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Running head: A META-ANALYSIS OF PRAYER EFFICACY IN COPING

A Practical Meta-Analysis of Prayer Efficacy in Coping with Mental Health

By

Benjamin M. Kimball, MA

MSW Clinical Research Paper

Presented to the Faculty of the
School of Social Work
St. Catherine University and the University of St. Thomas St. Paul, Minnesota
in Partial fulfillment of the Requirements for the Degree of

Master of Social Work

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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

Abstract

Given the large number of people who identify as religious in the United States and the large number of the overall population diagnosed with a mental illness, there is a need for linking an easily accessible practice like prayer to a common and often painful problem of managing mental health symptoms. Using a Practical Meta-Analysis, this research project examined prayer's efficacy when used as a coping strategy to relieve mental health symptoms. A Practical Meta-Analysis is a statistical method that synthesizes findings from multiple research studies and provides a quantitative measure of an intervention's efficacy as a whole. Of 598 articles located in five databases searched, the thirteen included studies produced thirty unique effect sizes that were used in the Practical Meta-Analysis calculations. The meta-analysis' result was an average effect size of -0.0184 with a p-value of 0.3665, which is a small, yet insignificant magnitude. However, when considering the overall group of included studies, sixty percent of these studies showed prayer being associated with improved mental health symptoms. The findings of this study support the need for future research on how prayer can be a helpful intervention for people to use in coping with mental health symptoms.

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Table of Contents

Introduction and Purpose Statement	6
Literature Review and Research Question.....	9
Conceptual Framework.....	22
Method	25
Results.....	34
Discussion.....	40
Conclusion	49
References.....	51
Appendix A: Study-Level Coding Form.....	63
Appendix B: Effect-Level Coding Form	67
Appendix C: Included Study Summary	69
Appendix D: Included Study Data.....	70
Appendix E: Included Study Sample Data	71
Appendix F: Meta Analysis Forest Plot.....	72
Appendix G: Meta Analysis Numerical Output.....	73

List of Tables and Figures

Table 1. Mental Health Symptoms in Each Study35

Table 2. Included Study Practical Meta-Analysis Data39

A Practical Meta-Analysis of Prayer Efficacy in Coping with Mental Health

Introduction and Purpose Statement

Social workers practice in a variety of mental health settings. Among common social work tasks is an intake assessment, and this is often the beginning of the therapeutic relationship between the social worker and the client and is the first opportunity to learn about the client as a person. During these assessments, questions are asked about a person's mental health diagnosis, symptoms they experience, and methods they use to help alleviate those symptoms. Additionally, clients may report the use of medications and/or psychological interventions to treat their mental health symptoms.

As part of this initial assessment, social workers may ask about spiritual or religious affiliation to gain an understanding of the religious or spiritual considerations in treatment planning as well as assessing for the support provided by faith communities. Though the client's responses are noted and social workers do the best they can to accommodate religion and spirituality, agencies may not have the resources integrate religion and spirituality in a client's treatment plan. Unless a social worker is educated on integrating religion and spirituality in their practice and have support from their agency to do so, it may be difficult to combine a client's religious and spiritual worldview with their mental health treatment plan.

Social work practice operates in a person-in-environment framework, and a person's religious or spiritual worldview is an important factor for understanding their search for purpose and meaning (Hutchison, 2011). In order to help social workers integrate religious and spiritual methods in to their practice, additional research is needed on the effectiveness of such techniques. Not only would this research give practitioners

ideas on how to integrate religion and spirituality into social work practice, it would also build a body of research that is necessary for considering this integration with evidence-based practices. Since eighty percent of the United States (US) population identifies as religious, there could be a large opportunity for social workers to include religious and spiritual ideas into their practice (United States Census Bureau, 2012).

Prayer has been shown to be effective in reducing symptoms associated with either physical ailments or mental health symptoms. Trevino, Archambault, Schuster, Hilgeman, and Moye (2011) researched religiosity and spirituality in military veteran cancer survivors and found prayer was a common coping activity for their physical illness. In a mental health context, Ai, Tice, Huang, and Ishisaka (2005) found that refugees used prayer as a way to cope with symptoms of Post Traumatic Stress Disorder and depression stemming from the Bosnian and Kosovo wars. Given these promising results and the large number of the US population that prays, it seems appropriate to continue researching prayer as a coping activity for mental health symptoms (United States Census Bureau, 2012).

The purpose of this research is to examine prayer's efficacy when used as a coping strategy for ameliorating mental health symptoms. Given the large number of religious people in the U.S. and the fact that 46.4% of the US population will experience a mental illness in their lifetime, there is a need for linking an easily accessible practice like prayer into social work practice to address common and often painful problem of managing mental health symptoms (National Institute of Mental Health, n.d.b.).

For this research project, a Practical Meta-Analysis was applied to existing research studies that have examined prayer as an intervention for coping with mental

health symptoms. A Practical Meta-Analysis is a statistical method to synthesize findings from multiple research studies and provide a quantitative measure of an intervention's efficacy as a whole (Hodge, 2007). The Practical Meta-Analysis method is an efficient method for researchers that have a basic level of experience to aggregate the results from a large number research studies to determine an interventions' efficacy. In addition, the Practical Meta-Analysis can take two seemingly large topics like mental health and prayer and help narrow them down to see where prayer works as an intervention, where prayer may not work, and what is missing to help aid future research.

Literature Review and Research Question

The purpose of this section is to review the relevant literature about using prayer to cope with mental health symptoms. First, Mental health literature is reviewed to illustrate prevalence, diagnosis, symptoms, treatment, and how coping is used with mental health symptoms. Next, prayer literature is reviewed to illustrate prayer contexts, demographics, and the use of prayer in therapy and coping contexts. Finally, the research question is constructed to help serve as the foundation for this research project.

Mental Health

Prevalence of mental health symptoms. Annually, about 26.2% of the US population experiences a mental illness with 5.8% of the US population diagnosed with a mental illness that can be classified as serious (National Institute of Mental Health, n.d.b.). The Substance Abuse and Mental Health Services Administration's (SAMHSA) (2002) National Survey on Drug Use and Health defined a serious mental illness as "having at some time during the past year a diagnosable mental, behavioral, or emotional disorder that met the criteria specified in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) and resulted in functional impairment that substantially interfered with or limited one or more major life activities" (Section 9.1, para. 1).

Understanding the number of people in the US affected by certain diagnoses helps one see the large scope of mental illness. Though the National Institute of Mental Health does not currently publish statistics on the overall prevalence of clinical disorders first diagnosed in childhood or the overall prevalence of psychotic disorders, they do have statistics on two specific diagnoses in each category. For disorders first diagnosed in childhood, one out of every 110 eight-year olds is diagnosable for Autistic Disorder

(National Institute of Mental Health, n.d.e.). For psychotic disorders, about 1% of the US adult population (approximately 2.5 million people) is diagnosed with Schizophrenia (National Institute of Mental Health, n.d.i.).

In contrast, mood and personality disorders affect a larger number of people. About 9.5% of the US adult population (approximately 21.6 million people) is diagnosed with a mood disorder (National Institute of Mental Health, n.d.c.). One of the common mood disorders is Major Depressive Episode with about 6.7% of the US adult population (approximately 15.2 million people) having this diagnosis. Of those cases, 30.4% (approximately 4.6 million people) are classified as severe (National Institute of Mental Health, n.d.g.). Around 9% of the US adult population (approximately 20.7 million people) has a personality disorder diagnosis (National Institute of Mental Health, n.d.d.). Specifically looking at Borderline Personality Disorder, 1.6% of the US adult population (approximately 3.6 million people) has received this diagnosis (National Institute of Mental Health, n.d.f.)

Anxiety disorders tend to affect the largest number of people. Approximately 18% of the US adult population (approximately 41.3 million people) is diagnosed with an anxiety disorder (National Institute of Mental Health, n.d.a.). Anxiety disorders include Obsessive-Compulsive Disorder, which affects about 1% of the US adult population (approximately 2.2 million people; National Institute of Mental Health, n.d.h.). Over the past twelve months, 50.6% of those cases (approximately 1.1 million people) are classified as severe (National Institute of Mental Health, n.d.h.).

Mental health challenges affect people of all ages, yet access to treatment varies. The Substance Abuse and Mental Health Services Administration (2008) estimated 24.3

million adults in 2007 were categorized with Serious Psychological Distress (SPD) which was defined as a “nonspecific indicator of past year mental health problems such as anxiety or mood disorders.” Looking at age, adults with SPD were young (17.9% or approximately 4.3 million were 18-25 years old, 12.2% or approximately 2.9 million were 26-49 years old, and 7.0% or approximately 1.7 million were 50 or older) but also inversely received mental health services (29.4% or approximately 7.1 million were 18-25 years old, 47.2% or approximately 11.4 million were 26-49 years old, and 53.8% or approximately 13 million were 50 or older; Substance Abuse and Mental Health Services Administration, 2008). This suggests that although mental illnesses affect younger adults more than older adults, it is the older adults that are receiving treatment more than younger adults.

When looking at race and ethnicity, there is a similar discrepancy between who experiences an SPD and who is actually receiving services. Approximately, 12.3 million (50.9%) of people who identified as White with SPD received mental health services, whereas 29.6% (approximately 7.1 million) of people with SPD and identified as Hispanic/Latino, and 26.0% (approximately 6.3 million) of people with SPD and identified as Black or African American received mental health services (Substance Abuse and Mental Health Services Administration, 2008). However, three groups—people identifying as being of two or more races (14.0% or 3.4 million), American Indians/Alaskan Natives (13.7% or 3.3 million), and Native Hawaiian/Pacific Islander (11.9% or 2.8 million)—had larger percentages of adults with SPD than those people identifying as White (11.3% or 2.7 million), Black or African American (10.5% or 2.5 million), or Hispanic/Latino (10.2% or 2.4 million; Substance Abuse and Mental Health

Services Administration, 2008). Furthermore, people of two or more races, American Indians/Alaskan Natives, and Native Hawaiians/Pacific Islanders were not studied with regard to treatment usage. These data suggest that people identifying as White use mental health services at a disproportionate rate when compared with the prevalence and usage of services among people of other races or ethnicities, and the incomplete data may increase this discrepancy.

Diagnosis, Symptoms and Treatment. Mental illnesses, specified in the DSM-IV, are typically classified into clinical or personality disorder categories (American Psychiatric Association, 2000). Examples of clinical disorders include disorders usually first diagnosed in childhood (e.g., Autistic Disorder), psychotic disorders (e.g., Schizophrenia), mood disorders (e.g., Major Depressive Episode), and anxiety disorders (e.g., Obsessive-Compulsive Disorder; American Psychiatric Association, 2000). Examples of personality disorders include Paranoid, Borderline, and Avoidant (American Psychiatric Association, 2000).

Mental illnesses manifest a variety of symptoms with the role of the clinical social worker to identify interventions and methods to cope with those symptoms. Common mental health symptoms include (but are not limited to)

- impairment in social interaction and communication, along with restricted repetitive and stereotyped patterns in behavior for Autistic Disorder;
- delusions, hallucinations, disorganized speech or behavior, and negative symptoms for Schizophrenia;
- depressed mood, diminished interest, feelings of worthlessness, daily fatigue, and diminished ability to think or concentrate for Major Depressive Episode;

- recurrent and persistent thoughts that cause marked anxiety or stress or repetitive behaviors or mental acts a person feels driven to perform to avoid obsessions for Obsessive-Compulsive Disorder;
- recurrent suicidal behavior, frantic efforts to avoid abandonment, identity disturbance, impulsivity in areas that are potentially self-damaging, and chronic emptiness feelings in Borderline Personality Disorder (American Psychiatric Association, 2000).

People access many forms of mental health services in order to cope with their symptoms. In 2007, the top three services accessed were outpatient combined with prescription medication (43.3% or 10.5 million), prescription medication only (34.6% or 8.4 million), and outpatient only (10.7% or 2.6 million; Substance Abuse and Mental Health Services Administration, 2008). For adults with an unmet need for treatment, the top three reasons for not receiving treatment were affordability, a belief one could handle the problem without treatment, and lack of time (Substance Abuse and Mental Health Services Administration, 2007).

Coping with Mental Health Symptoms

Though medication and therapy may help relieve mental health symptoms, symptoms often still remain, though at a reduced intensity. Some people may benefit from additional coping skills in response to stress. Coping was defined by Lazarus and Folkman (1984) as “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). Based on how a person views a stressful event, they

may use a variety of strategies to change the way they think and behave to help them return to a feeling of control.

Coping strategies generally fall into three categories. The first category is problem-focused strategies. Problem-focused coping strategies help a person cope with a stressful event by acting on or altering the environment causing the stress, a focus on the presenting problem (Gol & Cook, 2004; Hutchison, 2011; Lazarus & Folkman, 1984; Ntoumanis, Edmunds, & Duda, 2009). For example, if a person with Obsessive Compulsive Disorder experiences recurrent and persistent thoughts about an event in the news, a problem focused coping strategy would be to eliminate any exposure to the news.

The second category is emotion-focused strategies. These strategies help a person regulate or change their emotional and cognitive responses to a stressful event (Gol & Cook, 2004; Hutchison, 2011; Lazarus and Folkman, 1984; Ntoumanis et al., 2009). Using the example above of the person with Obsessive Compulsive Disorder, an emotion focused coping strategy would be to complete a thought record often used in Cognitive Behavior Therapy to explore the automatic thoughts that arise when viewing the stressful event in the news.

Meaning-based coping strategies make up the third category. Lazarus and Folkman (1984) stated that meaning in the coping context involves a person trying to understand how a stressful event is significant for their well being, making the event meaningful for their daily functioning and how they may view the stressful event in the future. A number of strategies can be used to determine meaning including positive reappraisal of the stressful event and spiritual beliefs (Nilsson, 2007). Whittington and Scher (2010) found that religious practices like prayer enhance a person's ability to make

meaning out of life's experiences. This meaning comes from the relationship a person forms in prayer with a deity (Whittington & Scher, 2010). Using the example of the person with Obsessive Compulsive Disorder from above, a meaning-based coping strategy would be to pray for divine help in understanding the significance of the recurrent thoughts they experience about the stressful event in the news.

Prayer

Prayer as a concept and practice needs to be understood before it can be used as a coping strategy in a mental health context. Defining prayer is important because it exists in many forms throughout the world's religions and spiritualities. In a broad sense, prayer is a communication method for talking with a divine presence, with one's own self, or with other people (Baker, 2008; Spilka & Ladd, 2012). This communication can be either verbal or nonverbal, and it involves a desire for transcendence and/or transformation (Walker & Moon, 2011). People pray in religious rituals, communally with large groups of people, or individually, and prayers can be formally scripted or spontaneous in content (Bänziger, Janssen, & Scheepers, 2008; Ellwood & McGraw, 2005; Smith, 1991).

Looking at how prayer is used in religious traditions gives one a feel for how and why people use prayer. For example, the Five Pillars of Islam is a framework for how many Muslims practice their faith. The second Pillar is *salat*, the requirement to pray several times per day (Walker & Moon, 2011). These prayers are completed in a strictly defined manner for the purposes of giving praise, thanks, and to ask Allah for help (Ellwood & McGraw, 2005; Smith, 1991). In a Muslim mental health context, Islamic prayers can be used in conjunction with deep breathing exercises to help either reduce

anxiety symptoms or as a way to cope with depression symptoms (Walker & Moon, 2011).

Another example of prayer is found in the Shinto religion. Originating in Japan, Shinto does not have official doctrines, precepts, or organizational structures to define prayer (Yamakage, 2006). Instead, people who practice the Shinto faith rely on family and cultural traditions to help define how to pray and in what situation prayers be conducted (Yamakage, 2006). For example, Shinto prayers are often used in memorial services for a deceased person to pass into a higher world, to ask ancestors for guidance, or to seek a governing Kami (loosely translated as a spirit) for protection (Yamakage, 2006).

In Judaism, there is a wide range of how prayer is used. In a broad sense over the many Jewish denominations, most Jewish people say prayers of thanksgiving, to seek divine communion, and to make petitions of help in mainly communal settings (Cohen, 1995; Walker & Moon, 2011). However, it is important to recognize that specific Jewish denominations view prayer's importance differently. For example, adherents of Orthodox Judaism may follow prescribed prayer rituals and practices that are similar to Islam, whereas Reform Jews may pray less formally and more personally (Walker & Moon, 2011; Whittington & Scher, 2010). In a mental health context, Jewish people can use prayer to help cope with depressive symptoms stemming from grief over the death of a loved one (Walker & Moon, 2011).

Like Judaism, the use of prayer in Christianity varies among its many denominations. Most Christians believe in the concept of the Trinity, the idea that the divine exists as one being in three forms: God (often called The Father), Jesus (often

called the Son) and Spirit (Walker & Moon, 2011). In Christianity, prayers are often directed at any or all members of the Trinity for the purposes of divine worship, divine experience, or communication (Walker & Moon, 2011). In a psychotherapy context, Christian prayers have been used in conjunction with Cognitive Behavioral Therapy to help reduce anxiety and guilt (Walker & Moon, 2011).

Demographics of those who pray. Examining the eighty percent of the US population identifying as religious gave further context into how people pray. Using data from the Pew Forum's U.S. 2007 Religious Landscape Survey of over 35,000 respondents, forty-eight percent of respondents 18-29 years old pray at least once per day and sixty-eight percent of respondents over 65 years old pray at least once per day (The Pew Forum on Religion and Public Life, 2011). Research on the same data set also found that sixty-six percent of respondents who identified as female pray at least once per day, whereas forty-nine percent of respondents who identified as male prayed at least once per day. Income also affects a person's prayer habits, as respondents making less than \$30,000 pray more than respondents making over \$100,000 per year. When looking at individual religious traditions, nearly all traditions identified in the data had over fifty percent of respondents who pray at least once per day.

Examining some specific demographic groups gives further context into the types of people that pray. For groups identifying as Asian American, forty percent of all respondents pray each day and sixty-one percent of respondents identifying as Christian pray each day (The Pew Forum on Religion and Public Life, 2012). Pond, Smith, and Clement (2010) found that among millennials (adults aged 18-29 in 2010), forty-five percent pray every day. The Pew Forum on Religion and Public Life's (2009a) 2007

Religious Landscape Survey found that seventy-six percent of people that identify as African American pray at least daily, and Lawson and Thomas (2007) found older African Americans' prayer habits remain the same regardless of socioeconomic status. The Pew Forum on Religion and Public Life (2009c) found the percentage of respondents who identified as Hispanic and pray at least once per day was greater than the US population that identified with praying at least once per day. Geographically, respondents who pray at least once per day tend to live more in the southern US than other regions (The Pew Forum on Religion and Public Life, 2009b).

Prayer use in therapy. The research on the use of prayer in therapy is limited as most studies are focused on either meditation in therapy or the use of prayer in reducing physical pain. In the studies and articles that do address using prayer in therapy, it is often used as a supplement to the main therapeutic intervention being practiced. Interventions like marital therapy, cognitive-behavioral therapy, addiction treatment, and family therapy have used prayer to help ameliorate mental health symptoms (Beach, Fincham, Hurt, McNair, & Stanley, 2008; Milevsky & Eisenberg, 2012; Priester et al., 2009; Tan, 2007). Therapy supplemented by prayer helps reduce stress generated by significant life transitions, and it can help in skills training for couples to regain perspective and promote dialogue (Beach et al., 2008; Milevsky & Eisenberg, 2012). However, very few therapies specifically call out the use of prayer in its implementation, and one that does (12-step programs used in addiction treatment) has been found to use it only twenty-five percent of the time (Priester et al., 2009). Finally, results from using prayer in therapy are hard to quantify since they are often only reported in conceptual frameworks or qualitative

studies (Beach et al., 2008; Milevsky & Eisenberg, 2012; Priester et al., 2009; Tan, 2007).

Prayer as a coping strategy. Though prayer has many functions, it is the most common religious behavior used for coping with a person's problems (Spilka & Ladd, 2012; Trevino et al., 2011). Defined as a way of understanding and dealing with negative life events in a sacred context, the use of prayer for coping often yields three outcomes: achieving control of a stressful situation, gaining comfort in a stressful situation due to the divine connection, and an understanding of the meaning behind a stressful situation (Grossoehme et al., 2011).

Gaining control of a stressful situation is the most common reason to use prayer for coping. The need for a person to feel in control is often a response to a stressful situation (Jackson et al., 2010; Masters & Spielmans, 2007). Examples of stressful situations in the literature include natural disasters, dislocation, war, and sudden family changes such as living in the foster care system or having children in a hospital (Corcoran et al., 2007; Himle, Taylor, & Chatters, 2012; Lawson & Thomas, 2007; Jackson et al., 2010). However, the need for control is not limited to stressful situations and can often be found in dealing with physical conditions such as cancer (Jagannathan & Juvva, 2009; Trevino et al., 2011).

Along with gaining control, improving comfort is often a reason to use prayer for coping. The literature shows the use of prayer for coping to be found in a variety of diagnoses, including Bipolar Disorder, phobias, and Obsessive-Compulsive disorder (Cohen, Magai, Yaffee, Huangthaisong, & Walcott-Brown, 2006; Cruz et al., 2010; Himle et al., 2012). Masters and Spielmans (2007) also noted that there is a negative

effect of using prayer for coping when it is applied as a distraction for pain avoidance. Finally, Jagannathan and Juvva (2009) and Trevino et al. (2011) found people seeking relief from cancer treatments have used prayer to cope with mental illness symptoms that cause them discomfort.

If prayers have a positive intentions (e.g. thanksgiving or adoration), a positive effect on one's well-being can be found, whereas the inverse is true with negative intentions (e.g. confession or obligation) having negative effects on one's well being (Whittington & Scher, 2010). Specific prayers like Centering Prayer have been incorporated into psychotherapy as a way to increase mindfulness of the goals and necessity of receiving psychotherapy (Blanton, 2011). Healing prayers have been helpful in Cognitive Behavioral Therapy when people process painful memories on a deep level of emotional processing and cognitive change (Tan, 2007).

However, there is another side that question if using prayer and even religion as a whole may contribute to a person's mental health symptoms. It can be difficult to determine if prayer is helpful as a coping strategy or if it actually contributes to the mental illness' symptoms (Cohen et al., 2006; Cruz et al., 2010; Himle et al., 2012). For example, people diagnosed with Obsessive Compulsive Disorder often excessively rely on prayer in lieu to other coping strategies (Himle et al., 2012). However, there can be an increase in mental health symptoms when a person praying becomes angry at the lack of progress in reducing symptoms (Rippentrop, Altmaier, Chen, Found, & Keffala, 2005).

Research Question

Though there is research on the use prayer for coping, research on its efficacy for use in reducing with mental health symptoms is limited. In addition, the body of research

on prayer tends to be more theory-based than application-based (Spilka & Ladd, 2012).

This means that although there is research on why people pray, there is a lack of research on how to apply prayer in various contexts.

Prayer is often joined with other variables and coded as spiritual interventions, personal devotions, or religious practices (Corcoran et al., 2007; Hanson et al., 2008; Hexam, Mollen, Carroll, Lanctot, & Feudtner, 2011; Spilka & Ladd, 2012). For example, research studies often attach prayer to other spiritual exercises, such as reading holy texts and attending religious services, and then collectively label it as a spiritual intervention. This makes studying prayer as a specific intervention difficult because one needs to ensure that prayer is separated from other activities in order to determine its individual efficacy.

This research project's purpose is to show that prayer is an effective coping strategy to reduce mental health symptoms. To do this, this project performed a Practical Meta-Analysis on existing research studies to establish a baseline of what the current research is about prayer as an intervention for coping with mental health symptoms. This research project will answer the following research question: How effective is prayer when used as a coping method for reducing mental health symptoms?

Conceptual Framework

A conceptual framework will help ground this research by linking it to established theory. This link helps give “coherence to the enterprise” by connecting all aspects of the research from problem definition through analysis (Shields & Tajalli, 2006, p. 313). The conceptual framework for this research is anchored Lazarus and Folkman’s (1984) concept of coping as a process. The coping process as initially conceptualized by Lazarus and Folkman was a simple process started by a personal encounter with a stressful event (Nilsson, 2007). The first step in the coping process is appraising a stressful event, and if it is threatening, harmful, or challenging, coping strategies are then applied (Nilsson, 2007). The coping strategies at this process step can be problem focused, emotion focused, or a combination of both (Lazarus & Folkman, 1984). If these coping strategies help create a favorable resolution to the stressful event, a positive emotion is felt, and the coping process ends (Nilsson, 2007). However, if the outcome is unfavorable (or nothing happens) after using a coping strategy, distress occurs, and the process starts again with another appraisal of the stressful event (Nilsson, 2007).

In 1997, Lazarus and Folkman updated their conceptualization of the coping process to include an additional step for a person to use a coping strategy in the coping process (Nilsson, 2007). If the outcome of using a coping strategy is unfavorable (or nothing happens), a person may either experience distress or immediately employ a meaning-based coping strategy (Nilsson, 2007). Again, a meaning-based strategy is a person trying to understand how a stressful event is significant for their well being (Lazarus & Folkman, 1984). The result of using this coping strategy at this point produces a positive emotion that helps sustain a person when the coping process starts

again (Nilsson, 2007). It is in this meaning-based coping step where prayer may be useful for coping with mental health symptoms. Applying Lazarus and Folkman's model for this research, the stressful event will be the mental health symptom a person is experiencing (e.g. symptoms resulting from anxiety or depression).

In addition to the coping conceptual framework, there is also an overarching holistic framework that also guides the development of this research. Wilber's (2006) integral model is a way of understanding human consciousness by looking at the interconnection of four quadrants: self and consciousness (I), brain and organism (IT), culture and worldview (WE), and social system and environment (ITS; p. 22). Wilber (2006) says that comprehensive and effective approaches to problems take all four of these quadrants into consideration to create something that is truly interconnected and not lacking or broken.

For this research, that something being created is the use of prayer as a coping for mental health symptoms. The intervention in this research is an activity that naturally interconnects all four of Wilber's (2006) quadrants. The meaning generated by the prayer activity and the subsequent benefit of symptom reduction comes in the I quadrant. The type of prayer used is influenced by the WE quadrant. The mental health symptoms and diagnoses are from the IT quadrant. Finally, the larger world in which a person operates is covered with the ITS quadrant. This critical area addresses the reconnection of a person suffering from mental health symptoms to the larger social world.

The conceptual framework provided by Lazarus and Folkman (1984) and Wilber (2006) provides a specific theory of coping while also not losing the larger holistic context. Lazarus and Folkman's (1984) coping theory shows where prayer may be used

in the coping process. Wilber's (2006) integral model shows where this coping process can fit into the overall human experience. By combining both frameworks, this research project endorses an overall framework that is grounded in theory but also advocates for expanding research that considers the entirety of human existence.

Method

The purpose of this section is to define the methodology used in this project. The research design will be described and examples of how his particular design has been implemented in spiritual interventions will be given. Procedures for sampling, collecting, and analyzing data will be illustrated. Finally, strengths and limitations of this method will be discussed and protection of human subjects will be addressed.

Research Design

This research project used a Practical Meta-Analysis design developed in by Lipsey and Wilson (2001) and illustrated by Whiston and Li (2011) as a template for quantitatively aggregating research findings. The Practical Meta-Analysis has seven steps: 1) Research question formulation, 2) study retrieval, 3) effect size statistic development, 4) coding scheme development and implementation, 5) data analysis, 6) interpretation of results, and 7) publication of results.

Since its inception in the 1970s, thousands of meta-analyses have been performed using a variety of methodologies (Lipsey & Wilson, 2001). A Glassian or Classic Meta-Analysis uses loosely-defined study inclusion criteria, makes the study's finding the unit of analysis, and it calculates many effect size statistics based on the number of comparisons analyzed in the study (Shachar, 2008). A Study Effect Meta-Analysis differs from the Classic method by having strictly-defined study inclusion criteria, and it makes the study itself the unit of analysis by calculating one effect size statistic per study (Shachar, 2008). An Absolute Meta-Analysis is used when a researcher combines raw data from multiple experiments or datasets to evaluate an intervention's effect (Campain & Yang, 2010).

The Practical Meta-Analysis is a combination of many different meta-analysis methodologies into a template geared toward graduate students and professionals in the health and behavioral sciences (Lipsey & Wilson, 2001). Like the other methods listed above, Practical Meta-Analysis has strictly defined study inclusion criteria and makes the study itself the unit of analysis by calculating one effect size statistic. Unlike the methods above, Practical Meta-Analysis is easier to complete because of its well-defined steps and lack of highly technical language (Lipsey & Wilson, 2001). This helps make the Practical Meta-Analysis accessible for researchers who possess a basic understanding of statistics and research methods. Along with these reasons, the Practical Meta-Analysis method was chosen for this research based on this project's short timeline for completion (its simple design can be completed quickly) and ease of access to individual studies rather than large datasets needed in an Absolute Meta-Analyses.

Meta-Analyses that Study Spiritual Interventions

Several study-effect meta-analyses exist that examine a variety of spiritual methods to help cope with mental health symptoms. Chen et al. (2012) used a meta-analysis to study the effects of meditation on anxiety. Bohlmeijer, Prenger, Taal, and Cuijpers' (2010) meta-analysis looked at the use of Mindfulness Based Stress Reduction (MBSR) on depression, anxiety, and psychological distress. In both meta-analyses, the interventions studied found a small positive effect on symptoms and noted that an individual study's methodological quality appeared to influence the overall effect. The researchers in these studies created a coding scheme used to judge methodological study quality, and both meta-analyses found that studies with lower quality tend to decrease an intervention's overall effect. Furthermore, Chen et al. (2012) made mention of a need to

assess the quality of the intervention's practice itself (i.e., how well the meditation was applied).

In a prayer context, Masters, Spielmans, and Goodson (2006) and Hodge (2007) used study-effect meta-analyses to determine how well intercessory prayer works in improving a person's physical and psychological conditions. Both Masters et al. (2006) and Hodge (2007) defined intercessory prayer as prayer done on behalf of someone else for the purposes of creating change in a person's situation (e.g., to heal a sick person). Masters et al. (2006) did not find intercessory prayer to have any significant effect in the conditions studied (fourteen studies covering mainly physical symptoms in a Christian context). On the other hand, Hodge (2007) found mixed results, though they were not significant enough for intercessory prayer to be considered an empirically supported treatment (seventeen studies covering mostly physical symptoms with significant improvement in seven studies and no positive association in ten studies). The Practical Meta-Analysis in this research will include all prayer forms found in the included studies.

Sample

The sample for this Practical Meta-Analysis was obtained from published journal articles available by searching electronic library databases. The databases searched were MEDLINE, PubMed, PsychINFO, Social Work Abstracts, and ATLA Religion Database. The reason the first four databases were chosen was their high frequency of use in the meta-analyses listed above (Bohlmeijer et al., 2010; Chen et al., 2012; Hodge, 2007; Masters et al., 2006). The ALTA Religion Database was not listed in the meta-analyses above, but the researcher's previous experience with this database has found it useful for finding studies on prayer. Finally, these five were chosen because they are subscribed to

by either St. Catherine University or University of St. Thomas and are available to the researcher on the Internet with student-level access.

Inclusion and Exclusion Criteria

Included studies in this research project were found using a set of keywords that were developed using a pilot search of the PsychINFO database. This database was chosen for the pilot search because it was the common database found in all four meta-analyses using spiritual tools. The initial keyword set to be used was the following words: prayer, coping, and mental health. If the search results did not return a sufficient number of studies that can be included in the meta-analysis, additional keywords would have been developed to increase the number of studies that meet the inclusion criteria. However, the initial keywords from the pilot search yielded five studies that met the inclusion criteria, so the initial keywords were fixed for use in the Practical Meta-Analysis.

Only quantitative studies were included that featured prayer as a tool for coping as an independent variable and a mental illness symptom as a dependent variable. To be included in this research project, the identified research articles needed to have detailed statistical results available in the text in order to perform the Practical Meta-Analysis (Lipsey and Wilson, 2001; Lundahl, Yaffe, & Hobson, 2009). Examples of these statistics included effect sizes, number of participants, means, frequencies, proportions, and *p* values (Lipsey and Wilson, 2001; Lundahl et al., 2009). Since a Practical Meta-Analysis needs statistical data, no qualitative studies were included.

A common meta-analysis criticism (regardless of the method) is a lack of consideration regarding methodological quality (Lundahl et al., 2009; Whiston and Li,

2011). For example, a Randomized Controlled Trial (RCT) is often given the same quality judgment as a survey with a small sample. While this is a concern for this research, study quality was not used as an inclusion criterion. This avoided limiting the number of studies to be used in the Practical Meta-Analysis. However, study quality was coded in the data analysis to measure the types of methods used (e.g. RCT will be given a code of high quality). This also examined if there was a difference in the meta-analysis results between including studies of all quality and only studies of high quality.

In summary, inclusion criteria for this Practical Meta-Analysis were that each study was quantitative, had an independent variable of prayer as a coping tool, had a dependent variable of looking at the reduction of mental health symptoms, and had enough statistical data to calculate an effect size.

Protection of Human Subjects

This research project used existing data found in research studies already published in scholarly journals. Since there was no research done with human subjects, there was no risk to human subjects or for any human subjects being identified. It was confirmed by the chair of St. Catherine University's Institutional Review Board (IRB) Committee that this research did not warrant an IRB review.

Data Collection Instrument

A coding manual was created to identify the studies that met the inclusion criteria. For the pilot search of the PsychINFO database, this research project used the modified form of the Study-Level Coding Form (SLCF) found in Appendix E of Lipsey and Wilson's (2001) book *Practical Meta-Analysis*. Lipsey and Wilson's (2001) SLCF is an example for a Practical Meta-Analysis of challenge programs for juvenile delinquents.

That form was changed to reflect using prayer as a coping method for mental health symptoms. The title of that adapted coding manual was then changed to the Modified Study-Level Coding Form (MSLCF), and a copy of this can be found in Appendix A.

Validity and reliability was tested during the pilot search. One study that met the inclusion criteria was randomly selected out of all the studies that met the inclusion criteria. This research project's author completed the MSLCF. After that activity was complete, a research partner (Shannon Savageau, MSW student, St. Catherine University and University of St. Thomas) also completed the MSLCF. An evaluation of both MSLCFs was conducted, and both the researcher and research partner found the same results on the MSLCF. As a result, the MSLCF was considered valid and reliable for the purposes of this research project, and it was released for use in this Practical Meta-Analysis.

Data Analysis

After the study sample was obtained and coded, an effect size statistic was calculated for each included study. An effect size statistic is a numerical value assigned to each study that indicates the strength of the intervention being studied (Lipsey & Wilson, 2001). The Practical Meta-Analysis Effect Size Calculator developed by David B. Wilson, PhD, from George Mason University, was used to calculate each study's effect size statistic based on the statistical data presented in the study's text. The Practical Meta-Analysis Effect Size Calculator is a web-based calculator developed by Wilson to calculate four types of effect sizes (Standardized Mean Difference, Correlation Coefficient, Odds-ratio, and Risk Ratio), confidence intervals, and variances based on user inputs obtained from the included studies' statistical data (Wilson, n.d.). The Effect

Size Level Coding Manual (ESLCM) found in Appendix E of *Practical Meta-Analysis* was used by the researcher to provide written documentation of the statistical data found in each included study. This form was changed to reflect using prayer as a coping method for mental health symptoms. After it was changed, the title of the ESLCM was changed to the Modified Effect Size Level Coding Manual (MESLCM), and a copy of this can be found in Appendix B. The MESLCM also recorded each study's calculated effect size from the Practical Meta-Analysis Effect Size Calculator.

The researcher then inputted the effect sizes calculated by the Practical Meta-Analysis Effect Size Calculator into the MIX version 1.7 meta-analysis software for Microsoft Excel 2000. Developed by Leon Bax, MIX 1.7 is a free version for use in both professional and educational settings (BiostatXL, 2010). MIX 1.7 has been validated for use in professional meta-analyses for scientific studies (Bax, 2008). MIX 1.7 has been updated to MIX 2.0 for use with Microsoft Excel 2007 and 2010 in computers running Windows operating systems (BiostatXL, 2010). However, the researcher only had access to Microsoft Excel 2000 for Windows, so MIX 1.7 was used for data analysis.

MIX 1.7 calculated the following results from the entered effect size data: Average effect size, confidence intervals for the effect size, tests of significance, and a homogeneity analysis (Whiston & Li, 2011). A forest plot was generated to illustrate each individual study's effect sizes and the average effect size for the overall meta-analysis. The average effect size is the indicator of the effect's (in this case prayer) magnitude on coping with mental health symptoms (Whiston & Li, 2011). Lipsey and Wilson's (2011) effect size magnitude rule of thumb stated a small magnitude has an average effect size less than or equal to .20, a large magnitude was an average effect size

greater than or equal to .80, and anything in between was considered a medium magnitude. The average effect size magnitude, with consideration of the confidence interval, significance test, and homogeneity analysis, determined the answer to the research question of how effective prayer is as a coping strategy for mental health symptoms.

Strengths and Limitations

The strengths of this Practical Meta-Analysis method are in its design of being a method that compiled research study data into a single source that evaluated efficacy. The studies were retrieved from electronic databases that are commonly available to both researchers and practitioners. Since prayer efficacy is not commonly studied in a meta-analysis format, this research contributed to a void in the research literature. In addition, this research also filled a meta-analysis void in social work research suggested by Lundahl et al. (2009). Finally, given the large amount of the population that prays, this Practical Meta-Analysis contributed to practice knowledge by showing if practitioners could encourage a client to pray to help with mental health symptoms without feeling they are walking a fine ethical line regarding practice within a social worker's area of competence, cultural competence, or engaging in a practice that has been evaluated and researched (National Association of Social Workers, 2008).

There were a few limitations of this research project. Since there was a time limit on this project, the number of studies was set to a maximum of 30. This maximum may have reduced how well the Practical Meta-Analysis can determine the efficacy of prayer for coping with mental health symptoms. Nugent (2009) also pointed out a limitation of meta-analyses based on the difficulty of standardizing effect sizes across studies that use

different measurement methods (comparing apples to oranges). Furthermore, Nugent (2009) cautioned that if validity invariance (the mathematical variance of the included studies' measurement methods) is not considered in a meta-analysis, the results could be erroneous and may affect any conclusions drawn from the meta-analysis. To help control for invariance, each included study's measurement methods were coded in the MSLCF. Depending on the measurement methods found in the included studies for this meta-analysis, Nugent's (2009) caution might have limited the conclusions drawn from this Practical Meta-Analysis.

Results

The purpose of this section is to show the results of the data analysis. The results of the search for included studies are revealed, and data from those included studies is described. Finally, the data from the Practical Meta-Analysis are made known.

Included Study Search Results

Of 598 articles located in the five library databases searched (MEDLINE, PubMed, PsychINFO, Social Work Abstracts, and ATLA Religion Database), twenty-six were found that appeared to meet the inclusion criteria of an independent variable of prayer as a coping tool, a dependent variable of looking at the reduction of mental health symptoms, and enough statistical data to calculate an effect size. Appendix E contains the results of this database search. Upon further review of these twenty-six articles, it was determined that only thirteen met the criteria. Reasons for rejecting the other thirteen articles include missing statistical data needed to calculate an effect size (standard deviations of sample sizes), studies that ended up examining prayer prevalence rather than efficacy, and studies that did not study prayer in the context of coping. Of the thirteen included studies, the majority of the articles came from the PsychINFO database. Nine of the included studies came from peer-reviewed journals, and four came from dissertations.

Each article used in this study included multiple mental health symptoms. Table 1 shows the mental health symptoms examined in each included study in this Practical Meta-Analysis. Table 1 also lists the assigned study ID. The study ID is a unique identifier that helped track multiple effects sizes within a single study.

Table 1

Mental Health Symptoms in Each Study

Author and Year	Mental Health Symptoms	Assigned Study ID
Ai (2010)	Anxiety	001A
	Depression	001D
Cohen (2009)	General Mental Health	003GMH
Ai (2012)	Mental Fatigue	005MF
Meisenhelder (2003)	General Mental Health in Men	006MEN
	General Mental Health in Women	006WOM
Tepper (2001)	Frustration	007F
	GAF score	007GAF
	Hostility	007H
	Interpersonal Sensitivity	007IS
	Somatization	007S
	Paranoid Ideation	007PI
	Ai (2009)	Acute Stress
Meisenhelder (2009)	Depression	008D
	Anxiety	008A
	Fatigue	008F
	Stress	009S
Kottke (2010)	General Mental Health	009MH
	Alcohol Use	010AU
Stacy (2001)	Drug Use	010DU
	Acute Stress Disorder	011ASD
Bremer (2003)	Drug Use	011A
	Social Functioning	012SF
Braxton (2007)	Depression	013D
Ansari (2006)	General Mental Health	014DPGMH, FPGMH, &
	Distress	CPGMH
		014DPPD, FPPD, CPPD

Note. Ansari (2006) studied two mental health effects using three prayer types.

Included Study Data Description

Demographic data from the included studies gave context about the respondents that used prayer to cope with mental health symptoms. The majority of included studies contained respondents that were older adult population (mean age = 59) and are women, members of a racial majority that is either Caucasian or undetermined, and that were religiously affiliated. Seventy-seven percent of the included studies did not report the yearly income. Sixty-two percent of the studies examined mental health symptoms that are not classified by the five DSM-IV categories of childhood, mood, anxiety, personality, or psychotic disorders. Appendix D has a table of the included study's demographic data.

The included studies utilized a variety of research designs. All of the included studies used correlation to determine prayer efficacy with one exception. Tepper, Rogers, Coleman, and Malony (2001) used standardized mean difference between non-randomized groups that used prayer and those that did not. Five of the studies used a survey to gather data, whereas the remaining used an interview and questionnaire format. No randomized controlled trials (RCT) were in the included studies' research designs.

The use of prayer for coping has three outcomes, and the included studies only featured two of the outcomes. Gaining comfort in a stressful situation to help reduce mental health symptoms was found in all of the included studies. The use of prayer to achieve control in a stressful situation was also found in the included studies, and the symptoms being controlled included anger, stress, and frustration. None of the included studies featured the use of prayer for coping to help a person understand the meaning of a stressful situation.

Finally, though all of the included studies ultimately examined mental health symptoms in general, many included studies featured the use of prayer for coping in specific contexts. Six of the thirteen included studies looked at using prayer to cope with medical conditions like open-heart surgery and traumatic brain injuries. Other specific contexts represented in the included studies include substance use, Human Immunodeficiency Virus (HIV), terrorism, and mental health in Muslims. Appendix C has a table of the research designs in the included studies and a summary of the results.

Meta-Analysis Results

Before running the meta-analysis, there was an issue that had to be resolved regarding the difference in standardized mental health measures used in the included studies. The measures of prayer typically were Likert-type scales that ranged from zero for low use/frequency to a 10 for high use/frequency. However, the mental health measures were a mix of both directions—low numbers equating to both less and more mental health symptoms. For example, Ai's (2010) study of prayer use and depression used scales that indicated increased prayer use resulted in lower depression, and this returned an inverse association. However, Cohen's (2009) study of prayer use and general mental health used measures that indicated an increased prayer use resulting in better mental health, and this returned a positive association in the analysis. While this difference in measure direction did not influence the Practical Meta-Analysis' ability to determine the magnitude of the intervention's effect, it did create confusion on the overall result of the intervention (i.e., is prayer use for coping with mental health symptoms associated with better mental health symptoms). A simple code (EFCT) was created to help discern the overall direction of prayer efficacy. This code revealed about sixty

percent of included studies found an association between the use of prayer for coping and better mental health symptoms.

The thirteen studies produced thirty unique effect sizes that were used in the Practical Meta-Analysis calculations. Within most of the included studies, multiple prayer types and/or multiple mental health symptoms were studied. Table 2 shows the data obtained from each included study's effect size. The raw correlation value and sample size were obtained directly from the included study's published statistical data, and the calculated effect size came from Practical Meta-Analysis Effect Size Calculator. To weight each effect size, the Mix 1.7 software needed to have a standard error inputted with the calculated effect size. That number was calculated based on the prayer intervention's sample standard deviation contained in the included study. If an included study did not report a prayer intervention sample's standard deviation, the mental health symptom sample standard deviation was used instead. This helped provide the standard error needed to run the meta-analysis calculation. The meta-analysis' overall result was an average effect size of -0.0184 with a p-value of 0.3665. Using Lipsey and Wilson's (2011) effect size magnitude rule of thumb, this value indicated a small magnitude effect. However, the high p-value indicated this effect was insignificant. The meta-analysis' forest plot (graphical results) is found in Appendix F. Appendix G is the meta-analysis' numerical output.

Table 2

Included Study Practical Meta-Analysis Data

Study ID	Raw Correlation Value	Calculated Effect Size	Sample Size	Sample Standard Deviation	Standard Error
001A	0.0400	0.0400	262	0.8200	0.0507
001D	-0.0100	-0.0100	262	0.8200	0.0507
003GMH	0.1200	0.1206	168	8.6000	0.6635
005MF	-0.1100	-0.1104	262	0.8000	0.0494
006MEN	0.2020	0.2048	136	1.9500	0.1672
006WOM	0.0790	0.0792	135	1.6700	0.1437
007F	N/A	0.1107	241	1.4200	0.0915
007GAF	N/A	-0.1168	241	8.2400	0.5308
007H	N/A	0.0490	241	5.5800	0.3594
007IS	N/A	0.0478	241	9.1100	0.5868
007S	N/A	0.0776	241	10.7900	0.6950
007PI	N/A	0.0461	241	6.2600	0.4032
008AS	0.0940	0.0943	481	2.3400	0.1067
008D	0.0920	0.0923	481	2.3400	0.1067
008A	0.0480	0.0480	481	2.3400	0.1067
008F	0.0260	0.0260	481	2.3400	0.1067
009S	0.4000	0.4236	289	7.5300	0.4429
009MH	-0.1600	-0.1614	289	4.7000	0.2765
010AU	-0.2300	-0.2342	327	1.4700	0.0813
010DU	-0.2800	-0.2877	327	1.4700	0.0813
011ASD	-0.0300	-0.0300	61	2.6500	0.3393
011A	0.0100	0.0100	61	2.6500	0.3393
012SF	0.2800	0.2877	92	1.0300	0.1074
013D	-0.1440	-0.1450	308	1.8100	0.1031
014DPGMH	0.2900	0.2986	111	2.0900	0.1984
014FPGMH	0.3700	0.3884	111	1.7800	0.1690
014CPGMH	0.1000	0.1003	111	38.5300	3.6571
014DPPD	-0.2400	-0.2448	111	2.0900	0.1984
014FPPD	-0.1700	-0.1717	111	1.7800	0.1690
014CPPD	-0.1400	-0.1409	111	38.5300	3.6571

Note. Tepper (2001) used standardized mean difference, so there is no raw correlation value.

Discussion

The purpose of this section is to interpret the results of the data analysis and answer the research question. This interpretation is informed by the information obtained in the literature review and the conceptual frameworks. Strengths and limitations will be discussed, and implications for social work practice, policy, and research will be illustrated. Finally, implications for holistic health practice and research will be discussed.

This research project's goal was to determine how effective prayer is when used as a coping method for reducing mental health symptoms. The Practical Meta-Analysis design applied to thirteen research studies found that prayer's efficacy as a coping method for mental health symptoms was insignificant. Though the actual effect size statistic was small and negative, it did not necessarily indicate that increased prayer use is associated with worsening mental health symptoms. This was due to the difference in mental health measurement direction discussed in the meta-analysis results.

The implementation of the EFCT code helped clarify the results and provided a categorical value to help give an idea about the overall direction of the meta-analysis. Sixty percent of the included studies showed prayer being associated with better mental health symptoms, and forty percent of included studies were not associated with better mental health symptoms. It is reasonable to think that these forty percent of included studies indicated that prayer use for coping made mental health symptoms worse. However, Meisenhelder (2009) cautioned against this notion by saying the association between increased prayer use for coping and increased mental health symptoms may actually be an indication of the increased use of coping strategies as a response to the

increased symptoms (i.e., increasing mental health symptoms prompting an increasing use of prayer for coping to prevent an even larger increase of mental health symptoms).

Though the findings of this Practical Meta-Analysis were insignificant, other information found in the included studies echoed what was found in the literature. The use of prayer for coping to gain comfort and control in stressful situations is one such area. In the literature, Jagannathan and Juvva (2009) and Trevino et al. (2011) talked about using prayer for coping to gain comfort when dealing with physical conditions like cancer. In the thirteen included studies, six studies were also found that featured the use of prayer for coping with a variety of physical conditions. Jackson et al. (2010) and Masters and Spielmans (2007) found people used prayer for coping to gain control in stressful situations. One of the included studies in this Practical Meta-Analysis featured prayer as a way to cope with the posttraumatic stress after the terrorist attacks that occurred on September 11, 2001 (Meisenhelder, 2009).

Another idea in the included studies that was also found in the literature was the use of prayer to cope with problems. Spilka and Ladd (2012) and Trevino et al. (2011) both found prayer to be a common behavior for coping with problems, and this was a common theme in all of the included studies. Cohen et al. (2006), Cruz et al. (2010) and Himle et al. (2012) noted that the use of prayer for coping was found in many mental health diagnoses. Along with specific mental health diagnoses of anxiety, depression, and posttraumatic stress disorder, other mental health symptoms were found. These symptoms included mental fatigue, paranoid ideation, and social functioning.

What is not indicated in the included studies was the use of prayer for coping to gain meaning of a stressful situation. None of the included studies has an overall goal of

coping to gain the meaning behind a person's mental health symptoms, and none had specific variables that looked to address the use of coping to obtain meaning. Cohen et al. (2009) did have a variable about meaning, but this was correlated with general mental health and not the specific use of prayer for coping. Meaning may be difficult to measure quantitatively given its ambiguous nature, and meaning may be an area best understood by using qualitative methods. However, it may be as simple as asking a participant if they pray to find meaning and then record their response as a yes-no item to ascertain if meaning is important for coping (2011).

Since none of the included studies featured the use of prayer for coping to derive meaning, it was not possible to evaluate Lazarus and Folkman's addition of a meaning based coping step when outcome of using a coping strategy is unfavorable or nothing happens (Nilsson, 2007). While the included studies do not drill down into enough detail to determine the point in Lazarus and Folkman's (1984) coping process, the use of prayer for coping in the included studies appear to be a primary intervention aimed at resolving the problem of suffering from a mental health symptom. An area for future research is examining how meaning works in the use of prayer for coping with mental health symptoms.

Limitations

Some limitations exist that have affected this Practical Meta-Analysis' results. As stated in the Results section, the small number of studies produced thirty effect sizes from only five databases. It is possible that many more effect sizes would have been yielded if the number of databases were increased. It is also possible the magnitude of the effect of using prayer as a coping method for mental health symptoms would have been greater.

However, the scope and time limitation of this project was not conducive to increasing the number of searched databases. Another limitation was the focus on only mental health symptoms. While searching the five databases, it was noted that there were many more studies that used prayer as a coping method for physical health symptoms than mental health symptoms. A common physical health problem is cancer, and prayer appears to be commonly studied as a coping response to cancer. It would be an interesting meta-analysis to compare how well prayer works as a coping method for both physical and mental health symptoms and how well prayer works when both are combined into one analysis.

In addition, there were also a large number of qualitative studies on using prayer for coping with mental health symptoms, and these studies often produced a rich description of how effective prayer is for coping and the variety of contexts this coping occurs. For example, Ward, Clark, and Heidrich (2009) used a qualitative design to study African American women's beliefs about mental illness, coping behaviors, and seeking treatment. Ward et al. (2009) found this population endorsed using prayer as a coping strategy more than medication via a person's own words: "I had gone through something that I thought that I would never be able to handle. And my coping mechanism was prayer" (p. 1596). By utilizing a qualitative design, these studies captured a human response that is different from simply numbers found in a quantitative analysis. This Practical Meta-Analysis is limited by not having this human response to using prayer as a coping method for mental health symptoms.

Finally, the lack of studies about using prayer to find meaning in coping with mental health symptoms is a major limitation. This linked back to the conceptual

framework and Lazarus and Folkman's addition of a meaning-based coping step in the coping process model (Nilsson, 2007). This step was supposed to produce a positive emotion that helped sustain a person when the coping process started again when a problem-based or emotion-based coping strategy did not work (Nilsson, 2007). Since none of included studies in this Practical Meta-Analysis explored prayer as a meaning-based coping strategy, Lazarus and Folkman's model cannot be tested in this project.

Strengths

Many strengths are found in this Practical Meta-Analysis. By using the Lipsey and Wilson (2001) Practical Meta-Analysis model, social work practitioners can quickly, accurately, and easily find out the efficacy of an intervention based on published research. The included studies came from different sources (dissertations and peer-reviewed journals), which reduced reliance on one approach. Finally, most of the included studies used a raw correlation value to determine the efficacy. This helped to avoid Nugent's (2009) concern about comparing apples to oranges when considering measurement methods. Though the Practical Meta-Analysis Effect Size Calculator helped with this by calculating effect sizes based on many different statistical methods, the results of this Practical Meta-Analysis were strengthened by having all but one come from correlation studies.

Implications for Social Work Practice

While this Practical Meta-Analysis did not show that prayer is useful for coping with symptoms of mental health, other research shows that it can be beneficial. A major practice implication of this research is the use of an intervention that does not cost money but can be effective for reducing mental health symptoms. Prayer is portable and can be

used in a variety of situations, for a variety of mental health symptoms, and prayer is found in many different religious and spiritual contexts. However, Sheridan (2010) found in his research on prayer use by social workers that 84% of respondents reported little or no exposure to content on religion and spirituality in their social work education. This means that though social workers interact with populations that may be religious and/or spiritual, they may not have the education needed to facilitate the use of prayer for coping with mental health symptoms.

In addition, there may be ethical considerations for using prayer in social work practice. Since Sheridan (2010) found such a large percentage of social workers without this education, questions might be raised about social workers performing an intervention outside of their scope of practice. Sections 1.04 and 4.01 of the National Association of Social Workers' Code of Ethics address practice competence (NASW, 2008). According to these sections, social workers should only provide services and represent themselves as competent only within the boundaries of their education, training, or experience (NASW, 2008). In addition, social workers should seek education and training in areas that are new, and if those areas are emerging, careful judgment should be exercised (NASW, 2008). Finally, social workers should base their practice on recognized knowledge relevant to social work. Though the results of this Practical Meta-Analysis are insignificant for the use of prayer in coping with mental health symptoms, more research specific to social work practice is needed to determine any ethical dilemmas associated with its use in social work practice.

The use of prayer in social work practice can make one question the potential for proselytization. Sheridan's (2010) study did not examine this dimension, though the idea

of overuse of prayer that would violate client self-determination was addressed. Sheridan (2010) advocated for a partnership between social work practitioners, administrators, and educators to ensure “ethical, effective, and client-centered practice in addressing the spiritual dimension of clients’ lives” (p. 118). To do this, Sheridan (2010) suggested education on spirituality and ethical application in social work programs and in continuing education classes on the agency level. In addition, further definition in NASW’s Code of Ethics is needed to define the ethical use of spiritual interventions in practice (Sheridan, 2010).

Implications for Social Work Policy

Since prayer is essentially a spiritual and religious behavior, it would behoove social workers to build partnerships with religious and spiritual communities. These partnerships could work together for both delivering mental health services and to lobby lawmakers to increase funding for researching prayer as a coping behavior. Given the fact none of the included studies involved RCTs, religious communities and social workers could work together to develop RCTs as a way to improve the research body of using prayer as a way to cope with mental health symptoms.

Perhaps a better place where policy could be influenced is at the National Institute of Mental Health (NIMH), the entity that seeks to “transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery, and cure” (National Institute of Mental Health, 2013a). An examination of NIMH’s four strategic research objectives yields no emphasis on researching spiritual methods for use in treatment of mental health (National Institute of Mental Health, 2013b; National Institute of Mental Health, 2013c; National Institute of

Mental Health, 2013d; National Institute of Mental Health, 2013e). If social workers could advocate to have a large and influential body like NIMH start researching spiritual methods like prayer, valuable money and resources could be obtained from NIMH to help build strategic partnerships to start employing more studies utilizing better methodology.

Similar to the absence of language in the NASW's Code of Ethics, the use of prayer as an intervention is missing in legal policy, and this may impact social work practice. In the State of Minnesota, the only time religious matters are mentioned in social work compliance law is a statement of nondiscrimination based on a client's religion (State of Minnesota, n.d.). Though guidelines are in place regarding competent and ethical practice and treatment and intervention services, the use of religious or spiritual interventions is not specifically addressed in Minnesota social work law. Since the use of prayer is not defined in practice law, social workers should conduct policy work to define prayer use in practice settings to ensure legal compliance and ethical practice.

A greater ambiguity exists in federal law regarding the non-profit status of social service agencies. Many social service agencies qualify as a Section 501 (c) (3) Charitable Organization or as a Section 501 (c) (4) tax-exempt social welfare organization. Although there are rules that prohibit discrimination based on religion, these organizations can be religious in nature as long as they do not discriminate admission into the group based on race and the religious practices are not illegal or contrary to clearly defined public policy (Department of the Treasury, 2011). Though prayer is not illegal, it is unclear if its use in social work practice is contrary to clearly defined public policy. As such, its use as an intervention may put an organization's tax-exempt status in jeopardy. Social workers

should advocate making policies that specifically address the use of prayer as an intervention to avoid any legal issues regarding tax-exempt statuses.

Implications for Social Work Research

This Practical Meta-Analysis produces many implications for research. Lundahl et al. (2009) wrote specifically about the use of meta-analyses in social work practice, and several of their recommendations influenced this research. For example, Lundahl et al. (2009) wanted to see social work research include enough statistical data for a meta-analyst to calculate effect sizes, random assignment in comparison groups, and indicators of variance in the sample size. The lack of statistical data needed to conduct a meta-analysis was prevalent in this project with half of the total studies that initially met the inclusion criteria being rejected for lack of statistical data. As such, a major implication for social work research is the complete and accurate reporting of statistical data and use of random assignment for comparison groups.

In the social work research, Lundahl et al. (2009) also talked about the high prevalence of reporting demographic detail beyond gender, including social economic status and ethnic makeup. While this was true in Lundahl et al.'s (2009) meta-analysis, this Practical Meta-Analysis did not find many studies reporting demographic detail beyond age and race. Though only two of the included studies came from a social work context, a shocking majority of the included studies did not consider a population's yearly income in their demographic detail. Though income is just one factor of a person's social economic status, it can be an important indicator of class and may hold some insight into class differences of how prayer is used for coping with mental health symptoms. Social work research needs to continue to go beyond age and gender and,

when appropriate, consider how social economic class interacts with whatever is being researched.

Implications for Holistic Health

This research project also has implications for holistic health with its connection to Wilbur's (2006) integral model that encompasses all realms of a person's being. The use of prayer as a coping tool naturally fits into the We quadrant. Despite this, there is a trend in holistic health literature that seems to favor meditation in lieu of prayer for use in spiritual interventions. Furthermore, there is also an informal emphasis placed on spirituality instead of organized religion, though people that identify with both frameworks use prayer. This research project helps keep the voice of prayer and organized religion in the holistic health conversation. In addition, since the holistic health world is an emerging research field, this project provides much needed research that bolsters the academic integrity of holistic health.

Conclusion

In the end, results of this Practical Meta-Analysis were insignificant on the efficacy of using prayer to cope with mental health symptoms. However, given the large population of religious people and folks that experience mental health symptoms, there is a need to further research how both ideas can work together. Social workers can be at the forefront for designing research that continues to explore how religion can help people with mental health. Given the many research design limitations in the included studies of this Practical Meta-Analysis, there is an opportunity to produce better studies that compare prayer with other interventions. By emphasizing a need to incorporate prayer into social work practice and research, a holistic picture of folks being served by the

social work profession emerges, one that goes beyond simply checking off a person's religion on an intake form.

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Appendix A: Study-Level Coding Form**Modified Study-Level Coding Manual (MSLCM)**

1. Study ID Number (001, 002, etc.):
2. What type of publication is the report [PUB]?
 1. Book
 2. Journal Article or Book Chapter
 3. Thesis or Doctoral Dissertation
 4. Technical Report
 5. Conference Paper
 6. Other, specify here:
3. What is the publication year [PYR]?

Sample Descriptors

4. Mean age of sample [MAGE]. Specify the approximate or exact mean age at the beginning of the intervention. Code the using the best information available. If mean age cannot be determined, enter 99:
5. Yearly income of sample [YICM]. Was the yearly income reported in the study? Select the code that answers this question?
 1. Yearly income was reported
 2. Yearly income was not reported
6. Predominant race [RACE]. Select the code that best describes the racial makeup of the sample:
 1. Greater than 60% white
 2. Greater than 60% black
 3. Greater than 60% Hispanic
 4. Greater than 60% other minority
 5. Mixed, none more than 60%
 6. Mixed, cannot estimate proportion
 7. Cannot tell
7. Religious affiliation (if unknown, enter N/A) [RLGN]:

8. Predominant gender of sample [GNDR]. Select the code that best describes the proportion of women in the sample:
 1. Less than 5% women
 2. Between 5% and 50% women
 3. 50% women
 4. Between 50% and 95% women
 5. Greater than 95% women
 6. Cannot tell

9. Select the mental health category being studied in study [MHTH]:
 1. Disorder usually first diagnosed in childhood (e.g. Autism)
 2. Mood disorder (e.g. Depression)
 3. Anxiety disorder (e.g. Obsessive-Compulsive Disorder)
 4. Personality disorder (e.g. Borderline Personality Disorder)
 5. Psychotic disorder (e.g. Schizophrenia)
 6. Other mental health issue(s) not categorized above
 7. Multiple mental illnesses

Research Design Descriptors

10. Unit of assignment to conditions [UASN]. Select the code that best describes the unit of assignment to treatment and control groups, if they were used in the study:
 1. Individual
 2. Group
 3. Cannot tell unit of assignment
 4. Other assignment unit, specify here =
 5. No treatment or control groups

11. Type of assignment to conditions [TASN]. Select the code that best describes how subjects were assigned to treatment and control groups, if they were used in the study:
 1. Random after matching, stratification, blocking, etc.
 2. Random, simple (also includes systematic sampling)
 3. Nonrandom, post hoc matching
 4. Nonrandom, other
 5. Other assignment method
 6. Cannot tell assignment method
 7. No treatment or control groups

12. Overall confidence of judgment on how subjects were assigned [ACON] (study reader's judgment):
 1. Very low (little basis)
 2. Low (guess)
 3. Moderate (weak inference)
 4. High (strong inference)
 5. Very high (explicitly stated)

6. No treatment or control groups
13. Was the equivalence of the groups tested at pretest [GRPE] (if a pretest was used)?
 1. Yes
 2. No
 3. No pretest used
14. Pretest differences [PDIF] (if a pretest was used). Note: An “important” difference means a difference on several variables, or on a major variable, or large differences; major variables are those likely to be related to delinquency, e.g., history of delinquency or antisocial behavior, delinquency risk, sex, age, ethnicity, SES. Pretest differences on an outcome variable should be coded as important:
 1. Negligible differences, judged unimportant
 2. Some difference, judge of uncertain importance
 3. Some differences, judged important
 4. No pretest used
15. Total sample size [SAMP] (start of study):
16. Treatment group sample size [TSMP] (if no treatment group, enter 99):
17. Control groups sample size [CSMP] (if no control group, enter 99):
18. Study quality judgment [QUAL]. Enter the study quality based on the choices below and the reader’s judgment:
 1. High = The study is a Randomized Controlled Trial (RCT)
 2. Low = The study has one or more of the following characteristics:
 - i. No reliable or valid standardized measures used
 - ii. Low respondent attrition
 - iii. Lack of demographic detail on respondents beyond either gender or age
 3. Medium = Any study that does not fit either High or Low classifications

Nature of Treatment Descriptors

19. Type of prayer [PRAY]. Describe the type of prayer used in the study (be sure to note if the prayer is studied on its own or is combined with other spiritual activities like Bible reading or meditation):
20. Nature of control group [CGNT]. If a control group is used, select the nature of that control group from the choices below:
 1. Receives nothing; no evidence of any treatment or attention

2. Wait list; delayed treatment control, etc.; contact limited to application, screening, pretest, posttest, etc.
3. Minimal contact; instructions, intake interview, etc., but not wait listed
4. Treatment as usual; this refers to treatment occurring within a framework common to experimental and control groups with something added for the experimental group
5. Attention placebo, e.g., control group receives discussion, attention, or deliberately diluted version of treatment
6. Treatment element placebo; control receives target treatment except for defined element presumed to be the crucial ingredient
7. Alternative treatment; control is not really a control but another treatment (other than usual treatment) being compared with the focal treatment; only eligible if the alternative treatment is designed as a contrast and is not expected to work very well
8. Cannot tell the control group nature
9. There is no control group

21. Overall confidence rating of judgment on the nature of the control group [CGCN]:
 1. Very low (little basis)
 2. Low (guess)
 3. Moderate (weak inference)
 4. High (strong inference)
 5. Very high (explicitly stated)
 6. No control group used

Appendix B: Modified Effect Level Coding Form

Modified Effect Size Level Coding Manual (MESLCM)

1. Study ID number [ID]
2. Type of data effect size is based on [ESDT]:
 1. Means and standard deviation
 2. t -value or F -value
 3. chi-square ($df = 1$)
 4. frequencies or proportions, dichotomous
 5. frequencies or proportions, polychotomous
 6. other, specify here =
3. Page number where the data for this effect size is found [PAGE]:
4. Raw difference favors which group [RDIF]?
 1. Treatment group
 2. Neither (exactly equal)
 3. Control group
 4. Cannot tell or statistically insignificant report only
 5. No control group used
5. When means and standard deviations are reported or can be estimated (enter 99 for each one not used):
 1. Treatment group sample size [TGSS] =
 2. Control group sample size [CGSS] =
 3. Treatment group mean [TGMN] =
 4. Control group mean [CGMN] =
 5. Treatment group standard deviation [TGSD] =
 6. Control group standard deviation [CGSD] =
6. When proportions or frequencies are reported or can be estimated (enter 99 for each one not used):
 1. n of treatment group with a successful outcome [FRTG] =
 2. n of control group with a successful outcome [FRCG] =
 3. Proportion of treatment group with a successful outcome [PRTG] =
 4. Proportion of control group with a successful outcome [PRCG] =
7. When significance test information is reported [SIGT]:
 1. t -value
 2. F -value (df for the numerator must equal 1)
 3. Chi-square value ($df = 1$)
 4. Not applicable

8. d -value from Practical Meta-Analysis Effect Size Calculator (9 if not used) [DVAL]:
9. Fischer's Z_r -value from Practical Meta-Analysis Effect Size Calculator (9 if not used) [RVAL]:
10. 95% C.I. value from Practical Meta-Analysis Effect Size Calculator (9 if not used) [CVAL]:
11. v -value from Practical Meta-Analysis Effect Size Calculator (9 if not used) [VVAL]:
12. Directly reported data from included study (if not using treatment and control groups). For correlation, enter r value. For odds-ratio, enter odds-ratio value and confidence interval (N/A if not used) [RDAT]:
13. Confidence rating in effect size computation [CRES]:
 1. Highly estimated (have N and crude p -value only, such as $p < .10$, and must reconstruct via rough t -test equivalence)
 2. Moderate estimation (have complex but relatively complete statistics, such as multifactor ANOVA, as basis for estimation)
 3. Some estimation (have unconventional statistics and must convert to equivalent t -values or have conventional statistics but incomplete, such as exact p -level)
 4. Slight estimation (must use significance testing statistics rather than descriptive statistics, but have complete statistics of conventional sort)
 5. No estimation (have descriptive data such as means, standard deviations, frequencies, proportions, etc. and can calculate the effect size directly, or effect size is directly reported [e.g. odds-ratio])
14. For included studies, overall effect of prayer use for coping with mental health symptoms (N/A if study is not included in Practical Meta-Analysis) [EFCT]:
 1. Prayer use is associated with better mental health symptoms
 2. Prayer use is not associated with better mental health symptoms

Appendix C: Included Study Summary

Study Author & Date	Publication	Database	Article Purpose	Research Respondents	Prayer Type	Mental Health Concern	Results
Al, 2010	The Gerontologist	PsychINFO	Using prayer for coping after open heart surgery	Majority male, Caucasian, Judeo-Christian, married	Prayer used for coping (labeled preoperative prayer coping)	Anxiety, Depression	Private prayer was not significantly correlated with either lower depression or anxiety, study exhorts use of other religious factors to determine efficacy
Cohen, 2009	The International Journal for the Psychology of Religion	PsychINFO	Impact of religious practices on mental health with people having heterogeneous medical disorders	Majority female, Protestant, history of mental health treatment	Private prayer (labeled private religious practice)	General Mental Health	Private religious activities were not significantly correlated with mental health, but there was a small correlation with better mental health
Al, 2012	British Journal of Health Psychology	PsychINFO	Using prayer for coping after open heart surgery	Majority Caucasian, Judeo-Christian, male, married	Use of prayer for coping (labeled prayer coping)	Mental Fatigue	Prayer coping was correlated with lower mental fatigue.
Meisenhelder, 2003	Geriatric Nursing	MEDLINE	Gender difference in religious coping and prayer frequency (2 studies in 1 article)	Even gender numbers, highly educated, above 65 years old	Frequency of prayer as a coping behavior (labeled frequency of prayer)	General Mental Health	Frequency of prayer for coping is correlated with better mental health for both genders, though it is more effective for men than women
Tepper, 2001	Psychiatric Services	MEDLINE	Prevalence of religious coping among people with persistent mental illness	Majority men, single, prior substance use, not hospitalized in past year	Prayer as a coping strategy (labeled prayer)	Frustration, GAF, hostility, interpersonal sensitivity, somatization, paranoid ideation	Prayer is not correlated with better mental health symptoms with the exception of interpersonal sensitivity
Al, 2009	Social Work in Health Care	Social Work Abstracts	Use of private prayer for coping after open-heart surgery	Majority male, Caucasian, Judeo-Christian, married	Use of prayer for coping (labeled prayer)	Fatigue, Anxiety, Depression, Acute Stress (PTSD)	Prayer use is correlated with increased symptoms of fatigue, anxiety, depression, and acute stress
Meisenhelder, 2009	Journal of Spirituality in Mental Health	Social Work Abstracts	Spiritual coping and mental health for people with posttraumatic stress from terrorism	More women, Roman Catholic, highly educated, 1/4 knew someone killed during 9/11	Use of prayer for coping (labeled prayed more)	Posttraumatic stress, anxiety and depression labeled as mental health	Prayer use is correlated with increased stress but lower mental health symptoms
Kottke, 2010	Dissertation: Seattle Pacific University	PsychINFO	Prayer as a coping skill for substance use refusal in older adolescents	Majority female, white, in college	Prayer frequency as a coping behavior and prayer as internal religious coping (labeled spiritual coping)	Substance use	Prayer as part of spiritual coping was correlated with lower levels of substance use
Stacy, 2001	Dissertation: Marquette University	PsychINFO	Religious and spiritual coping strategies of people with traumatic injury and Acute Stress Disorder	Majority male, Caucasian, 12 or less years of education, no self-injuries or spinal cord injuries	Frequency of prayer as a coping behavior (labeled prayer practices)	Acute Stress Disorder and Anger	Prayer coping was correlated with lower ASD symptoms and was correlated with slightly higher anger
Bremer, 2003	Dissertation: Rutgers	PsychINFO	Impact of spirituality and coping on social functioning among people with a severe mental illness	Majority women, Euro-American, Single	Daily prayer as a coping behavior (labeled I Pray Daily)	Social functioning	Daily prayer was correlated with higher social functioning
Braxton, 2007	Women & Health	PubMed	Examine the relationship between spirituality and depression among black women with HIV	Black women, majority make less than \$20,000 per year, single, high school or less education	Prayer as part of spirituality used for coping (labeled spirituality)	Depression	Prayer as part of spirituality was correlated with reduced depressive symptoms
Ansari	Dissertation: American University	PsychINFO	Effect of religious coping on mental health in Muslims	Almost even numbers of men and women, majority single, South Asian	3 prayer types (labeled Individual, congregational, Friday prayer)	General Mental Health and Psychological Distress	All prayer types are correlated with better general mental health and lower psychological distress

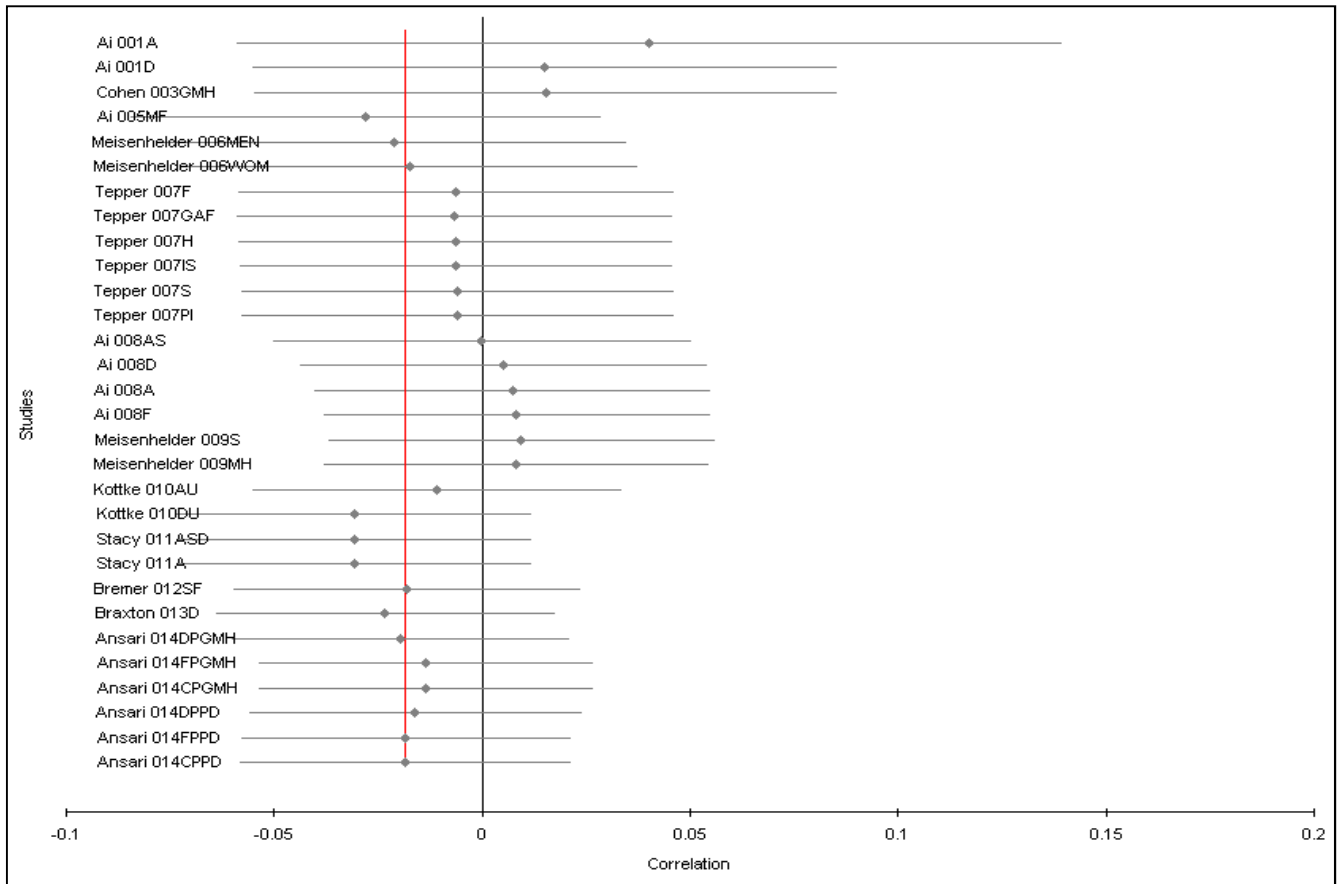
Appendix D: Included Study Data

		N	%	M	SD
Study Type	Journal Articles	10	77%		
	Dissertation/Thesis	3	23%		
Mean Age	Studies that reported age	11	85%	59	23.8
	Studies that did not report age	2	15%		
Yearly Income	Studies that reported income	3	23%		
	Studies that did not report income	10	77%		
Race	> 60% White or Caucasian	5	38%		
	> 60% Black or African American	1	8%		
	> 60% Hispanic or Latino/a	0	0%		
	> 60% other race	0	0%		
	Mixed, none more than 60%	2	15%		
	Mixed, proportion unknown	1	8%		
	Cannot tell	4	31%		
Religion	Studies that mention religious affiliation	9	69%		
	Studies that do not mention religious affiliation	4	31%		
Gender	Less than 5% women	0	0%		
	Between 5 and 50% women	8	62%		
	50% women	0	0%		
	Between 50 and 95% women	4	31%		
	Greater than 95% women	1	8%		
	Cannot tell	0	0%		
Mental Health	Disorder usually first diagnosed in childhood	0	0%		
	Mood disorder	1	8%		
	Anxiety disorder	0	0%		
	Personality disorder	0	0%		
	Psychotic disorder	0	0%		
	Other mental health issue(s) not listed above	8	62%		
	Multiple mental health issues	4	31%		
Effect Size Data Source	Correlation	12	92%		
	Mean Difference	1	8%		
Overall Prayer Effect on Mental Health	Prayer associated with better mental health symptoms	18	60%		
	Prayer is not associated with better mental health symptoms	12	40%		

Appendix E: Included Study Sample Data

Database Searched	Returned Results	# of studies that met inclusion criteria	# of studies used	# of effect sizes generated in used studies	# of rejected articles
Atla	2	0	0	0	0
Social Work Abstracts	10	2	2	6	0
MEDLINE	30	4	3	8	1
PubMed	440	5	1	1	4
PsychINFO	116	15	7	15	8
	598	26	13	30	13

Appendix F: Meta Analysis Forest Plot



Appendix G: Meta Analysis Numerical Output

META-ANALYSIS	
<u>General</u>	
Number of studies	30
Number of participants	Not available
<u>Correlation (IV) - Fixed effect model</u>	
Meta-analysis outcome	-0.0184
95% CI lower limit	-0.0584
95% CI upper limit	0.0215
z	0.903
p-value (two-tailed)	0.3665
<u>Heterogeneity</u>	
Q	51.3744
p-value (two-tailed)	0.0064
H	1.331
95% CI lower limit	1.0717
95% CI upper limit	1.653
I ²	43.55%
95% CI lower limit	12.94%
95% CI upper limit	63.4%