership and church attendance have gone down in recent years (Banzigor, Janssen, & Scheepers, 2008; Zondag, 2013). Among rural Kenyan adolescents, personal praying behavior is a primary strategy employed to cope with economic stress, HIV risk, and sexual decision-making (Puffer, Watt, Sikkema, Ogwang-Odhiambo, & Boverman, 2011). Even among a random sample of top-ranked academic pediatricians, 52.6% reported praying privately to God (Catlin, Cadge, Ecklund, Gage, & Zolfrank, 2008). Praying to God or a God-like entity appears to be a ubiquitous act practiced by individuals from a wide variety of geographic, cultural, developmental, and educational backgrounds; however, only in recent years has the empirical investigation of praying behavior matched the ubiquity and anecdotal significance of the act of personally praying to a God or God-like entity.

The act of praying has been associated with physical and mental well-being (Laird, Snyder, Rapoff, & Green, 2004; VandeCreek, Janus, Pennebaker, & Binau, 2002; Whittington & Scher, 2010; Masters & Spielmans, 2007), including reduced anxiety when coping with stressful and/or traumatic events (Ai, Bolling, & Peterson, 2000; Ai,

Tice, Peterson, & Huang, 2005; Harris, Erbes, Engdahl, Tedeschi, Olson, Winkowski, & McMahill, 2010; Grossoheme, Jacobsen, Cotton, Ragsdale, VanDyke, & Seid, 2011); decreased depressive symptoms (Denny, 2011; McCullough & Larson, 1999; Smith, McCullough, & Poll, 2003), and decreased alcohol consumption (Lambert, Fincham, Marks, & Stillman, 2010).

Personal prayer use has been associated with increased marital satisfaction, enrichment, and commitment (Beach, Hurt, Fincham, Kameron, Franklin, McNair, & Stanley, 2011; Fincham & Beach, 2014), trust and forgiveness in one's romantic relationship partner (Lambert, Fincham, LaVallee, & Brantly, 2012; Lambert, N. M., Fincham, F. D., DeWall, C. N., Pond, R. S., & Beach, S. (in press), reduced partner infidelity (Fincham, Lambert, & Beach, 2010), and increased self-control in a Stroop task (Frieze & Wanke, 2014). Furthermore individual prayer use for coping with health and pain related concerns increased from 2001 to 2007 (Wacholz & Sambamoorthi, 2011), while older adults from a wide variety of religious backgrounds, ethnicities, and income levels pray about health (Tait, Laditka, Ladikta, Nies, & Racine, 2011). Certain types of prayer have also been linked to negative health consequences including depression and loneliness (Poloma & Pendelton, 1989).

Unfortunately, empirical investigation of individual praying behavior has been limited to 1) the use of single item measures designed to assess only the occurrence and frequency of prayer in general (e.g. "Do you pray and how often?"), (McCullough & Larsen, 1999), 2) measures designed to assess praying styles and not prayer content per say, and 3) measures generated from pre-existing models of Christian prayer and tested primarily on Christian participants which may limit the widespread applicability of

measures of praying styles and content. Missing from the literature is a detailed examination of personal prayer content and a measure designed to assess specific prayer content from individuals from a wide variety of religious backgrounds (Baker, 2008; Masters & Spielmans, 2007; Winkeljohn Black, Pössel, Rosmarin, Jeppsen, & Tariq, A., 2014).

Existing Measures of Prayer Content

James (1902/1994) defined prayer as “every kind of inward communion or conversation with the power recognized as divine.” One objective of the current research was to examine the details of this personal, inward conversation with God. What are people specifically saying to God when they individually pray? A handful of measures have been designed to measure praying styles. For example, Poloma and Pendelton (1989, 1991) validated a 15-item scale measuring four distinct praying styles based loosely on prayer content including: 1) meditative prayer, 2) ritual prayer, 3) petitionary prayer, and 4) colloquial prayer. Petitionary prayer for example, contains two items of prayer content, (“How often do you ask God for material things that you need?” and “How often do you ask for material things your friends or relatives may need?”). Unfortunately, this measure was generated theoretically following a review of Christian literature and tested on a sample of U.S. Christian participants from Ohio, which may limit the widespread applicability of the measure. Breslin & Lewis (2010) provided evidence for the reliability and the unidimensionality of Poloma & Pendelton’s measure of prayer experience, however; the prayer content items remain too few and too general to be informative regarding specific prayer content.

Ladd & Spilka (2002, 2006) developed a multidimensional prayer questionnaire

consisting of twenty-nine general prayer topics including, “requesting personal things,” “seeking assistance for others,” and “private experiences,” culminating in three cognitive aspects of prayer including inward, outward, and upward themes/styles of prayer content; however, the items are too general to be informative regarding specific prayer content.

The Multidimensional Prayer Inventory (MPI; Laird et al., 2004) measures private praying experiences along five praying styles including: Adoration, Confession, Thanksgiving, Supplication, and Reception and was designed to examine stylistic differences in praying as a coping mechanism for individuals suffering from arthritis. Primarily tested on Christian participants, the MPI contains a small number of prayer content items, but these items are general or vague in content. Supplication, for example, is characterized by requests for God’s intervention in life events for oneself or others (e.g., “I asked God for things occurring in my life,” and “ I asked for assistance with my daily problems.”). Unfortunately these items lack specificity, were derived from a pre-existing model of Christian prayer, and have been tested primarily on Christian participants, which may limit the widespread applicability of the inventory.

The Prayer Experience Questionnaire (PEQ; Dein & Littlewood, 2008) was designed to examine the receptive side of prayer by providing an in-depth phenomenological description of the individual prayer’s encounter with the sacred. Although the PEQ contains an 11-item measure of prayer content, the items are also general and vague (e.g. “Have you prayed for other people’s difficulties?”). Furthermore, the PEQ was also theoretically derived from a pre-existing model of Christian prayer and tested on members of a Pentecostal church, which may limit the widespread applicability of the measure.

Research efforts have been made to 1) empirically generate survey content on various aspects of one's religiosity and 2) include participants from a wide variety of religions, cultures, ethnicities, and ages. Open-ended questions, for example, may provide a window into unknown and changing aspects of contemporary praying practices hidden in personal feelings and acts (Banzigor, 2007; Banzigor et al., 2008) and have been used to examine the religious beliefs and praying practices of Dutch youth (Janssen, Prins, Van der Lans, & Baerveldt, 2000; Janssen, De Hart, & Den Draak, 1990) and Dutch adults (Banzigor et al., 2008;). Questions such as, "When do you feel the need to pray?" and "What do you hope to achieve with prayer?" were used to generate survey content regarding contemporary praying practices and prayer content and create a measure that includes four varieties of prayer including: 1) religious prayer 2) petitionary prayer 3) impulsive/psychological prayer and 4) meditative prayer (Banzigor, 2007; Banzigor et al., 2008). Several items refer to specific prayer content (e.g. participants prayed when confronted with sickness, death, relationship problems, or examinations), but the items are too general, or lack clarity to be informative regarding specific prayer content.

Krause (2002, 2004, 2012) interviewed U.S. samples of White, Black, and Mexican American elderly adults to capture aspects of religious behavior and individual praying experiences in old age. "Substantive Content of Prayer," one of four dimensions assessed, includes five prayer content items total that are 1) vague (e.g. "When you're by yourself, how often do you pray for guidance?"), 2) loaded with multiple items (e.g. "When you're by yourself, how often do you pray for material things, like a job, money, or a car?"), and are 3) too few to inform a thorough examination of the specific details of the thoughts that an individual privately directs towards a God or God-like entity.

Furthermore, these measures have been generated and/or tested primarily on Christian participants limiting the widespread applicability of the measure.

In an examination of Non-Christian prayer, Lindgren (2005) provided a qualitative analysis of in-depth interviews of 18 Muslims living in Sweden, but the prayer content was not quantified in survey form (Zondag, 2013). Similarly, prayer cards left in a rural Anglican parish church in England over a 16 month period were examined for content related to physical health and well-being (Ap Sion, 2008), but the content was not used to generate a survey measuring specific prayer content. Winklejohn Black, Possel, Jeppsen, Tariq, Rosmarin (2015) tested the widespread applicability of Paloma and Pendelton's 1989 Prayer Types Scale by administering it to an online sample of Christians, Jews, and Muslims. The factor structure of the original subscales was deemed nonequivalent across the major three monotheistic religious groups suggesting that it would not yield valid inferences for Jewish and Muslim individuals. Subsequently, the subscales were slightly revised to render the measure slightly more psychometrically sound and potentially useful in clinical settings. Unfortunately, a modified version of the same 4 prayer types (Colloquial, Meditative, Petitionary, and Ritual) with little analysis of specific prayer content was retained. Similarly, Lazar (2014) confirmed the validity of the MPI (Laird et al. 2004) on a large sample of Jewish-Israeli pray-ers and also created a sixth type of prayer called habitual prayer.

Although these attempts to examine prayer content are valuable, missing from the literature is a measure that reliably assesses specific, personal prayer content from individuals from a wide variety of religious affiliations and cultural backgrounds. In addition to gaining insight into the specific details of private prayer content using

participants from a wide variety of religious backgrounds, a second objective of the current research is to create a reliable and valid prayer content scale that can be utilized in future research and, perhaps, in therapeutic settings. A valid and reliable specific prayer content scale could be administered, for example, within the contexts of Terror Management Theory (Rosenblatt, Greenberg, Solomon, Pyszczynski & Lyon, 1989; Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder, & Kirkland, 1990), Regulatory Focus Theory (Higgins, 1989), personality research, research on self-esteem, and research on narcissism.

A valid and reliable personal prayer content scale may also be highly valuable to assess the universality in themes of prayer content and to assess the specific contexts in which prayer content and frequency may deviate across time, cultures, and situations. Furthermore since high levels of religiosity have been associated with prejudice (Allport & Ross, 1967), derogation of a religious outgroup (McGregor, Haji, Nash, & Tepir, 2008), and violent warfare (Shaw, Quezada, & Zarate, 2011), perhaps specific themes of prayer content are predictive of destructive behavior. Finally, a valid measure of specific prayer content may also be highly valuable in practice if romantic relationship counselors are utilizing measures of praying behavior and recommending praying for one's romantic partner to strengthen one's romantic relationships.

A valid measure designed to assess specific prayer content for individuals from a wide variety of religious affiliations does not exist. To fill this gap in the literature and to address limitations in measures currently available to measure specific prayer content, I used feedback from a diverse sample of participants from south Florida and south Michigan, along with a review of the relevant literature, to identify specific prayer

content items for inclusion in a new Personal Prayer Content Scale (PPCS)(*Study 1*). I next administered the PPCS to a large sample of participants from two geographically distinct regions of the United States to assess the reliability and validity of the new prayer survey (*Study 2*). A second objective of the current research was to identify specific prayer items (or categories of prayer content) that 1) might predict levels of religious participation, 2) might predict levels of spiritual well-being, 3) might predict one's motivation for religious participation, and 4) might predict beliefs about the self-perceived influence of free-will and determinism in one's own life. Measures of religious participation, spiritual well-being, and intrinsic/extrinsic motivation for religious participation have been used to validate previously published prayer scales and were administered in this study to further validate the PPCS and to identify specific prayer items (or categories of prayers) that might predict religious participation, spiritual well-being, motivation for religious participation, and one's personal stance on the relative influence of free will and determinism in their lives. A measure of free will/determinism was used in lieu of a locus of control measure. Personal beliefs regarding the influence of "free-will" and "determinism" in one's life have been examined within the context of morality (Vohs & Schooler, 2008) and may be useful for testing the external validity and predictive utility of the new PPCS.

Finally, I compared responses in prayer content between men and women (*Study 3*) and between Christians and non-Christians (*Study 4*). For the newly created PPCS to be maximally useful in clinical and therapeutic settings, there should not exist significant differences in prayer content frequency between praying men and praying women and between praying Christians and praying non-Christians.

II. STUDY ONE: PRAYER NOMINATIONS AND DEVELOPMENT OF THE PERSONAL PRAYER CONTENT SCALE

Responses from participants attending Florida Atlantic University in southeast Florida, Oakland University in southeast Michigan, and the University of Michigan-Flint (N=407) were used to select the final items comprising the PPCS. The mean age of the full sample is 22.42 years ($SD = 6.82$). The mean age of the male participants was 22.35 years ($SD = 9.12$) and the mean age of the female participants was years 22.53 years ($SD = 7.59$). Data was collected online, in-person, and with informal interviews with men and women living in southeast Florida and southeast Michigan.

Participants must have prayed privately at least once over the past one month and must have been at least 18 years of age at the time of the study to participate in this study. Those meeting criteria to participate were forwarded to an online consent page. Those consenting to participate completed a brief biographical section that included questions about religious practices, religious beliefs, and beliefs about the efficacy of prayer. For example, I asked participants to rate on a scale of one to seven (one = never or none, seven = always or high) the degree to which they felt that God listens to their prayers, the degree to which God responds to their prayers, the degree to which God cares about their prayers, and the degree to which God exists. The means and standard deviations for these four variables are listed in Table 1. Utilizing an act nomination procedure (Buss & Craik, 1983), participants completed a prayer nomination procedure in which participants were

asked to list up to 15 specific things that they have personally prayed for or about over the past one month. Participants were required to think about and report on their own individual praying behavior and personal prayer content. Personal prayer content, in this study, is defined as the details of the personal thoughts that an individual privately directs towards a God, Gods, or God-like entities.

Although participants may have prayed as part of a religious group or church service, or in a small group setting such as before a meal, participants were asked to report only on aspects of their own personal prayer content. Additionally participants were asked not to report on aspects of religious passages from sacred texts (e.g., the Torah, the Qu'ran, the Bible) that may have been recited during prayer. From three samples of participants, a total of 4,128 prayer content items were collected from a large sample of individuals with diverse religious affiliations. The frequencies of religious backgrounds of the participants are listed in Table 2.

Following the prayer nomination procedure, informal interviews with men and women living in southeast Florida and southeast Michigan, and a review of relevant literature, I identified 105 personal prayer content items for inclusion in the new Personal Prayer Content Scale (PPCS) (Table 3). Example items include: "Thanks for keeping my loved ones healthy," "Safe traveling for me," and "For something bad to happen to someone I do not like." Items retained for the scale also include more general prayers (e.g., "A better life for me,").

III. STUDY TWO: ADMINISTRATION OF THE PERSONAL PRAYER CONTENT SCALE

I administered the PPCS to new samples of men and women living in southeast Florida or southeast Michigan. I performed principal components analyses and investigated how responses on the PPCS total scale and components correlate with measures of religiosity and a measure of personal beliefs about the influence of free will and determinism in one's life. This resulted in a 53-item scale composed of 5 components of prayer content. I next used multiple regression analyses to investigate the extent to which each prayer component uniquely predicts one's level of religious belief and participation, one's spiritual well-being, one's motivation for religious participation, and one's beliefs about free will and determinism. I provide initial empirical support for the validity and reliability of the PPCS full-scale and component scores, and demonstrate its utility for future research.

The PPCS was administered to 455 people (123 men and 332 women) currently attending universities from two geographically distinct regions of the United States- southeast Florida and southeast Michigan. Participants primarily consisted of undergraduate psychology students participating in exchange for research credit in introductory psychology. The mean age of the female participants was 19.03 years ($SD = 3.112$) and the mean age of the male participants was 18.53 years ($SD = 1.014$). Potential participants were sent an email with a link to the online study containing instructions on

how to complete the survey and obtain research credit (if applicable). Participants were at least 18 years of age and had prayed privately at least once over the past one month prior to participation. The participants were instructed to read and sign the consent form and complete the survey online. Participants completed a biographical section that, like Study 1, included questions about one's religious practices, beliefs, and religious backgrounds. For example, I asked participants to rate on a scale from one to seven, the degree to which they felt God responds to their prayers (1 = never; 2 = always). These questions served as a proxy for or one's level of religiosity. Means and standard deviations for the religious belief questions for Study 2 are displayed in Table 4. Student members of a Muslim Student Organization (MSO) at FAU were also invited to participate to increase the religious diversity of the participants. See Table 5 for the frequencies for religious backgrounds of participants in Study 2.

In addition to the PPCS, participants completed the SWB Scale (Paloutzian & Ellison, 1982) designed to measure spiritual well-being along two dimensions: 1) Spiritual Well-Being and 2) Existential Well-Being. Participants also completed the FAD-Plus (Paulhus & Carey, 2011) designed to measure personal lay beliefs regarding the relative influence of free will and three related constructs: scientific determinism, fatalistic determinism, and unpredictability in one's life. Finally participants completed the Intrinsic/Extrinsic-Revised Scale (I/E-R) (Gorsuch & McPherson, 1989) designed to measure religious motivation along 3 subscales (intrinsic motivation, extrinsic motivation-personal, extrinsic motivation-social).

The PPCS section included the following instructions:

On the following scale, please select the number that best corresponds to how often you have personally prayed for or about the following prayer items to God over the past one month (0 – Not at all in the past month, 1 – Once in the past month, 2 – Once a week in the past month, 3 – Once a day in the past month, 4 – More than once a day in the past month). Personal prayer content, in this study, is defined as the personal thoughts that an individual privately directs towards God. Although you may have prayed as part of a religious group or church service, or in a small group setting such as before a meal, please only report on the frequency of your own personal prayer content. We recognize that prayer content can be deeply personal. Your responses will be anonymous. Your assistance is greatly appreciated.

Principle Components Analysis

I conducted a series of principle components analyses (followed by varimax rotation) on responses to the 53 prayer content items. For statistical analyses I re-scaled responses on the prayer items as follows: 0 – Not at all in the past month = 0, 1 – Once in the past month = 1, 2 – Once a week in the past month = 4, 3 – Once a day in the past month = 30, 4 – More than once a day in the past month = 60. These analyses produced five interpretable components, each with eigenvalues greater than 1.5. The first component (eigenvalue = 18.51) accounted for 34.9% of the variance. The second component (eigenvalue = 3.56) accounted for 6.7% of the variance. The third component (eigenvalue = 2.17) accounted for 4.1% of the variance. The fourth component (eigenvalue = 1.85) accounted for 3.5% of the variance. The fifth component (eigenvalue = 1.67) accounted for 3.2% of the variance. Together the five components accounted for 52.38% of the total inter-tem variance. The results of the principle components analysis

(followed by varimax rotation) are presented in Table 6. Principle components analyses (followed by varimax rotation) on the original scale produced nearly identical components and component loadings.

Component 1, which I labeled “Gratitude and Protection,” includes prayers expressing thanks to God (e.g. “Thanks for my loved ones,” and “Thanks for protecting me”) and prayers about God’s personal protection or presence (e.g., God’s presence in my life” and “Protection for me from disease/illness/injury”). Component 2, which I labeled “Finances/Job/Career,” includes prayers about meeting financial obligations (e.g. “Paying my bills,” and “A loved one paying their bills.”) and employment/career needs (e.g., “Keeping my job,”). Component Three, which I labeled “Grandiose Acts,” includes prayers for God’s widespread intervention for large-scale and desperate circumstances presumably well beyond one’s personal control (e.g. “Help for the homeless,” and “Protection for our troops fighting in wars”). Component 4, which I labeled “Physical Appearance,” includes prayers related to increasing one’s appearance/attractiveness (e.g. “Looking attractive to others,” and “Help for me to lose weight”). Component 5, which I labeled “Companionship,” includes prayers regarding social needs/intimacy (e.g. “Feeling less lonely,” and “Me finding a romantic partner”).

Some of the components included items that were less clearly linked conceptually to their assigned label. For example, component 4, “Physical Appearance” included items such as, “Winning the lottery,” and “Keep my romantic partner from cheating on me,” while Component 5, “Companionship,” included items such as, “Help for me to forgive people who have harmed me.” It’s not clear why some items loaded on components that were not related directly to the items, but I retain the current structure because the

majority of items are conceptually related and the component loadings are sufficiently high. Means and standard deviations for each of the 53 prayer content items are listed in Table 19 reflecting the mean number of times each prayer item was prayed for monthly across the entire sample.

Next I calculated alpha reliabilities for each of the five components and for the total scale. The full sample alpha reliabilities for the five components (Gratitude and Protection, Finances/Job/Career, Grandiose Events, Physical Appearance, and Companionship respectively) were $\alpha = .954, .895, .815, .807,$ and $.753$ and the total scale alpha reliability was $\alpha = .963$. Inter-correlations among the total PPCS and the five components for the full sample are displayed in Table 7. These inter-correlations are uniformly positive and moderate to high in size. Overall, the results indicate that the fifty-three prayer items can be organized into five interpretable components, each of which demonstrates sufficient reliability to warrant further analyses. Inter-item correlation coefficients for all 53 prayer content item combinations are available upon request.

PPCS and Measure of Religiosity. In section A, I included ten questions to serve as a proxy for one's level of religiosity including questions that assessed aspects of religious behavior (e.g. "To your best estimation, how many times have you attended an organized religious service over the past one week?") and religious belief (e.g. "On the following scale, please rate the degree to which God responds to your prayers.>"). Responses are recorded using a 7-point scale anchored by +1 (*not at all*) and +7 (*always*). Religious Behavior and Religious Belief were combined to create a full measure of Religiosity. The full sample alpha reliabilities for the two components were $\alpha = .805$ and $\alpha = .893$ and the total alpha scale reliability was $\alpha = .827$. Inter-correlations between the

two components and full scale are uniformly positive and small to moderate in size. Table 8 contains the inter-correlations for the full sample religiosity measure and two components. Overall, the results indicate that the ten-religiosity items can be organized into two interpretable components, each of which demonstrates sufficient reliability to compare to responses on the PPCS.

If the PPCS is to be a useful predictor of religious behavior and religious belief, I expect positive, but not perfect correlations with scores on the religiosity measure. Correlations between the PPCS (full scale and components) and measure of religiosity (full scale and components) are uniformly positive, but also indicate that the PPCS total and component scores do not share more than 50% of the variance with scores on the Religiosity measure. This provides initial support for the discriminant validity of the PPCS. The PPCS appears to measure behaviors that are associated with, but distinct from, one's levels of religious behavior and belief. Correlations between scores on the PPCS (full scale and each of the five components) and scores on the Religiosity Measure appear in Table 9.

PPCS and Spiritual Well-Being. The SWB Scale (Paloutzian & Ellison, 1982) measures spiritual well being along two dimensions, religious well being (RWB) containing a reference to God and existential well-being (EWB) containing no such reference. Responses are recorded using a 6-point scale anchored by +1 (*strongly agree*) and +6 (*strongly disagree*). Example items include, "I have a personally meaningful relationship with god," and "I believe there is some real purpose for my life." Administration of the SWB Scale in conjunction with the PPCS allowed for correlational analyses between scores on the two measures. If the PPCS is to be a useful predictor of

spiritual well being, I expect positive correlations with the SWB (full scale, religious, and existential) with Component 1: Gratitude and Protection, and Component 3: Grandiose Acts of the PPCS and negative correlations with Component 2: Finances/Job/Career, Component 4: Physical Appearance, and Component 5: Companionship of the PPCS. Correlations between scores on the PPCS (full scale and each of the five components) and scores on the SWB appear in Table 10. The correlations are moderate to small, generally in the predicted directions, and also indicate that the PPCS total and component scores do not a large percentage of the variance with scores on the SWB. This provides further initial support for the discriminant validity of the PPCS. The PPCS appears to measure behaviors that are associated with, but distinct from, spiritual well being as assessed by the SWB.

PPCS and Beliefs about Free Will and Related Constructs. The FAD-Plus (Paulhus & Carey, 2011) is a 27-item measure of personal beliefs regarding free will and three related constructs: scientific determinism, fatalistic determinism, and unpredictability. Responses are recorded using a 5-point scale anchored by +1 (*strongly disagree*) and +5 (*strongly agree*). Example items include “I believe that the future has already been determined by fate,” and “People’s biological makeup determines their talents and personality.” The FAD-Plus provides a more nuanced and user-friendly examination of beliefs about free will and related concepts than other such assessment instruments currently available (e.g. Viney, Waldman, & Barchilon, 1982; Rakos, Laurene, Skala & Slane, 2008). All 4 dimensions have demonstrated acceptable internal consistencies and displayed convergent and discriminant validity to warrant further use. Administration of the FAD-Plus in conjunction with the PPCS allowed for correlational

analyses between scores on the two measures. If the PPCS is to be a useful predictor of attitudes regarding free will and related constructs, I loosely expect a range of correlations. I expect Free Will to be positively correlated with Component 1: Gratitude and Protection, Component 2: Job/Finances/Career, and Component 4: Physical Attractiveness. I expect Free Will to be negatively correlated with Component 3: Grandiose Acts and Component 5: Companionship. Correlations between scores on the PPCS (full scale and each of the five components) and scores on the FAD-Plus appear in Table 11. The correlations are small, but in predicted directions, and also indicate that the PPCS total and component scores do not share more than 50% of the variance with scores on the FAD-PLUS. These results provide initial support for the discriminant validity of the PPCS. The PPCS appears to measure behaviors that are mildly associated with, but distinct from, attitudes about free will and related constructs as assessed by the FAD-Plus.

PPCS and Motivation for Religious Participation. The Intrinsic/Extrinsic-Revised Scale (Gorsuch & McPherson, 1989) measures motivation for religious participation. The I/E-R contains three subscales: 1) a subscale of intrinsic motivation, 2) a subscale of extrinsic motivation-personal), and 3) a subscale of extrinsic motivation-social. Responses are recorded using a 5-point Likert scale anchored by +1 (*strongly disagree*) and +5 (*strongly agree*). Intrinsic motivation is characterized by deep devotion to religion and internalization of religious principles to guide one's behavior while extrinsic motivation is characterized by the use of religion as a means towards one's own personal ends including security/solice, social opportunities/distraction, and status/self-justification (Allport & Ross, 1967). Example items for include, "I enjoy reading about

my religion,” “I go to church mostly to spend time with my friends,” and “What religion offers me most is comfort in times of trouble and sorrow.”

If the PPCS is to be a useful predictor of motivation for religious participation, I expect negative correlations for Intrinsic Motivation on all five prayer components. I expect positive correlations for Extrinsic Motivation-Social with Component one: (Gratitude and Protection), Component two (Job/Finances/Career), and Component four: Physical Appearance and low to negative correlations for Components three: Grandiose Events and Component five: Companionship. The correlations are small, but generally in the predicted directions, and also indicate that the PPCS total and component scores do not share more than 50% of the variance with scores on the I/E-R. These results provide initial support for the discriminant validity of the PPCS. The PPCS appears to measure behaviors that are mildly associated with, but distinct from intrinsic and extrinsic forms of religious motivation. Correlations between scores on the PPCS (full scale and each of the five components) and scores on the I/E-R appear in Table 12. In sum, the PPCS appears to measure behaviors that are associated with, but distinct from, the behaviors and beliefs measured in this combination of measures providing initial support for the discriminant validity of the PPCS.

Unique Predictive Utility of the Prayer Components

To identify whether any of the prayer components uniquely predict levels of religiosity, spiritual well-being, attitudes about free will and determinism, and motivation for religious participation, I conducted a total of thirteen multiple regressions assessing the extent to which the five components of the PPCS predicted scores on the Religiosity Measure, the SWB Scale, the FAD-Plus, and the I/E-R measure of religious motivation.

Eleven of the thirteen models was significant overall (mean $F = 10.950$, mean $R^2 = .225$, $p < .01$). The results appear in Table 13.

PPCS and Religious Behavior/Religious Belief. I conducted a total of three multiple regressions to assess the extent to which the five components of the PPCS predicted religiosity overall, religious participation, and religious belief (from section A). All three of the models was significant overall (mean $F = 17.072$, mean $R^2 = .719$, $p < .01$). Investigation of the individual standardized regression coefficients indicated that one component (Component 1: Gratitude and Protection) uniquely predicted scores on all three scales: Religiosity (Full scale), Religiosity-Behavior, and Religiosity-Belief. Controlling for age did not substantively change the results. The results appear in Table 13. Stepwise analyses were consistent with these results.

PPCS and Spiritual Well-Being. I conducted a total of three multiple regressions to assess the extent to which the five components of the PPCS predicted spiritual well-being (full scale), religious well-being, and existential well-being. All three of the models was significant overall (mean $F = 18.137$, mean $R^2 = .158$, $p < .01$). Investigation of the individual standardized regression coefficients indicated that two components (Component 1: Gratitude and Protection and Component 4: Physical Appearance) uniquely predicted scores on the Religious Well-being subscale. Further investigation of the individual regression coefficients indicated that two components: (Component one: Gratitude and Protection and Component five: Companionship) uniquely predicted scores on the Existential Well-being subscale. Further investigation of the individual regression coefficients indicated that three components: (Component one: Gratitude and Protection, Component four: Physical Appearance, and Component five: Companionship uniquely

predicted scores on the Religious Well-being scale (full scale). The results appear in Table 14. Controlling for age did not substantively change the results. Stepwise analyses were consistent with these results.

PPCS and Free Will and Related Constructs. I conducted a total of four multiple regressions to assess the extent to which the five components of the PPCS predicted personal beliefs about the relative influence of free will, scientific determinism, fatalistic determinism, and unpredictability in participant's lives. Three of the four models was significant overall (Scientific Determinism, Fatalistic Determinism, Unpredictability (mean $F = 3.752$, mean $R^2 = .029$, $p < .01$). The model for Component 1: Free-will was non-significant. Investigation of the individual standardized regression coefficients indicated that two components (Component 4: Physical Appearance and Component 5: Companionship) uniquely predicted scores on Scientific Determinism. Investigation of the individual regression coefficients indicated that one component: (Component 5: Companionship) uniquely predicted scores on Fatalistic Determinism. Finally investigation of the individual regression coefficients indicated that one component (Component 4: Physical Appearance) uniquely predicted scores in Unpredictability. The results appear in Table 15. Controlling for age did not substantively change the results. Stepwise analyses were consistent with these results.

PPCS and Motivation for Religious Participation. I conducted a total of three multiple regressions to assess the extent to which the five components of the PPCS predicted motivation for religious participation along three dimensions: Intrinsic motivation, Extrinsic-Social motivation, and Extrinsic Personal motivation. Two of the three models were significant overall (Extrinsic-Social and Extrinsic Personal) (mean $F =$

7.238, mean $R^2 = .060$, $p < .01$). Investigation of the individual standardized regression coefficients indicated that two components (Component 1: Gratitude and Protection and Component 4: Physical Appearance) uniquely predicted scores on the Intrinsic Motivation subscale. Further investigation of the individual regression coefficients indicated that one components: (Component 1: Gratitude and Protection) uniquely predicted scores on the Extrinsic Personal subscale. Finally not a single component of the PPCS significantly predicted scores on the Extrinsic Personal subscale. These results appear in Table 16. Controlling for age did not substantively change these results. Stepwise analyses were consistent with these results.

IV. EXPLORATORY ANALYSES OF MEAN DIFFERENCES IN PRAYER CONTENT FREQUENCY BETWEEN MEN AND WOMEN

If the PPCS is to be a maximally useful instrument for measuring prayer content, there should not be substantial significant differences in prayer content frequency between men's and women's responses across the full scale and each of the five components. Women tend to be more religious than men (Trzebiatowska & Bruce, 2012), however, I predict that praying women will pray slightly more frequently (but not significantly) more than men for total PPCS, for Component 1: Gratitude and Protection, for Component 3: Grandiose Acts, and for Component 5: Companionship; however, I do not expect to find significant differences between these sets of means.

According to an evolutionary psychological perspective, however, the mind is not designed to process all types of information equally (Confer, Easton, Fleischman, Goetz, Lewis, Perilloux & Buss 2010). For example, because women, more so than men, value skills related to resource accrual in a potential mate, and because men, more so than women, value youth and attractiveness in a potential mate (Buss, 1989), I predict that women will pray more frequently about Component 4: Physical Appearance, while men will pray more frequently about Component 2: Finances/Job/Career. In this exploratory analysis however, I do not expect to find statistically significant differences between means. A series of independent-samples *t*-tests was conducted to compare prayer content frequency between men ($n = 123$) and women ($n = 332$) for the full PPCS and each of the five components. There was not a significant difference in prayer content frequency for

the full PPCS for men ($M = 471.24$, $SD = 500.412$) and women ($M = 420.94$, $SD = 500.41$); $t = -.931$, $p = .352$. Similarly there was not a significant difference in prayer content frequency for Component 1: Gratitude and Protection between men ($M = 296.84$, $SD = 306.21$) and women ($M = 285.28$, $SD = 308.27$); $t = -.356$, $p = .722$, and neither was there a significant difference in prayer content for Component 2: Finances/Job/Career between men ($M = 59.84$, $SD = 109.02$) and women ($M = 49.30$, $SD = 104.16$); $t = -0.946$, $p = .344$. A significant difference was not detected in prayer content frequency for Component 3: Grandiose Acts between men ($M = 38.98$, $SD = 74.02$) and women ($M = 30.58$, $SD = 63.62$); $t = -1.195$, $p = .233$, nor was a significant difference detected in prayer content for Component 4: Physical Appearance between men ($M = 39.31$, $SD = 76.28$) and women ($M = 26.82$, $SD = 57.02$); $t = -.884$, $p = .060$. Finally a significant difference in prayer content for Component 5: Companionship was not detected between men ($M = 36.28$, $SD = 66.18$) and women ($M = 28.97$, $SD = 53.33$); $t = -1.213$, $p = .226$.

These exploratory analyses suggest that the PPCS is suitable for use for both men and women for the full inventory and across each of the five components. Based on mean values and contrary to five of the six predictions, men prayed slightly more frequently than women across the full PPCS and on each of the five components. Means, standard deviations, and t-test results are displayed in Table 17.

V. EXPLORATORY ANALYSES OF MEAN DIFFERENCES IN PRAYER CONTENT BETWEEN CHRISTIANS AND NON-CHRISTIANS

If the PPCS is to be a useful instrument for measuring prayer content, there should not be significant differences in prayer content frequency across individuals from different religious affiliations. To assess for the cross-religion utility of the new prayer content inventory, I conducted exploratory analyses on the total PPCS and each of the five components between Christians and non-Christians. Due to small sample sizes for non-Christians, I combined responses from Muslim, Jewish, Hindu, Buddhist, New Age, and other nondenominational religious participants for comparison with Christian participants. Christian participants identified themselves as either Catholic, Protestant, Mormon, or Christian. A series of independent-samples t-tests was conducted to compare prayer content frequency between Christians ($n = 379$) and non-Christians ($n = 76$) for the full PPCS and each of the five components. I do not expect to find significant differences in prayer content frequency for the total PPCS and each component.

There was not a significant difference in prayer content frequency for the full PPCS between Christians ($M = 422.87$, $SD = 491.70$) and non-Christians ($M = 492.72$, $SD = 601.34$); $t = -1.087$, $p = 0.278$. Similarly, there was not a significant difference detected in prayer content frequency for Component 1: Gratitude and Protection between Christians ($M = 284.06$, $SD = 299.50$) and non-Christians ($M = 310.09$, $SD = 345.59$); $t = -.673$, $p = .501$, and neither was there a significant difference for Component 2:

Finances/Job/Career between Christians ($M = 50.75$, $SD = 103.42$) and non-Christians ($M = 59.11$, $SD = 115.68$); $t = -0.630$, $p = .529$. Similarly a significant difference was not detected in prayer content frequency for Component 3: Grandiose Acts between Christians ($M = 31.51$, $SD = 64.05$) and non-Christians ($M = 39.54$, $SD = 78.29$); $t = -.959$, $p = .338$, and neither was a significant difference detected in prayer content frequency between Component 4: Physical Appearance for Christians ($M = 28.39$, $SD = 59.23$) and non-Christians ($M = 39.22$, $SD = 78.84$); $t = -1.371$, $p = .171$. Finally, contrary to prediction, a significant difference in means was discovered for Component 5: Companionship for Christians ($M = 28.17$, $SD = 52.64$) and non-Christians ($M = 44.76$, $SD = 74.45$); $t = -2.323$, $p = 0.021$. Overall, the PPCS appears to provide a useful assessment of prayer content for both Christians and non-Christians. Means, standard deviations, and t -test results are displayed in Table 18.

VI. DISCUSSION AND FUTURE DIRECTIONS

According to the Reverend Billy Graham, “Prayer is simply a two-way conversation between you and God.” The primary objective of the current research was to create and validate a new inventory designed to assess the specific details of this two-way exchange. The Personal Prayer Content Scale (PPCS) differs from other measures currently available in that it is the first survey designed to examine and assess specific, personal prayer content. A review of the literature on prayer content, responses from informal interviews with men and women who pray, and prayer nominations provided by men and women from two geographically distinct regions of the United States were used to generate the final set of 53 specific prayer content items that comprise the PPCS.

I recognize that private prayer content can be deeply personal. As such precautions were taken to maintain the confidentiality and anonymity of participants to increase the veracity of prayer responses. Using new samples of participants from residents of southeast Florida and south Michigan, principle component analysis produced five interpretable components that capture specific aspects of prayer content: Gratitude and Protection, Finances/Job/Career, Grandiose Events, Physical Appearance, and Companionship. Inter-correlations among scores on the total PPCS and scores on each of the five components are moderate to high in size indicating that each component measures a distinct category of prayer content, but also reflects a large extent of prayer content. The inter-correlation between the full PPCS and Component one is very high,

but sensible, given a high percentage of the total items come from Component one.

The PPCS and the five components demonstrated respectable reliabilities for the full sample to warrant further use. Because prayer is being recommended as a form of therapy and marriage counseling (Beach, Fincham, McNair, & Stanley, 2008; Beach et al., 2011), it may be of practical utility to develop instruments, such as the PPCS, which reliably assesses specific prayer content for men and women and for individuals from a wide variety of religious backgrounds. As such I administered the PPCS with additional measures related to one's personal level of religiosity, spiritual well being, free will/determinism, and motivation for religious participation to further validate the PPCS. Measures such as these have been used in previous research to validate other scales related to prayer and religiosity. Scores on the PDIS (full scale and each of the five components) generally correlate positively with scores on the Religiosity Measure and correlate in the predicted directions (for the most part) for the Spiritual Well-Being Scale, the FAD-plus, and the I/E-R measure of motivation for religious participation, but never share more than 50% of the variance with scores on these measures. The PPCS appears to measure behaviors that are associated with, but distinct from level of religiosity, spiritual well being, notions of free will/determinism, and motivation for religious participation.

Identifying which prayer components best predict one's level of religiosity, one's spiritual well being, one's beliefs about free will and related constructs, and one's motivation for religious participation might also have practical and theoretical utility. With this in mind, I conducted a series of multiple regression analyses and identified one component that best predicted one's overall level of religiosity: Gratitude and Protection. This component includes prayers in which participants express thanks (e.g., "Thanks for

my home) and prayers seeking protection/god's presence (e.g., "Protection for me from evil"). The results suggest that people who pray about gratitude and protection are more likely to be religiously active.

Two components (Component one: Gratitude and Protection and Component four: Physical Appearance) uniquely predicted scores on the Religious Well-being subscale. Two components: (Component one: Gratitude and Protection and Component five: Companionship) uniquely predicted scores on the Existential Well-being subscale. Lastly, three components: (Component one: Gratitude and Protection, Component four: Physical Appearance, and Component five: Companionship) uniquely predicted scores on the Religious Well-being scale (full scale). Component one: (Gratitude and Protection) uniquely predicted well-being across all three scales of religious well being. Perhaps prayer content of this type represents a mental security blanket, the religious equivalent of a placebo effect in which the act of praying increases one's sense of security in what is perceived to be a harsh and unpredictable world. Furthermore, high scores in component four (Physical Appearance) were a predictor of low existential well-being while high scores on Component five (Companionship) was a predictor of low spiritual and religious well-being.

One component (Component 1: Gratitude and Protection) uniquely predicted scores on the measure of Free Will. Two components (Component 4: Physical Appearance and Component 5: Companionship) best predicted scores in Scientific Determinism. One component (Component 5: Companionship) uniquely predicted scores on the measure of Fatalistic Determinism. The positive relationship between Component 5: Companionship and scores in Scientific Determinism and Fatalistic Determinism is

consistent with research indicating that sadder, and maybe lonelier individuals, are also wiser when judging contingencies regarding causal relationships (Alloy & Abramson, 1979), yet cannot let go of that deeply seated belief that god, gods, or god-like entities exist and are listening to their prayers.

Two components (Component 1: Gratitude and Protection and Component 4: Physical Appearance) uniquely predicted scores on the Intrinsic subscale of religious motivation. One component (Component 1: Gratitude and Protection) uniquely predicted scores on the Extrinsic Personal subscale of religious motivation. Finally, the overall model for the Extrinsic-Social component was nonsignificant, however, one component (Component 4: Physical Appearance) nearly uniquely predicted scores on the E-P subscale of religious motivation. The results suggest that the I/E-R scale is only vaguely related to scores on the PPCS.

In sum a handful of interesting associations were discovered between the five components of the prayer content scale and components from additional measures related to religious thought and behavior. Further validation may be obtained by using additional measures related to religiosity, such as a measure of superstition.

If the PPCS is to be a maximally useful instrument for measuring prayer content and frequency for both men and women and for individuals across different religious affiliations, there should not be substantive differences in prayer content and frequency between men and women and between individuals from different religious affiliations. As such I conducted a series of exploratory independent samples t-tests comparing men's and women's responses on the total PPCS, and each of the five prayer components. As predicted, no significant differences were discovered in prayer content frequency for the

full PPCS or for any of the five components between men and women. Because of the specificity of the PPCS, the new inventory may be a good candidate to examine sex differences in specific prayer content across a number of evolutionarily relevant domains. Although no significant differences were discovered between men and women for Component 2: Finances/Job/Career and Component 4: Physical Appearance as might be predicted from an evolutionary psychological perspective, it is possible that praying behavior and prayer content frequency of these types is more nuanced than afforded by a straightforward comparison between all men and all women.

From a modern evolutionary psychological perspective, the mind is designed to process information about different close relationships differently (Daly & Wilson, 1999) including parental relationships, short-term casual sexual relationships, and long-term romantic relationships, to name a few. Perhaps single men and not coupled or married men are significantly more likely than single women to pray for career success and resource accrual, whereas, single women, more so than single men, are more likely to pray about physical appearance. For partnered men and partnered women, perhaps those who feel anxious about the status of their relationship or who feel threatened by the presence of a new sexual or emotional rival, compared to those who feel secure or unthreatened, are more likely to pray about these hypothesized sex-specific evolutionarily relevant categories. Unfortunately, romantic relationship status was not recorded in the current research.

Furthermore, potential shifts in praying behavior and prayer content across the menstrual cycle could also be examined. Because in-pair women tend to dress more provocatively during ovulation (Haselton, Mortezaire, Pilsworth, Bleske-Recheck, &

Frederick, 2006), perhaps in-pair women, during ovulation, pray more frequently about looking attractive to others than when in the non-fertile phase of the menstrual cycle, while in-pair men pray more about looking attractive to their in-pair ovulating partner than when their partner is in the non-fertile phase of the menstrual cycle. Future research could address these contextual nuances in relationship status and menstrual cycle status.

A reliable and valid prayer content scale might also be used to generate questions and hypotheses regarding traditional psychological constructs. Individual differences in personality, for example, may coincide with individual differences in prayer content. Those scoring highly in conscientiousness, for example, may pray more frequently for Component 3: Grandiose Acts than those who score low on a measure of conscientiousness.

Prayer content frequency may also change across individual differences in levels of self-esteem. Perhaps individuals with high self-esteem and whom pray, are less likely to pray across all five prayer content components compared to praying individuals with low self-esteem. Differences in praying behavior and content may also differ between praying narcissists and praying non-narcissists. Narcissists may be less likely to pray overall and may pray significantly less for component 3: Grandiose Acts, for example, than those who score low on a measure of narcissism.

Future research could also address individual differences in regulatory focus (Higgins, 1999) and prayer content. Perhaps promotion-focused individuals are more likely to pray for promotion related items (e.g. “going to heaven,” “doing well at work”) while prevention-focused individuals are more likely to pray for prevention related items (e.g. “staying out of hell,” “keep my romantic partner from cheating on me”).

The PPCS may also provide a window into the universality of species-typical developmental regularities in prayer content across the lifespan. The ontological emergence of praying behavior in children, children's prayer content, and developmental regularities in changes in themes of prayer content from childhood to adulthood to death could be examined in future research as different prayer content themes may emerge, cease, and fluctuate in timing and frequency across the lifespan.

The potential physiological correlates associated with the act of praying could also be examined in future research. Perhaps the action of praying in an anxiety-inducing situation decreases heart rate and/or disentangles the crosstalk between the emotional centers of the brain and the prefrontal areas responsible for clear thought and decision making. In at least one study demonstrating the benefits of praying behavior on self-control (Friese et al. 2014), individuals who were asked to pray at the onset of the study compared to those individuals who engaged in a period of free thought, exhibited greater self-control and less energy depletion during completion of a Stroop task. Ironically, the seemingly selfless act of praying for the good fortunes of others (e.g., family, friends, genetically unrelated people for whom the prayer may never meet) may ultimately serve the selfish act of personal anxiety relief, increased self-control, and action enhancement for devoted pray-ers compared to other potential forms of personal anxiety relief and action enhancement mind tricks.

According to research on Terror Management Theory (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989; Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder, & Kirkland, 1990) experimentally induced feelings of mortality salience cause individuals to cling to one's established cultural worldview more tightly, including one's

religious worldview, compared to participants in non-mortality salience conditions. The relationship between conditions of mortality salience and prayer content frequency could also be examined in future research. Prayer content frequency for Component 1: Gratitude and Protection, and Component 3: Grandiose Acts, for example, may increase dramatically under conditions of mortality salience.

Perhaps prayer content and behavior also responds to naturally occurring spikes in mortality salience and feelings of anxiety and uncertainty for individuals and groups. With the recent nomination of Donald Trump as the next U.S. President, many Americans appear to be experiencing particularly high levels of anxiety and uncertainty regarding personal safety, individual and group freedoms, economic issues, personal job prospects, climate change, and the health of the planet. Perhaps disillusioned Hillary Clinton voters whom regularly pray, are praying more frequently overall, and are praying more frequently for Component 1: Gratitude and Protection and Component 3: Grandiose Acts than in the years and months prior to the 2016 presidential election.

I also conducted an exploratory series of independent samples t-tests on the total PPCS and each of the five components between Christians and non-Christians. Although participants were drawn from two geographically distinct regions of the United States, random sampling methods yielded largely Christian participants. Because random sampling methods yielded small sample sizes for Jewish, Muslim, Hindu, Buddhist, and other non-Christian related participants, I combined responses from these participants into one variable (non-Christian religious affiliation) and compared their responses to responses from Christian participants. As predicted, no significant differences were discovered in prayer content frequency for the full PPCS and the components, with the

exception of Component 5: Companionship. In this study, non-Christians are slightly, but statistically significantly more likely to pray for or about social needs (e.g. “feeling less lonely”) than Christians.

This study was also limited in that participants consisted primarily of college-aged students praying about experiences, needs, and wants related to college life (e.g. “to do well on an exam”). Component 2: Finances/Job/Career, for example, contained prayer items about a loved one paying their bills or a loved one finding a better job, perhaps suggesting that the participants from these college samples are financially dependent upon their parents/caregivers to pay expenses and to make purchases. Perhaps for non-Christian (Islamic, Jewish, Hindu, or Buddhist) college students, meeting one’s social needs may be more difficult than for their Christian counterparts. Future research could address these limitations of the current research by securing responses from non-Christian and non-college participants to further test the utility of the PPCS.

Although the validation of a new scale to measure specific prayer content may be valuable, administration of the PPCS affords a relatively limited snapshot of praying behavior and prayer content. Devoid of external influence, psychological processes can evolve over time because of the intrinsic dynamics of a psychological system (Vallacher, Van Geert, & Nowak, 2015). Praying behavior and prayer content may represent an excellent candidate for examining the intrinsic dynamics of the human religious experience. Utilizing procedures for examining the dynamics of psychological momentum in sport (Briki, Den-Hartigh, Markman, Micallef, & Gernigon, 2014), participants could compete in pressurized competitive situations with varying degrees of personal control on the outcome (e.g., an athletic competition such as a real or virtual

ping pong match, a poker event, a speech). Performance could be videotaped and at a later time, participants could reflect upon the moment-to-moment, on-the-fly, use of superstitious behaviors, praying behaviors, and prayer content before, during, and after the pressurized situation as the stakes of the competition are manipulated, the score fluctuates, personal control on the outcome increases or decreases, the viewing gallery changes from a small audience to a large one, or as the risk of injury becomes salient. Perhaps individual prayer content represents a unique candidate for investigating the dynamic stream of thought described by William James (1890) and can be mapped onto an attractor landscape in which a destabilized self, when faced with adversity, can become stable, coherent, focused, and ready for action for a praying, superstitious, and devoted believer in God.

At the same time that universal themes of prayer content may exist, themes of prayer content co-opted by powerful religious memes may change over time. In modern societies where processes of secularization and individualization are prominent, the subject of prayer should be put on the research agenda to understand the culturally evolving religion of modern humans (Banziger et al., 2008). Because Western religiosity is characterized as being highly individualistic and personal, rather than communal and institutional (Zondag, 2013), a newly validated PPCS may be utilized to capture previously unknown dimensions of this potentially changing and deeply personal aspect of personal religiosity.

The current version of the PPCS fills an important gap in the religion literature by addressing limitations in previous measures of prayer content. Empirically derived from samples of participants with fairly diverse religious backgrounds from two

geographically distinct regions of the U.S., the PPCS appears to measure a deeply seated and culturally ubiquitous aspect of religiosity. Because religiosity can be difficult to define and measure, the PPCS may represent a more valid proxy for level and style of religiosity compared to other measures and could potentially be used in a wide variety of research and therapeutic settings.

APPENDIXES

APPENDIX A:

Prayer Nomination Form

Instructions: You must have prayed *privately* at least once over the past one month and you must be at least 18 years of age to participate in this study. Participation in this study requires you to think about and report on your own *individual* praying behavior and *personal* prayer content. *Personal* prayer content, in this study, is defined as the details of the personal thoughts that an individual privately directs towards a *God, Gods, or God-like entities*. Although you may have prayed as part of a religious group or church service, or in a small group setting such as before a meal, please only report on the aspects of your own *personal* prayer content. Additionally please do NOT report on aspects of religious passages from sacred texts (e.g., the Torah, the Qu’ran, the Bible) that you may have recited during prayer. Please only report on the aspects of your own *personal* prayer content. If you have not prayed *privately* at least once over the past one month, please exit this survey.

Please answer the following questions honestly. No information will be recorded that could identify you, so your responses will remain anonymous.

SECTION A:

1. What is your age? _____ years

2. What is your sex (check one)? __Male __Female

3. To your best estimation, how many times did you personally pray yesterday? _____
times yesterday

4. To your best estimation, how many times did you personally pray over the past one week?
_____ times over past one week

5. To your best estimation, how many times did you personally pray over the past one month?
_____ times over past one month

6. With which religion do you most closely identify: (check one)

Catholicism _____ Protestantism: Baptist _____ Episcopalian _____ Methodist
_____ Lutheran _____ Presbyterian _____ other Protestant (please specify) _____
Latter Day Saints (Mormon): _____ Judaism: Conservative _____ Reformed _____
Orthodox _____ Buddhism: _____ Theravada _____ Mahayana _____
Vajrayana _____ other Buddhism (please specify) _____ Hinduism: _____
Vedanta _____ Yoga _____ other Hinduism (please specify) _____ Islam:
_____ Sunni _____ Shi'a _____ Sufism _____ other Islam (please specify) _____
New Age: _____ Other (please specify): _____

7. How many times have you attended an organized religious service over the past one week?
_____ times over the past one week

8. How many times have you attended an organized religious service over the past one month?

_____ times over the past one month

9. How many times have you attended an organized religious service over the past one year?

_____ times over the past one year

10. On the following scale, please rate the degree to which you experience God listening to your prayers.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Always

11. On the following scale, please rate the degree to which God responds to your prayers.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Always

12. On the following scale, please rate the degree to which God cares about your prayers.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Extremely deeply

13. On the following scale, please rate the degree to which you believe God exists.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Absolutely certain

[Click here to proceed to the next section:](#)

SECTION B:

Instructions: On the lines provided, please list up to 15 specific things that you have *personally* prayed for or about over the past one month. Although you may have prayed as part of a religious group or church service, or in a small group setting such as before a meal, please only report on the aspects of your own *personal* prayer content. Additionally, please do NOT list religious passages from sacred texts (e.g., the Torah, the Bible, the Qur'an) that you may have recited during prayer. Please only report on the aspects of your own *personal* prayer content. Please complete this section as thoughtfully and honestly as possible. We recognize that prayer content can be deeply personal. Do not put your name on this form. Your responses will be anonymous. Your assistance is greatly appreciated.

In this study personal prayer content is defined as the details of the personal thoughts that an individual directs towards a God, Gods, or God-like entities. On the lines provided below, please list up to 15 specific things that you have personally prayed for or about over the past one month. Please be as specific as possible. After you have completed this portion of the survey, please click “Next” at the bottom of this page. Thank you for your help.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

NEXT

APPENDIX B

Personal Prayer Content Survey

PPCS

Instructions: Participation in this survey requires you to think about and report on your own *individual* praying behavior and *personal* prayer content. Personal prayer content, in this study, is defined as the personal thoughts that an individual privately directs towards God. Although you may have prayed as part of a religious group or church service, or in a small group setting such as before a meal, please only report on the frequency of your own *personal* prayer content.

You must have individually prayed at least once over the past one month and you must be at least 18 years of age to participate in this survey. If you have not individually prayed at least once over the past one month, please exit this survey.

Please answer the following questions honestly. No information will be recorded that could identify you, so your responses will remain anonymous.

SECTION A:

1. What is your age? _____ years
2. What is your sex (check one)? __Male __Female
3. To your best estimation, how many times did you personally pray yesterday? _____ times yesterday
4. To your best estimation, how many times did you personally pray over the past one week? _____ times over past one week
5. To your best estimation, how many times did you personally pray over the past one month? _____ times over past one month
6. With which religion do you most closely identify: (check one)
Catholicism _____
Protestantism: Baptist _____ Episcopalian _____ Methodist _____

Lutheran _____
 Presbyterian _____ other Protestant (please specify) _____
 Latter Day Saints (Mormon): _____
 Judaism: Conservative _____ Reformed _____ Orthodox _____
 Buddhism: _____ Theravada _____ Mahayana _____ Vajrayana _____
 other Buddhism (please specify) _____
 Hinduism: _____ Vedanta _____ Yoga _____ other Hinduism (please specify) _____

 Islam: _____ Sunni _____ Shi'a _____ Sufism _____
 other Islam (please specify) _____
 New Age: _____
 Other (please specify): _____

7. How many times have you attended an organized religious service over the past one week?

_____ times over the past one week

8. How many times have you attended an organized religious service over the past one month?

_____ times over the past one month

9. How many times have you attended an organized religious service over the past one year?

_____ times over the past one year

10. On the following scale, please rate the degree to which you experience God listening to your prayers.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Always

11. On the following scale, please rate the degree to which God responds to your prayers.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Always

12. On the following scale, please rate the degree to which God cares about your prayers.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Extremely deeply

13. On the following scale, please rate the degree to which you believe God exists.

Not at all: 1 – 2 – 3 – 4 – 5 – 6 – 7: Absolutely certain

SECTION B:

Instructions: On the following scale, please select the number that best corresponds to how often you have personally prayed *for* or *about* the following prayer items to God over the past one month. Personal prayer content, in this study, is defined as the personal thoughts that an individual privately directs towards God. Although you may have prayed as part of a religious group or church service, or in a small group setting such as before a meal, please only report on the frequency of your own *personal* prayer content. We recognize that prayer content can be deeply personal. Do not put your name on this form. Your responses will be anonymous. Your assistance is greatly appreciated.

After you have completed this portion of the survey, please click “Next” at the bottom of this page. Thank you for your help.

- 0 – Not at all in the past month
 - 1 – Once in the past month
 - 2 – Once a week in the past month
 - 3 – Once a day in the past month
 - 4 – More than once a day in the past month
-
- 1. A loved one doing well in a class for school
 - 2. Thanks for helping me travel safely
 - 3. The well being of my church/religious organization
 - 4. Controlling my anger/stress
 - 5. Thanks for keeping my loved ones healthy
 - 6. God’s presence in a loved one’s life
 - 7. Happiness for me
 - 8. Thanks for helping me do well in school
 - 9. Protection for our troops fighting in wars
 - 10. Conversion of non-believers of God to my religion
 - 11. Thanks for helping me pay my bills
 - 12. A healthy pregnancy/delivery for me/a loved one
 - 13. Safe traveling for a loved one
 - 14. Protection for me from disease/illness/injury
 - 15. Strength to get through tough times
 - 16. Protection for a loved one from being attacked by a stranger
 - 17. World peace
 - 18. Help for me to perform well in a performance/activity
 - 19. A better relationship with a loved one
 - 20. Me becoming an active member of my religious organization
 - 21. Keep my romantic partner from cheating on me
 - 22. A better life for me
 - 23. Relief from physical pain in my body
 - 24. Protection for me from being attacked by a stranger
 - 25. Keeping my job
 - 26. A cure or recovery for a loved one from disease/illness

27. Help for me to fall asleep or me sleeping more
28. Me or my romantic partner *not* being pregnant
29. Job or career success for me
30. Thanks for my home
31. A loved one overcoming addiction to drugs/alcohol
32. Me finding a romantic partner
33. Thanks for helping me perform well in a performance/activity
34. Help for a loved one to live a long life
35. Overcoming my addiction to drugs/alcohol
36. Finding an important missing item
37. Help for the economy
38. Getting along at family gatherings
39. Help for me to forgive people who have harmed me
40. Protection from abuse by my romantic partner
41. A loved one graduating from school
42. Thanks for food to eat
43. My loved ones going to heaven when they die
44. Happiness for my loved ones
45. Getting back together with my ex-romantic partner
46. Thanks for my job
47. Protection for my loved ones from evil
48. Having enough energy to get through the day
49. A missing person/missing loved one/missing pet to be found
50. Thanks for helping me or my team win
51. Ending world hunger
52. Help for a loved one to keep their job
53. For something bad to happen to someone or some group I do not like
54. Going to heaven when I die
55. Thanks for my romantic partner
56. God's presence in my life
57. Happiness in my romantic relationship
58. Help for the homeless
59. Finding my way/direction in life
60. Help for a loved one to perform well in a performance/activity
61. A cure or recovery for me from disease/illness/injury
62. Help for a loved one to lose weight
63. Forgiveness to me for treating others poorly
64. Feeling less lonely
65. Safe traveling for me
66. Thanks for protecting my loved ones
67. Finding understanding for things that happen in life
68. Paying my bills
69. Relief for a loved one from physical pain
70. Looking attractive for my romantic partner
71. Thanks for keeping me healthy
72. Punishment to those who harm me or my loved ones

73. Getting a new car
74. Thanks for listening to me
75. A loved one finding a romantic partner
76. Thanks for my loved ones
77. Finding a job/better job for me
78. Following God's will
79. Protection for a loved one from disease/illness/injury
80. Finding a job/better job for a loved one
81. Help for a loved one to follow God's will
82. Me or my romantic partner becoming pregnant
83. Looking attractive to others
84. A loved one paying their bills
85. Me doing well in a class for school
86. A better life for my loved ones
87. Staying out of hell when I die
88. Getting a new house
89. Help for the victims of natural disaster
90. Thanks for protecting me
91. Favorable weather conditions
92. Keeping my family together
93. Getting over a "break-up" from my romantic partner
94. Getting along with other people
95. Help for me or my team to win an athletic competition
96. Me graduating from school
97. Help for me to live a long life
98. A loved one succeeding at their job or career
99. Thanks for helping my loved ones travel safely
100. Keeping my house/not losing my house to foreclosure
101. Winning the lottery
102. Protection for me from evil
103. Help for me to lose weight
104. Happiness for a loved one in their romantic relationship
105. Seeing my loved ones more often

SWBS:

For each of the following statements circle the choice that best indicates the extent of your agreement or disagreement as it describes your personal experience.

- 1 = Strongly Agree
- 2 = Moderately Agree
- 3 = Agree
- 4 = Disagree
- 5 = Moderately Disagree
- 6 = Strongly Disagree

1. I don't find much satisfaction in private prayer with God.
2. I don't know who I am, where I came from, or where I'm going.
3. I believe that God loves me and cares about me.
4. I feel that life is a positive experience.
5. I believe that God is impersonal and not interested in my daily situations.
6. I feel unsettled about my future.
7. I have a personally meaningful relationship with God.
8. I feel very fulfilled and satisfied with my life.
9. I don't get much personal strength and support from my God.
10. I feel a sense of well-being about the direction my life is heading in.
11. I believe that God is concerned about my problems.
12. I don't enjoy much about life.
13. I don't have a personally satisfying relationship with God.
14. I feel good about my future.
15. My relationship with God helps me not to feel lonely.
16. I feel that life is full of conflict and unhappiness.
17. I feel most fulfilled when I'm in close communion with God.
18. Life doesn't have much meaning.
19. My relation with God contributes to my sense of well-being.
20. I believe there is some real purpose for my life.

I-E:

On the following scale, please rate the extent of your agreement or disagreement as it describes your personal experience.

Strongly Agree : 1 – 2 – 3 – 4 – 5 : Strongly Disagree

1. I enjoy reading about my religion.
2. I go to church because it helps me to make friends.
3. It doesn't much matter what I believe so long as I am good.
4. It is important to me to spend time in private thought and prayer.
5. I have often had a strong sense of God's presence.
6. I pray mainly to gain relief and protection.
7. I try hard to live all my life according to my religious beliefs.
8. What religion offers me most is comfort in times of trouble and sorrow.
9. Prayer is for peace and happiness.
10. Although I am religious, I don't let it affect my daily life.
11. I go to church mostly to spend time with my friends.
12. My whole approach to life is based on my religion.
13. I go to church mainly because I enjoy seeing people I know there.
14. Although I believe in my religion, many other things are more important in life.

TABLE 1

Study 1: Means and standard deviations for religious belief questions

	<i>M</i>	<i>SD</i>
God listens	5.19	1.97
God responds	4.92	1.84
God cares	5.95	1.67
God exists	6.21	1.49

(1 = never or none, 7 = always or certain)

Note. *N* = 402, 405, 403, and 406 respectively

TABLE 2

Study 1: Frequencies of religious backgrounds of participants

<u>Religion</u>	<u>Frequency</u>
Agnostic	1
Anglican	1
Buddhism	3
Buddhism Mahayana	1
Buddhism Vajrayana	1
Christian	14
Christian-Holiness	1
Christian (Non-denominational)	8
Catholicism	169
Hindusim	4
Hinduism Yoga	1
Indigenous	1
Islam	6
Islam Sunni	15
Islam Shi'a	3
Jehova's Witness	2
Judaism	8
Judaism Conservative	3
Judaism Reformed	4
Latter Day Saints (Mormon)	2
New Age	9
New Apostolic Church	2
Non-Denominational	9
No One Religion	1
Not Religious	1
Other	2
Pentecostal	5
Protestantism	22
Protestantism Baptist	54
Protestantism Episcopalian	4
Protestantism Methodist	11
Protestantism Lutheran	27
Protestantism Presbyterian	9
Rastafarian	2
Wesylan	1

Note. $N = 407$.

TABLE 3

Study 1: Initial Set of prayer content items generated from prayer nomination procedure

1. A loved one doing well in a class for school
2. Thanks for helping me travel safely
3. The well being of my church/religious organization
4. Controlling my anger/stress
5. Thanks for keeping my loved ones healthy
6. God's presence in a loved one's life
7. Happiness for me
8. Thanks for helping me do well in school
9. Protection for our troops fighting in wars
10. Conversion of non-believers of God to my religion
11. Thanks for helping me pay my bills
12. A healthy pregnancy/delivery for me/a loved one
13. Safe traveling for a loved one
14. Protection for me from disease/illness/injury
15. Strength to get through tough times
16. Protection for a loved one from being attacked by a stranger
17. World peace
18. Help for me to perform well in a performance/activity
19. A better relationship with a loved one
20. Me becoming an active member of my religious organization
21. Keep my romantic partner from cheating on me
22. A better life for me
23. Relief from physical pain in my body
24. Protection for me from being attacked by a stranger
25. Keeping my job
26. A cure or recovery for a loved one from disease/illness
27. Help for me to fall asleep or me sleeping more
28. Me or my romantic partner *not* being pregnant
29. Job or career success for me
30. Thanks for my home
31. A loved one overcoming addiction to drugs/alcohol
32. Me finding a romantic partner
33. Thanks for helping me perform well in performance/activity
34. Help for a loved one to live a long life
35. Overcoming my addiction to drugs/alcohol
36. Finding an important missing item
37. Help for the economy
38. Getting along at family gatherings
39. Help for me to forgive people who have harmed me

TABLE 3 (Continued)

40. Protection from abuse by my romantic partner
41. A loved one graduating from school
42. Thanks for food to eat
43. My loved ones going to heaven when they die
44. Happiness for my loved ones
45. Getting back together with my ex-romantic partner
46. Thanks for my job
47. Protection for my loved ones from evil
48. Having enough energy to get through the day
49. A missing person/missing loved one/missing pet to be found
50. Thanks for helping me or my team win
51. Ending world hunger
52. Help for a loved one to keep their job
53. For something bad to happen to someone or some group I do not like
54. Going to heaven when I die
55. Thanks for my romantic partner
56. God's presence in my life
57. Happiness in my romantic relationship
58. Help for the homeless
59. Finding my way/direction in life
60. Help for a loved one to perform well in a performance/activity
61. A cure or recovery for me from disease/illness
62. Help for a loved one to lose weight
63. Forgiveness to me for treating others poorly
64. Feeling less lonely
65. Safe traveling for me
66. Thanks for protecting my loved ones
67. Finding understanding for things that happen in life
68. Paying my bills
69. Relief for a loved one from physical pain
70. Looking attractive for my romantic partner
71. Thanks for keeping me healthy
72. Punishment to those who harm me or my loved ones
73. Getting a new car
74. Thanks for listening to me
75. A loved one finding a romantic partner
76. Thanks for my loved ones
77. Finding a job/better job for me
78. Following God's will
79. Protection for a loved one from disease/illness/injury
80. Finding a job/better job for a loved one
81. Help for a loved one to follow God's will

TABLE 3 (Continued)

82. Me or my romantic partner becoming pregnant
83. Looking attractive to others
84. A loved one paying their bills
85. Me doing well in a class for school
86. A better life for my loved ones
87. Staying out of hell when I die
88. Getting a new house
89. Help for the victims of natural disaster
90. Thanks for protecting me
91. Favorable weather conditions
92. Keeping my family together
93. Getting over a “break-up” from my romantic partner
94. Getting along with other people
95. Help for me or my team to win an athletic competition
96. Me graduating from school
97. Help for me to live a long life
98. A loved one succeeding at their job or career
99. Thanks for helping my loved ones travel safely
100. Keeping my house/not losing my house to foreclosure
101. Winning the lottery
102. Protection for me from evil
103. Help for me to lose weight
104. Happiness for a loved one in their romantic relationship
105. Seeing my loved ones more often

TABLE 4

Study 2: Means and standard deviations for questions regarding religious belief

	<i>M</i>	<i>SD</i>
God listens	5.44	1.58
God responds	5.11	1.62
God cares	6.15	1.40
God exists	6.31	1.28

(1 = never or none, 7 = always or certain)

Note. $N = 455$

TABLE 5

Study 2: Frequencies of religious backgrounds of participants

<u>Religion</u>	<u>Frequency</u>
Buddhism	7
Catholicism	181
Hinduism	2
Islam	4
Islam Sunni	9
Islam Shi'a	4
Judaism	2
Judaism Conservative	2
Judaism Reformed	4
Judaism Orthodox	4
Latter Day Saints (Mormon)	2
Protestantism Baptist	51
Protestantism Episcopalian	1
Protestantism Methodist	20
Protestantism Lutheran	30
Protestantism Presbyterian	18
New Age	14
Christianity	74
Other	26

Note. $N = 455$

TABLE 6

Study 2: Component Loadings for the Five Components of the Personal Prayer Content Scale

Loading

Gratitude and Protection

.75	God's presence in my life
.74	Thanks for my loved ones
.73	Thanks for protecting me
.72	Thanks for keeping me healthy
.71	Thanks for keeping my loved ones healthy
.70	Protection for me from disease/illness/injury
.69	Protection from me from evil
.69	Thanks for my home
.69	Strength to get through tough times
.69	Thanks for protecting my loved ones
.67	Protection for my loved ones from evil
.67	Following God's will
.67	Happiness for my loved ones
.67	Happiness for me
.66	Thanks for helping me do well in school
.63	Finding my way/direction in life
.62	Thanks for listening to me
.61	Controlling my anger/stress
.61	Thanks for food to eat
.60	Protection for a loved one from disease/illness/injury

Finances/Job/Career

.65	A loved one succeeding at their job or career
.64	A loved one graduating from school
.64	A loved one paying their bills
.62	Paying my bills
.60	Getting a new house
.59	Getting a new car
.59	Finding a job/better job for a loved one
.58	Help for a loved one to keep their job
.55	Keeping my house/not losing my house to foreclosure
.53	Me graduating from school
.48	Finding a job/better job for me

TABLE 6 (Continued)

Loading

Grandiose Acts

- .61 Ending world hunger
- .59 Me or my romantic partner not being pregnant
- .58 Protection for our troops fighting in wars
- .53 Help for the homeless
- .53 A missing person/missing loved/missing pet to be found
- .51 Help for the economy
- .51 Help for the victims of natural disaster
- .48 Finding an important missing item

Physical Appearance

- .74 Looking attractive to others
- .66 Looking attractive for my romantic partner
- .60 Help for a loved one to lose weight
- .59 Winning the lottery
- .56 Help for me to lose weight
- .43 Keep my romantic partner from cheating on me
- .34 Help for me to fall asleep or me sleeping more

Companionship

- .66 Me finding a romantic partner
- .59 Feeling less lonely
- .57 Getting over a “break-up” from my romantic partner
- .56 Getting back together with my ex-romantic partner
- .49 A loved one overcoming addiction to drugs/alcohol
- .39 A loved one finding a romantic partner
- .38 Help for me to forgive people who have harmed me

TABLE 7

Study 2: Personal Prayer Content Survey Component Inter-Correlations for Full Sample

	<u>PPCS (total)</u>	<u>Comp. 1</u>	<u>Comp. 2</u>	<u>Comp. 3</u>	<u>Comp. 4</u>	<u>Comp. 5</u>
PPCS (total)	1.00					
Gratitude and Protection	.941***	1.00				
Finances/ Job/Career	.841***	.672***	1.00			
Grandiose Acts	.748***	.596***	.644***	1.00		
Physical Appearance	.681***	.495***	.621***	.553***	1.00	
Companionship	.716***	.563***	.635***	.531***	.538***	1.00

Note. $N = 455$

TABLE 8

Study 2: Religiosity Measure Component Inter-Correlations for Full Sample and two components

	<u>Religiosity (total)</u>	<u>Comp. 1</u>	<u>Comp. 2</u>
Religiosity (total)	1.00		
Behavior	.941***	1.00	
Belief	.841***	.672***	1.00

Note. $N = 455$

TABLE 9

Study 2: Correlations between Personal Prayer Content Scale (Total and Five Components), and Self-reported Level of Religiosity

	PPCS (total)	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5
Religiosity Level (total)	.251**	.385**	.127**	.113*	.020	.092*
Religiosity (Behavior)	.164**	.270**	.057	.053	.005	.073
Religiosity (Belief)	.251**	.360**	.158**	.139**	.030	.075

Note. $N = 455$. Means for the PPCS and Religiosity measures were (434.54), (288.41), (52.15), (32.85), (30.20), (30.95) and (15.84), (11.80), (5.74) respectively.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

TABLE 10

Study 2: Correlations between Personal Prayer Content Scale (Total and Five Components), and the Spiritual Well-Being Scale

	PPCS (total)	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5
Spiritual Well Being (total)	.211**	.352**	.111*	.104*	-.008	-.009
Religious Well Being	.252**	.394**	.126**	.128**	.017	.057
Existential Well Being	.089	.182**	.056	.039	-.037	-.088

Note. $N = 455$. Means for the PPCS and SWB were (434.54), (288.41), (52.15), (32.85), (30.20), (30.95), and (4.72), (4.67) (4.77) (SWB scale: 1=low, 6 = high), respectively.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

TABLE 11

Study 2: Correlations between the Personal Prayer Content Scale (Total and Five Components) and the FAD-Plus (Total and Four Components)

	<u>PPCS (total)</u>	<u>Comp. 1</u>	<u>Comp. 2</u>	<u>Comp. 3</u>	<u>Comp. 4</u>	<u>Comp. 5</u>
FAD-PLUS (total)	.242**	.190**	.183**	.192**	.247**	.239**
Free Will	.120*	.149*	.092	.062	.079	.028
Scien.Det.	.091	.018	.080	.099*	.147**	.152**
Fatal.Det.	.214**	.181**	.137**	.170**	.197**	.229**
Unpredict.	.154**	.113*	.119*	.118**	.175**	.158**

Note. $N = 455$. Means for the PPCS and the FAD-PLUS were (434.54), (288.41), (52.15), (32.85), (30.20), (30.95), and (3.73), (2.71), (2.76), (3.15) (1=low, 5 = high) respectively.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

TABLE 12

Study 2: Correlations between the Personal Prayer Content Scale (Total and Five Components) and the I/E-R (Total and Three Components)

	<u>PPCS (total)</u>	<u>Comp. 1</u>	<u>Comp. 2</u>	<u>Comp. 3</u>	<u>Comp. 4</u>	<u>Comp. 5</u>
I/E-R (total)	-.298**	-.364**	-.208**	-.172**	-.106*	-.168**
I/E-Intrinsic	-.292**	-.385	-.199**	-.175**	-.038	-.140**
I/E-Extrinsic-pers.	-.165**	-.183**	-.115**	-.085	-.117*	-.114
I/E-Extrinsic-soc.	-.075	-.039	-.055	-.068	-.116*	-.085

Note. $N = 455$. Means for the PPCS and I/E-R were (434.54), (288.41), (52.15), (32.85), (30.20), (30.95), and (2.91), (2.39), and (3.99) (1 = low, 5 = high) respectively.

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

TABLE 13

Study 2: Multiple Regression Analyses (Reported in Standardized Beta Weights) for individual components and Self-Reported Religiosity

<u>PPCS</u>		Religiosity-Full	Rel.-Behavior	Rel.-Belief
C1		.59***	.45***	.51***
C2		-.11	-.14*	-.02
C3		-.07	-.08	-.02
C4		-.15	-.09	-.15
C5		-.05	.01	-.10
Full Model	<i>F</i>	22.33***	11.14***	17.74***
	<i>R</i> ²	.19	.10	.16

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

TABLE 14

Study 2: Multiple Regression Analyses (Reported in Standardized Beta Weights) for individual components and Spiritual Well-Being (Full, religious, existential)

<u>PPCS</u>		SWBS-Full	SWBS-Rel.	SWBS-Ex.
C1		.57***	.62**	.33***
C2		-.05	-.11	.05
C3		-.02	-.03	-.01
C4		-.15*	-.15*	-.10
C5		-.20***	-.11	-.24***
Full Model	<i>F</i>	21.66***	24.34***	8.41***
	<i>R</i> ²	.19	.21	.08

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

TABLE 15

Study 2: Multiple Regression Analyses (Reported in Standardized Beta Weights) for individual components and the FAD-PLUS individual components

<u>PPCS</u>		Free Will	Sci. Det.	Fatal. Det.	Unpred.
C1		.13	-.13	.11	-.01
C2		.03	-.04	-.13	-.02
C3		-.03	.06	.02	.00
C4		.06	.12	.12	.14*
C5		-.09	.15	.16*	.09
Full Model	<i>F</i>	1.77	3.73**	6.33***	3.19**
	<i>R</i> ²	.01	.03	.06	.02

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

TABLE 16

Study 2: Multiple Regression Analyses (Reported in Standardized Beta Weights) for individual components and the I/E-R

<u>PPCS</u>		Ext.Pers.	Ext.Soc.	Intrinsic
C1		.18*	-.02	.46***
C2		-.02	-.04	.01
C3		-.05	.03	-.02
C4		.06	.12	-.19***
C5		.03	.04	.00
Full Model	<i>F</i>	3.11**	1.5	17.11***
	<i>R</i> ²	.02	.01	.15

* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed)

TABLE 17

Study 3: Exploratory Analyses - Mean comparisons between men and women for the full scale PPCS and five components:

		<u>Mean</u>	<u>SD</u>	<u>t</u>	<u>p value</u>
PPCS Full	Women	420.94	500.41	.931	.352
	Men	471.24	540.99		
C1 Gratitude/Protection	Women	285.28	308.27	.356	.722
	Men	296.84	306.21		
C2 Finances/Job/Career	Women	49.30	104.16	.946	.344
	Men	59.84	109.02		
C3 Grandiose Acts	Women	30.58	66.62	1.195	.233
	Men	38.98	74.02		
C4 Physical Appearance	Women	26.82	57.02	1.884	.060
	Men	39.31	76.28		
C5 Companionship	Women	28.97	53.33	1.213	.226
	Men	36.28	66.18		

TABLE 18

Study 4: Exploratory Analyses - Mean comparisons between Christians and non-Christians for the full scale PPCS and five components:

		<u>Mean</u>	<u>SD</u>	<i>t</i>	<i>p-value</i>
PPCS Full	Christian	422.87	491.70	1.087	.278
	Non-Christian	492.72	601.34		
C1 Gratitude/Protection	Christian	284.06	299.50	.673	.501
	Non-Christian	310.09	345.59		
C2 Finances/Job/Career	Christian	50.75	103.42	.630	.529
	Non-Christian	59.11	115.68		
C3 Grandiose Acts	Christian	31.51	64.05	.959	.338
	Non-Christian	39.54	78.28		
C4 Physical Appearance	Christian	28.39	57.02	1.371	.171
	Non-Christian	39.22	78.84		
C5 Companionship	Christian	28.17	52.64	2.323	.021*
	Non-Christian	44.76	74.45		

TABLE 19

Study 2: Means and standard deviations for 53 prayer content items comprising PPCS:

	<u>Mean</u>	<u>SD</u>
<u>Gratitude and Protection</u>		
God's presence in my life	17.39	22.74
Thanks for my loved ones	14.98	20.53
Thanks for protecting me	14.29	20.71
Thanks for keeping me healthy	12.30	19.42
Thanks for keeping my loved ones healthy	20.83	22.78
Protection for me from disease/illness/injury	12.87	20.77
Protection from me from evil	11.99	20.43
Thanks for my home	12.50	20.16
Strength to get through tough times	20.18	23.72
Thanks for protecting my loved ones	14.29	21.12
Protection for my loved ones from evil	10.85	18.87
Following God's will	12.93	20.69
Happiness for my loved ones	15.00	21.08
Happiness for me	15.92	21.55
Thanks for helping me do well in school	13.50	20.73
Finding my way/direction in life	13.52	20.43
Thanks for listening to me	12.34	19.95
Controlling my anger/stress	12.91	20.36
Thanks for food to eat	18.99	23.79
Protection for a loved one from disease/illness/injury	10.86	19.58
<u>Finances/Job/Career</u>		
A loved one succeeding at their job or career	6.44	15.57
A loved one graduating from school	3.59	12.47
A loved one paying their bills	4.31	12.94
Paying my bills	4.60	13.51
Getting a new house	2.46	9.79
Getting a new car	3.84	12.91
Finding a job/better job for a loved one	5.64	15.09
Help for a loved one to keep their job	4.50	13.10
Keeping my house/not losing my house to foreclosure	3.77	12.52
Me graduating from school	7.54	16.99
Finding a job/better job for me	5.49	14.61

TABLE 19 (Continued)

	<u>Mean</u>	<u>SD</u>
<u>Grandiose Acts</u>		
Ending world hunger	3.63	11.95
Me or my romantic partner not being pregnant	3.36	12.10
Protection for our troops fighting in wars	5.29	13.65
Help for the homeless	5.03	13.66
A missing person/missing loved/missing pet to be found	2.98	11.19
Help for the economy	3.07	10.81
Help for the victims of natural disaster	4.16	12.69
Finding an important missing item	5.33	14.40
<u>Physical Appearance</u>		
Looking attractive to others	3.29	11.63
Looking attractive for my romantic partner	3.84	13.21
Help for a loved one to lose weight	4.68	14.12
Winning the lottery	3.69	12.73
Help for me to lose weight	5.25	13.87
Keep my romantic partner from cheating on me	3.41	12.01
Help for me to fall asleep or me sleeping more	6.08	14.73
<u>Companionship</u>		
Me finding a romantic partner	5.65	14.96
Feeling less lonely	6.69	15.97
Getting over a “break-up” from my romantic partner	2.74	10.23
Getting back together with my ex-romantic partner	1.92	8.16
A loved one overcoming addiction to drugs/alcohol	4.05	12.33
A loved one finding a romantic partner	2.54	9.37
Help for me to forgive people who have harmed me	7.36	16.36

Note $N = 455$

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