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Religiosity, Daily Rosary, and Well-Being of Catholics in College During the Pandemic

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Walden University

College of Psychology and Community Services

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Michael Raul Rios

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Walden University
2023

Abstract

Religiosity, Daily Rosary, and Well-Being of Catholics in College During the Pandemic

by

Michael Raul Rios

MPhil, Walden University, 2019

MS, Texas A&M University-Corpus Christi, 2010

BA, Texas A&M University-Corpus Christi, 2004

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

School of Psychology – Clinical Psychology

Walden University

August 2023

Abstract

Before and since the Coronavirus pandemic, college students suffered from increasing rates of mental health conditions affecting their well-being. Researchers have requested more studies on prayer as a strategy to address well-being issues. The purpose of this anonymous online survey study ($N = 59$) was to discover if there were any associations between religiosity and well-being, daily Rosary frequency and well-being, and if daily Rosary frequency mediated an association between religiosity and well-being of Catholic students in college in the United States during the pandemic in 2021. Participants were recruited via social media, listservs, email, one nationwide organization, the Walden University participant pool, and snowballing. Linear regressions, Spearman correlations, and mediation analyses with bootstrap sampling were used to examine participants' responses to the Duke University Religion Index, daily Rosary frequency questions, and the World Health Organization Well-Being Index - Five. Choice Theory and the biopsychosocial-spiritual model helped explain the results. A statistically significant link was found between religiosity and well-being when daily Rosary frequency was treated as a mediator; however, since the statistical power was .43, future studies with larger sample sizes were recommended. Nonetheless, statistically significant positive associations were found with powers > .80 between religiosity and well-being, $p = .035$, and between daily Rosary frequency and well-being, $p = .010$. These results may aid health professionals to design strategies to include daily Rosary praying to serve Catholic students in college more effectively, which may spur a positive social change in terms of improving their well-being, even in times of crisis.

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Dedication

"The rosary might be viewed as a health practice as well as a religious practice" (Bernardi et al., 2001, p.1449).

Most of all, I gratefully dedicate this dissertation to Almighty God—the Most Holy Trinity–for His greater glory and the salvation of souls through the daily Rosary and true devotion to the Immaculate Heart of Mary for the reign of Our Divine Lord and Savior Jesus Christ the King...+

In addition, I dedicate this dissertation to Saint Louis Marie De Montfort in appreciation for the writing of his awe-inspiring and soul-saving books, without which I do not believe that I would be here today. First, I benefitted from *The Secret of the Rosary*, which after reading it about 41 years ago, I was inspired to begin praying the daily Rosary. I found praying the daily Rosary to be very peaceful, soul-satisfying, enlightening, and rejuvenating with many blessings not only for myself, but for my family, such as within five years, my father received the grace of conversion and a holy death. Then, after my father's death on March 25, 1988, the Feast of the Annunciation, within the next week, I read *True Devotion to Mary*, which inspired me to consecrate myself on the Feast of the Assumption, August 15, 1988, to Jesus through Mary... +

I also dedicate this dissertation to my faithfully departed dear parents Raul (1932–1988) and Corene Maria Socorro Yanez Rios (1937–1991), as I am very grateful for their love and all that I learned from them.

Finally, I dedicate this dissertation to all who may benefit from this dissertation in some way for a better life and eternity…+

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Most of all, I thank Almighty God the Most Holy Trinity for the grace to make this dissertation a reality through the powerful intercession of the Immaculate Heart of Mary Our Lady of the Most Holy Trinity and the Most Holy Rosary -- Our Blessed Queen Mother the Most Holy Ever-Virgin Mary of Perpetual Help, and Saint Joseph Our Guardian Father and Protector plus Saint Michael the Archangel, and all the Angels, Saints, and Holy Martyrs...+ In addition, I thank all the bishops, priests, religious, and faithful souls both living and departed who prayed for my health of body and soul over the years, which has helped me with the graces needed to complete this dissertation!

I especially thank Alethea A. Baker, PhD, my Dissertation Chair and Mentor, and Megan E. Baril, PhD, my Committee Member, for their expertise, support, encouragement, and patience in helping me to complete my dissertation! I also thank Carolyn Roney, Disability Services Director, and Jacqueline Cook-Jones, MA, Student Success Advisor. I am also grateful to the Walden University Institutional Review Board. Further, I thank Reggie Taylor, PhD of Walden's Center for Research Quality, Michael Johnson, PhD my University Research Reviewer, and Nathan Sacks, MA of Form and Style for their help and expertise. Finally, I thank Lee Stadtlander, PhD, CAO (Chief Academic Officer) Designee of Walden University, for her final review of my abstract and approval!

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Chapter 1: Introduction to the Study

According to a survey conducted for the American Psychological Association (2022, October), over a quarter or 27% of all adult participants (N = 3,192) reported that "most days they are so stressed that they can't function" (para. 23). Before and during the Coronavirus (COVID-19) pandemic in the United States (U.S.) to the present, public mental health has been lacking effective mental health services that promote well-being, especially services helpful to individuals in terms of preventing and treating mental health issues (Currid & Horgan, 2012; Glasser, 2005; Nielsen & Levkovich, 2020; Rossi, 2023; Tulchinsky et al., 2012). As a result, mental health has become a serious public health issue that affects a growing number of persons of all ages, particularly the youth and their families each year (American Psychological Association, 2022, October; Currid & Horgan, 2012; Glasser, 2005; Office of the Surgeon General, 2021; Rosenberg, 2012; Tulchinsky et al., 2012). Mental health care cuts in funding have left many people without a way to receive previously available psychological services, which has made it more difficult for those in need of psychological assistance (Baker & Gutheil, 2011). In addition, college students have suffered from high and increasing rates of mental health conditions that affect well-being, especially depression and anxiety (Lipson et al., 2019). In 2017, 36% of college students reported having a lifetime mental health diagnosis compared to 22% in 2007 (Lipson et al., 2019). Therefore, even before the COVID-19 crisis, there were increasing rates of mental health diagnoses affecting the well-being of college students.

During the COVID-19 pandemic from 2021 to 2022, the Healthy Minds Study (N=95,860) surveyed undergraduate and graduate students in the U. S. on their mental

health; only 32% of the students reported experiencing positive mental health (Healthy Minds Network, 2022; 2023, July 17). Further in the Healthy Minds Study, based on mental health screenings, 44% of the students were experiencing depression either severe or moderate and 37% were experiencing anxiety either severe or moderate; further, 15% reported suicidal ideation and 28% reported non-suicidal self-injury during the previous year (Healthy Minds Network, 2022). Moreover, by the year 2022, lifetime diagnoses of mental disorders had increased further from 36% of college students in 2017 to 47% in 2022 (Healthy Minds Network, 2022; Lipson et al., 2019).

Early in the pandemic in the spring 2020, Son et al. (2020) studied effects of the pandemic on students (N=195) at a large public university in Texas and 71% of the students showed higher stress and anxiety due to pandemic-related stress, and 44% reported depressive thoughts. Most students 91% reported feeling fearful and worried about their health and the health of their loved ones, and 89% reported problems concentrating (Son et al., 2020). Students complained of other negative impacts of the pandemic, such as 86% reported sleep pattern disruptions, and 86% reported increased social isolation because of less social interactions due to physical distancing, and 82% complained of increased concerns about academic performance (Son et al., 2020). Therefore, Son et al. emphasized the need for exploring the relationship between coping mechanisms and stressors, and to address the mental health and well-being needs of college students throughout the pandemic.

Hence, to address the grave need for strategies to improve the mental health and well-being of college students during the COVID-19 crisis, this dissertation may provide some helpful information regarding improving the well-being of Catholic college

students. The purpose of this dissertation is to address the link between religiosity, the daily Rosary prayer, and well-being of Catholic adult students in college. The need for this study was established through reviewing literature concerning religiosity, prayer, the Rosary, and well-being. Literature on religiosity shows that prayer, including meditation and mindfulness meditation, may have a positive influence on well-being, yet more research related to religiosity, prayer including the Rosary, and well-being is needed in varying contexts (see Anastasi & Newberg, 2008; Bernardi et al., 2001; Bormann et al., 2013; Hollywell & Walker, 2009; Ireland, 2012; Kirk & Lewis, 2013; Oman & Bormann, 2015; Wachholtz & Sambamoorthi, 2011). Also, religiosity may have a positive influence on well-being depending on the cultural context, as in some cultures, there is no influence or a negative influence, yet more sound research is needed to strengthen the understanding of the associations between religiosity and well-being (see Barcus, 1999; Lun & Bond, 2013; Park et al., 2013; Pérez & Smith, 2015; Ramirez et al., 2007; Williams et al., 2012). Moreover, there is minimal research on the Rosary prayer and well-being (see Anastasi & Newberg, 2008; Bernardi et al., 2001; Stöckigt et al., 2021). Thus, this study appears to be the first to quantitatively analyze associations between religiosity, daily Rosary frequency, and the well-being of adult Catholic students. Therefore, Catholic students in college, who may struggle with challenges to well-being, may find help from this quantitative study on the associations between religiosity, daily Rosary frequency (DRF), and well-being.

This study may lead to a positive change via an awareness of the potential benefits of praying the Rosary daily. Further, this new awareness may positively influence the religiosity and well-being of Catholic students in U. S. institutions of higher

education, including vocational schools. This also may enhance the work of health professionals and others who work with Catholic college students to improve their well-being. Further, this chapter includes some background information on prayer, the Rosary, religiosity, and well-being. This chapter includes the problem statement, the purpose of the study, research questions and hypotheses, the conceptual and the theoretical framework, the nature of the study, definitions, assumptions, scope and delimitations, limitations, and significance.

Background

The general problem is that while most mental health professionals advocate for stress relief strategies, cognitive-behavioral techniques, meditation, and mindfulness, during these challenging times, relatively few suggest religious or prayer strategies to impact well-being (Crowley & Munk, 2017; Plante, 2022a, Zacher & Rudolph, 2021). Therefore, this study involved addressing studies about prayer as a method or strategy to effectively address well-being. Prayer, in the Christian tradition, occurs when one raises one's mind and heart to God; for example, to worship Him, or ask forgiveness for sins, or thank Him for His blessings, or ask for His graces (*The Penny Catechism*, 2012; *The Catechism of the Council of Trent*, 2018; Simler, 2012). Four types of prayer are ritual prayer, colloquial prayer, meditative prayer, and petitionary prayer (Poloma & Gallup, 1991). Prayer, including meditation and mindfulness meditation, may have a positive influence on well-being, yet more research related to religiosity, prayer, and well-being is needed in varying demographic contexts (Anastasi & Newberg, 2008; Bernardi et al., 2001; Bormann et al., 2013; Hollywell & Walker, 2009; Ireland, 2012; Kirk & Lewis, 2013; Oman & Bormann, 2015; Wachholtz & Sambamoorthi, 2011).

The Rosary is a Catholic meditative prayer ritual that involves vocal and mental prayer (Montfort, 2016). The vocal prayers include the fundamental Catholic prayers: the Apostles' Creed, the Lord's Prayer also known as the Our Father, the Hail Mary, and the Glory be (Montfort, 2016; *The Penny Catechism*, 2012). In the year 1214, Saint Dominic (1170-1221) received the Rosary along with instructions on how to pray the Rosary from the Blessed Virgin Mary (Roche, as cited by Montfort, 2016; Marshall, 2020).

The Blessed Virgin Mary, also known as our Lady, or our Blessed Mother indicated to Saint Dominic that the 15 principal events or sacred mysteries in the life of her divine Son Jesus Christ should be meditated upon to help souls to grow in grace and virtue after Baptism so that they may become like her Son Jesus Christ and be ready for Heaven at any time (Montfort, 2016). Nonetheless, Catholics are not required to pray the Rosary to be part of the Catholic Church; yet, praying the Rosary daily is recommended for the salvation of one's soul (Montfort, 2016). Further, a Catholic does not commit a sin by not praying the Rosary; however, praying the Rosary, especially daily, will help one to avoid sin and grow in grace and virtue (Montfort, 2016).

The five joyful mysteries are: the Annunciation to the Blessed Virgin Mary also known as the Incarnation of our Lord, the Visitation of our Lady to Saint Elizabeth, the Nativity our Lord, the Presentation of our Lord in the Temple, and the Finding of the Child Jesus in the Temple (Montfort, 2016). The five sorrowful mysteries are: the Agony in the Garden, the Scourging at the Pilar, the Crowning with Thorns, the Carrying of the Cross, and the Crucifixion (Montfort, 2016). The five glorious mysteries are: the Resurrection of our Lord Jesus, the Ascension of our Lord Jesus into Heaven, the Coming of the Holy Ghost, the Assumption of Mary into Heaven, and the Coronation of Mary as

Queen of Heaven and Earth (Montfort, 2016). These are the 15 sacred mysteries of the Rosary given by the Blessed Virgin Mary to Saint Dominic.

The Rosary prayer is prayed on a material Rosary that is made up of a crucifix along with beads that are strung on a string, cord, or chain. The Apostles' Creed is prayed while holding the crucifix; then, each of the 15 mysteries are prayed by meditating on the given mystery and reciting the Our Father prayer and 10 Hail Mary prayers plus one Glory Be prayer, which is called a decade of the Rosary because it includes 10 Hail Mary prayers (Montfort, 2016). The Rosary prayer is further explained in Chapter 2.

Religiosity is defined as involvement in belief practices (Leondari & Gialamas, 2009). Three religiosity factors were examined in this study: organizational religious activity (ORA), nonorganizational religious activity (NORA), and intrinsic religiosity (IR). Praying the Rosary weekly in a group is a form of ORA. Praying in private, such as praying the daily Rosary alone, is a form of NORA. In addition, one's desire to do God's will or to become a saint is a form of IR. Religiosity is discussed further in Chapter 2.

Definition of Well-Being

There is a lack of consensus on definitions of well-being (Brandel et al., 2017; Ryff, 2013). Initially, in the 1980s, definitions of well-being focused on feelings of happiness, which is a hedonic approach to well-being (Ryff, 2013). However, in more recent times, definitions of well-being have followed an eudaimonic approach to well-being, which is a more balanced approach focusing on one's striving to be one's best in the practice of a virtuous life (Ryff, 2013). Well-being is defined as a mental state of feeling happy and content with minimal distress, enjoying relatively good physical and mental health and having a positive attitude (VandenBos, 2015). The 5-item World

Health Organization Well-Being Index-Five (WHO-5) is a brief generic global rating scale that involves measuring well-being using an eudiamonic approach; the WHO-5 was used in this study to assess the well-being of Catholic students in college during the pandemic (Bech, 2012; Topp et al., 2015). I identified happiness, tranquility, vitality, restedness, and interest as the five well-being factors measured by the WHO-5.

Five Well-Being Factors

The following five factors of well-being were addressed in this study:

Happiness

Happiness is a feeling of joy or positive affect. Positive affect is a positive emotion or feeling, with an example of positive affect being elated, which is the opposite of a negative affect, such as being depressed (VandenBos, 2015). College students are significantly at risk for mental health difficulties, which impact well-being, with problematic symptoms as high as 53.8% for moderate to severe depression (Downs et al., 2017; Garlow et al., 2008). Hence, happiness was important to measure.

Tranquility

Tranquility is peacefulness or calmness. According to Son et al. (2020), 71% of 195 college students at a large university system in Texas indicated they had experienced higher stress and anxiety due to the Coronavirus pandemic. Problems with anxiety and depression negatively affect students' academic performance, class attendance, retention, career selection, relationship development, physical health, and general well-being (Baez, 2005; Miller & Chung, 2009). Thus, tranquility can be helpful for students under stress.

Vitality

Subjective vitality is the state of being energetic and feeling alive, and an important part of eudaimonic well-being (Arslan et al., 2022; Ryan & Deci, 2001). Arslan et al. (2022) demonstrated the need for effective methods that account for vitality to lessen the impact of Coronavirus anxiety on rumination. Rumination occurs when obsessional thoughts involve repetitious thinking that hinders other types of cognition (VandenBos, 2015). Thus, vitality can be helpful to well-being.

Restedness

Tasso et al. (2021) indicated 86% of college students reported sleep pattern disruptions during the pandemic. Further, Brouwer et al. (2021) showed poor sleep to be significantly and positively associated with psychological distress among nursing students. Therefore, restedness is helpful for students to cope well with stress.

Interest

COVID-19 related stress and stress in general may play a part in one's interest in daily activities. Clabaugh et al. (2021) revealed students experienced significant levels of stress and difficulty coping with disruptions of COVID-19, which was associated with increased levels of neuroticism and an external locus of control. Tasso et al. (2021) indicated that college students during COVID-19 experienced fear of themselves or others becoming sick with the virus, apprehension about coursework delivery changes, loneliness, and less motivation. Thus, student's interest in their daily activities was an important indicator of their well-being.

Therefore, since college students' well-being has been a serious public health concern, there has been a need to explore how among Catholic students in college,

religiosity and frequency of daily Rosary praying may be associated with well-being, as this may spur a positive social change in terms of their well-being.

Problem Statement

The specific research problem involves the religiosity, daily Rosary frequency, and well-being of Catholic college students, especially during times of crisis like the Coronavirus pandemic since no peer-reviewed quantitative research has focused on the association between the frequency of praying the Rosary daily and their well-being. However, most research on religiosity has shown that it is positively associated with well-being (Koenig et al., 2012; Zacher & Rudolph, 2021). Nonetheless, no research literature was found on how praying the Rosary daily associates with the religiosity and well-being of Catholic college students. Therefore, this study seeks to fill this gap in the research literature.

Purpose of the Study

The purpose of this quantitative anonymous online survey study was to address if there were associations between religiosity (independent variable) and well-being (dependent variable), and if daily Rosary frequency (mediator variable) mediated an association between religiosity and well-being of Catholic adult students in institutions of higher education, including vocational schools in the U.S. in 2021 during the pandemic.

Research Questions and Hypotheses

The following research questions were explored in this study:

RQ1: Is there a significant association between religiosity and well-being?

$H_0$1: There is no significant association between religiosity and well-being.

H_a1: There is a significant association between religiosity and well-being.

RQ2: Is there a significant association between ORA and well-being?

$H_0$2: There is no significant association between ORA and well-being.

H_a2: There is a significant association between ORA and well-being.

RQ3: Is there a significant association between NORA and well-being?

$H_0$3: There is no significant association between NORA and well-being.

H_a3: There is a significant association between NORA and well-being.

RQ4: Is there a significant association between IR and well-being?

$H_0$4: There is no significant association between IR and well-being.

H_a4: There is a significant association between IR and well-being.

RQ5: Is there a significant association between religiosity and daily Rosary frequency?

$H_0$5: There is no significant association between religiosity and daily Rosary frequency.

H_a5: There is a significant association between religiosity and daily Rosary frequency.

RQ6: Is there a significant association between ORA and daily Rosary frequency?

$H_0$6: There is no significant association between ORA and daily Rosary frequency.

H_a6: There is a significant association between ORA and daily Rosary frequency.

RQ7: Is there a significant association between NORA and daily Rosary frequency?

$H_0$7: There is no significant association between NORA and daily Rosary frequency.

H_a7: There is a significant association between NORA and daily Rosary frequency.

RQ8: Is there a significant association between IR and daily Rosary frequency?

$H_0$8: There is no significant association between IR and daily Rosary frequency.

H_a8: There is a significant association between IR and daily Rosary frequency.

RQ9: Is there a significant association between daily Rosary frequency and well-being?

$H_0$9: There is no significant association between daily Rosary frequency and well-being.

H_a9: There is a significant association between daily Rosary frequency and well-being.

RQ10: Does daily Rosary frequency mediate an association between religiosity and well-being?

$H_0$10: Daily Rosary frequency does not mediate an association between religiosity and well-being.

H_a10: Daily Rosary frequency does mediate an association between religiosity and well-being.

RQ11: Does daily Rosary frequency mediate an association between ORA and well-being?

$H_0$11: Daily Rosary frequency does not mediate an association between ORA and well-being.

H_a11: Daily Rosary frequency does mediate an association between ORA and well-being.

RQ12: Does daily Rosary frequency mediate an association between NORA and well-being?

$H_0$12: Daily Rosary frequency does not mediate an association between NORA and well-being.

H_a12: Daily Rosary frequency does mediate an association between NORA and well-being.

RQ13: Does daily Rosary frequency mediate an association between IR and well-being?

$H_0$13: Daily Rosary frequency does not mediate an association between IR and well-being.

H_a13: Daily Rosary frequency does mediate an association between IR and well-being.

Conceptual Framework and Theoretical Foundation

The conceptual framework for this study was the biopsychosocial-spiritual framework. This framework involves adopting a whole person or holistic approach to healthcare (Gordon, 2008). This holistic approach includes the spiritual, which goes beyond the biopsychosocial model of healthcare (Gordon, 2008). Vayalilkarottu (2012) asserted that the human person is comprised of a mind, body, and soul, and the Catholic faith teaches that the soul is immortal (*The Penny Catechism*, 2012). The

biopsychosocial-spiritual framework involves incorporating the conscience and beliefs of the person's mind and soul with the body; therefore, prayer and meditation, since they utilize or exercise the powers of one's soul, they are categorized in terms of the spiritual component (Gordon, 2008; Hatala, 2013).

Choice Theory, developed by psychiatrist William Glasser, MD (1998), was selected as the theoretical foundation for this study, due to the usefulness of this theory in terms of explaining human behavior and motivation, and how to make more effective and satisfying choices for attaining, maintaining, or improving mental health and well-being (Wubbolding, 2015). Choice Theory is also the theoretical foundation for Glasser's Reality Therapy, a psychotherapy, which is an effective application of Choice Theory (Wubbolding, 2015). I used Choice Theory for explaining the components of human behavior involved in religiosity, the daily Rosary, and well-being and to understand these associations. Glasser (1998) asserted that all behavior is Total Behavior and comprised of a person's thoughts, actions, feelings, and physiology, which work together synergistically, as a change in one part of Total Behavior simultaneously effects a change in the other parts. Whenever a person performs an action, thoughts, feelings, and physiological functioning also take place at the same time. Glasser (1998) proposed that behavior is chosen either directly or indirectly, since we exercise direct control over our thoughts and actions, which indirectly control "almost all our feelings and much of our physiology" (p. 4). Additionally, Glasser's Choice Theory teaches that behaviors are driven by five genetic basic needs: survival, love and belonging, power or achievement, freedom, and fun. Also, Glasser, as cited in Wubbolding (2015), indicated some persons may want to include the need for faith as a basic need, yet he did not specifically include

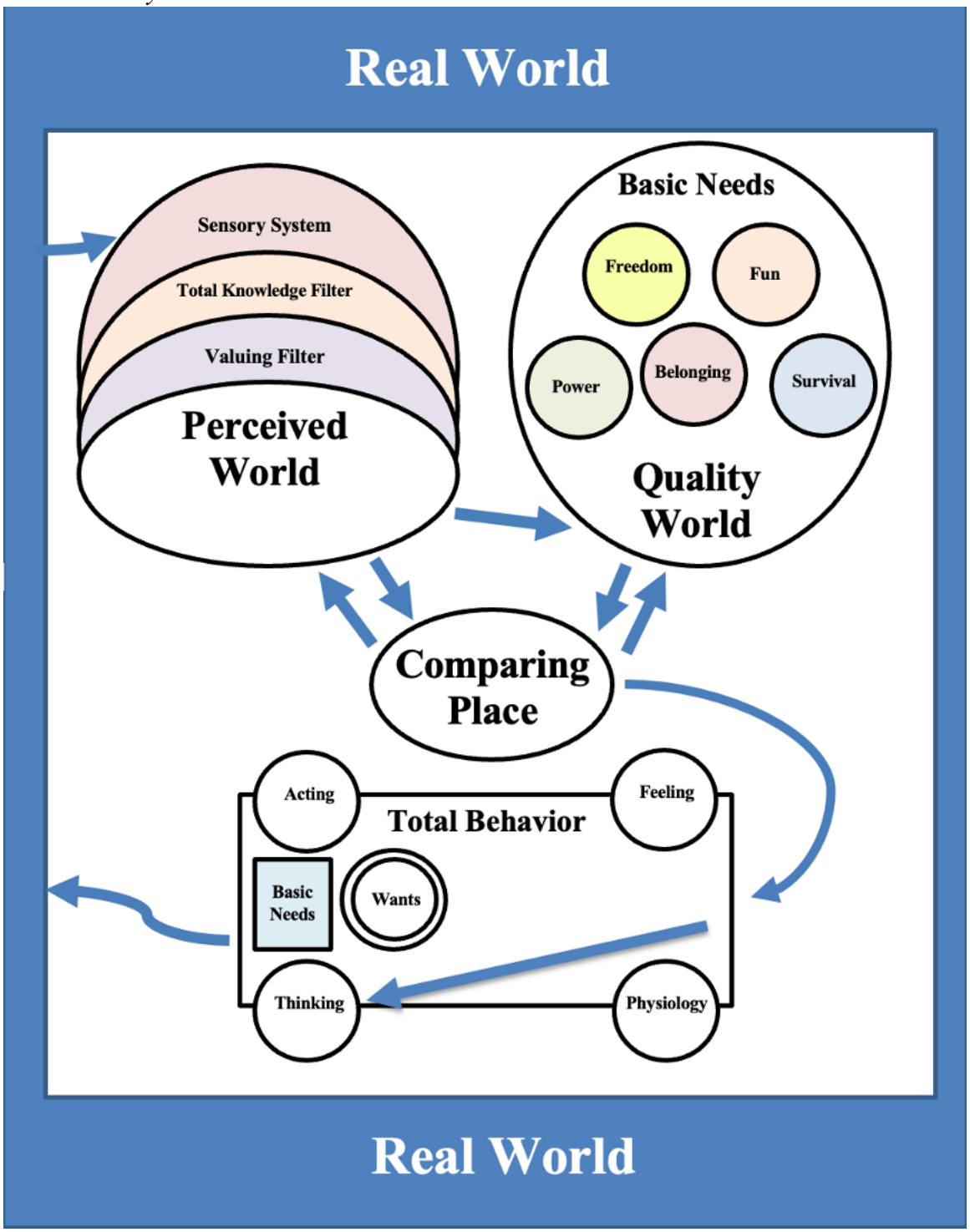
it as a basic need in terms of his Choice Theory. Nonetheless, Glasser's Choice Theory may be considered as a comprehensive theory of human perception, motivation, and behavior, even for Catholics, as the need for faith can be incorporated into this theory (Wubbolding, 2015).

For this study, Glasser's (1998) Choice Theory was viewed within the biopsychosocial-spiritual framework. Glasser posited love and belonging as being one of a person's most important basic needs. According to Stavros (1998), "From a theological perspective, the ultimate source of human suffering and pain is separation from God. The inner wounds of the human person are ultimately relational wounds" (p. 157). Therefore, the need for love and belonging on the spiritual level is synonymous with the need for God.

The Choice Theory Behavior Chart in Figure 1, condensed from Glasser's (n.d.) Choice Theory Chart with the permission of Carleen Glasser (see Appendix H), has five main components: the Real World, the Perceived World, the Comparing Place, Total Behavior, and the Quality World. One experiences the Perceived World from the Real World through one's sensory system, which is made up of the following five senses: seeing, hearing, smelling, tasting, and touching. The sensory system passes sensory information to the perceptual system, which is made up of the total knowledge filter and the valuing filter. Then, one's perceptual system filters information from one's sensory system before it goes to the Comparing Place, where one evaluates and chooses by thinking and acting with one's Total Behavior, in terms of how one will act on this information using one's perceptual system and whether to keep this information in one's Quality World (Glasser, n.d.). Choice Theory is explained further in Chapter 2.

Figure 1

Choice Theory Behavior Chart



Note. Chart condensed from Glasser's (n.d.) Choice Theory Chart with the permission of Carleen Glasser.

The daily Rosary entails using thoughts and actions including praying while verbalizing prayers and holding onto a Rosary bead for each prayer. From Glasser's (1998) Choice Theory perspective, each thought or action involves satisfying one or more of one's basic needs in one's Quality World. A person, for example, may choose to satisfy the need for love and belonging by praying the daily Rosary. The first prayer of the Rosary begins with the Apostles' Creed, which is a summary profession of the Catholic faith that includes belief in God and the communion of Saints. The Rosary is a way for Catholics to commune with God the Father, our Blessed Mother Mary, and the Saints and to satisfy the spiritual need for love and belonging. In terms of Glasser's Choice Theory, these thoughts and actions indirectly influence feelings and physiology, which includes well-being. Thus, this study involved addressing the influence of daily Rosary praying on the religiosity and well-being of Catholic adult students in institutions of higher education, including vocational schools.

Nature of the Study

The quantitative study design involved using deductive reasoning to analyze empirical data for statistical conclusions (Burkholder et al., 2016; Leavy, 2017). Simple linear regression and Spearman's rank-order correlation were the chosen methods for data analysis. Regression is a statistical technique that involves making predictions based on associations between variables (Gravetter & Wallnau, 2009). The Spearman Rho correlation was used to measure independent continuous dependent variables. According to Hayes (2022), a simple mediation analysis is a type of statistical method with a hypothesis test to determine how an antecedent or predictor variable prompts a change in an outcome variable via a mediator variable. Therefore, a quantitative nonexperimental

linear regression mediation analysis was planned in this study to explore survey data and to find any statistically significant direct or indirect effects between religiosity, daily Rosary frequency, and well-being. Participants for this survey study were a convenience sample of Catholic adult students attending any institution of higher education in the U.S. in 2021 during the pandemic, who had been baptized as Catholics, still professed to be Catholic, were 18 or older, and were living in the U.S. at the time of the survey. Participants were recruited via a recruitment flyer or invitations, as well as social media, listservs, emails, one organization, and the Walden University Participant Pool, and all these methods included a SurveyMonkey link.

Five linear regressions and four Spearman correlations were used to analyze data from three instruments, which will be described in Chapter 3: the Duke University Religion Index (DUREL) – a religiosity assessment, one of the Daily Rosary Frequency Questions, and the WHO-5 – a well-being assessment. Linear regressions and Spearman correlations were used to analyze survey data from responses to basic demographic questions, the DUREL, daily Rosary frequency questions, and answers to the WHO-5 assessment. This analysis was used to test whether there were associations between religiosity (predictor variable), daily Rosary frequency (mediator variable), and well-being (outcome variable), and if daily Rosary frequency mediated associations between religiosity including three of its dimensions and well-being.

Definitions

Colloquial or conversational prayer: Using one's own words in a monologue or perceived dialogue with God, concerning various aspirations of love, thanksgiving, and

immaterial petitions made in one's own words, such as requests for discernment, direction, graces, mercy, and help (Ai et al., 2008; Poloma & Pendleton, 1989).

Grace: Grace is a supernatural gift from God for one's sanctification and salvation, which one primarily receives by prayer and the Sacraments beginning with sanctifying grace at Baptism (*The Catechism of the Council of Trent*, 2018; *The Penny Catechism*, 2012).

Meditative prayer: Meditative prayer is also known as meditation or mental prayer, which is needed for every Christian who desires eternal salvation; meditative prayer is being quiet while worshiping or listening to God with holy aspirations or resolutions to know, love and serve Him better (Ai et al., 2008; Poloma & Pendleton, 1989; Simler, 2012).

Mental health: Mental health is a state of mind associated with emotional well-being, good behavioral adaptations, relative freedom from anxiety and disabling symptoms, and establishing effective relationships and coping with daily life stressors (Koenig et al., 2012).

Petitionary prayer: A request to God for the needs of oneself or others (Poloma & Pendleton, 1989).

Prayer: Prayer in the Christian tradition occurs when one raises one's mind to God as a form of vocal or mental pious communication to give Him honor by adoring Him, asking pardon for sins, thanking Him for blessings, and petitioning for graces, as God lovingly hears prayers for all necessities and most of all for salvation (*The Catechism of the Council of Trent*, 2018; *The Penny Catechism*, 2012; Simler, 2012).

Religiosity: Involvement in belief practices (Leondari & Gialamas, 2009).

Ritual prayer: Verbally reciting memorized prayers or written prayers (Poloma & Pendleton, 1989).

Rosary prayer: A meditative Catholic ritual and vocal prayer comprised of the Apostles' Creed plus the Lord's Prayer, also known as the Our Father prayer, along with three Hail Mary prayers for an increase in faith, hope, and charity, and a Glory Be prayer. Then, one Our Father plus 10 Hail Mary prayers, also known as a decade, and a Glory Be prayer and Fatima prayer are prayed for each of 15 decades prayed while holding one Rosary bead at a time to keep the count of the prayers while meditating on the sacred mysteries of our Lord and Savior Jesus Christ and the Blessed Virgin Mary before concluding with the last prayer, the Hail Holy Queen (Montfort, 2016).

Soul: God created the soul in each human body to His likeness with three powers: the intellect, memory, and will (*The Penny Catechism*, 2012).

Spirituality: How a person's life corresponds with their belief systems, faith, or religion (Koenig et al., 2012).

Well-Being: Mental state of feeling happy or content, enjoying relatively good physical and mental health with minimal distress and a positive attitude (VandenBos, 2015).

Assumptions

In research, an assumption is something that is accepted as true but cannot be demonstrated, yet it is taken for granted as being true (Roberts & Hyatt, 2019). In this study, participants were assumed to be honest when answering questions in this study. I assumed this because it may have detracted from the study to question the authenticity and faith of the participants as Catholic students in college. Further, I assumed that

participants were able to accurately remember their experiences related to answering survey questions regarding their religiosity, Rosary praying, and well-being.

Scope and Delimitations

Religiosity favors well-being (Koenig et al., 2012; Zacher & Rudolph, 2021). However, beyond the likely benefits of reduced anxiety, respiration, blood pressure, and heart rate, and improved well-being, minimal research has explored the well-being related factors associated with praying the Rosary (Anastasi & Newberg, 2008; Bernardi et al., 2001; Stöckigt et al., 2021). Therefore, I saw the need to further explore the associations between Rosary praying and the potential well-being benefits.

This nonexperimental quantitative anonymous survey study involved examining associations including direct and indirect effects between religiosity, daily Rosary frequency, and well-being, as well as whether daily Rosary frequency mediated an association between religiosity and well-being. To explain the results of this study, the biopsychosocial-spiritual framework and Glasser's (1998) Choice Theory were used to help explain the associations between religiosity, daily Rosary frequency, and well-being.

This study specifically included participants who were adult Catholics enrolled as students at an institution of higher education in the U.S. during the Coronavirus pandemic in September and October 2021. Hence, results of this study may be able to generalizable to larger populations of Catholic students in institutions of higher education in the U.S. during this time.

Limitations

Roberts and Hyatt (2019) defined limitations as factors that affect generalizability of one's study. This study was limited to participants from institutions of higher

education in the United States during the Coronavirus pandemic. Additionally, the participants professed to have been baptized and currently Catholic. No test or proof was required. Another limitation of this study that may impact generalizability of findings involved timing of this study during the pandemic. Other limitations were the average age of participants after data collection, and participant responses were self-reported and anonymous.

A possible limitation in this study was that participants may be more religious on average than other Catholic students, which may skew answers in terms of increased religiosity, daily Rosary praying, and well-being. Therefore, this was noted and addressed during discussion of results. Further, during survey instructions, participants were encouraged to not rush when giving their answers, to have sufficient time to choose the most accurate answers. In addition, they were reminded that to protect their privacy, the online survey was at a secure online link via SurveyMonkey, and all answers were anonymous.

Significance

This study has the potential for positive social change in terms of creating a greater awareness of praying the Rosary daily and its potential influence on religiosity and well-being of Catholic adult college students. Additionally, this study was the first quantitative research study on religiosity, daily Rosary, and well-being of adult Catholic students at institutions of higher education in the U.S. This study also has the potential to lead to positive social change by enhancing the work of mental health practitioners and others in the health profession who work with adult Catholic student populations in terms of addressing their well-being needs more effectively.

Summary

This nonexperimental quantitative anonymous survey study involved examining associations including direct and indirect effects between religiosity, daily Rosary frequency, and well-being, as well as whether daily Rosary frequency mediated an association between religiosity and well-being. Using the biopsychosocial-spiritual conceptual framework and Glasser's (1998) Choice Theory, this study involved providing information regarding how praying the Rosary daily may improve the well-being of adult Catholic students in higher education. The purpose of this study was to address links between religiosity, daily Rosary prayer, and well-being of Catholic adult college students. The need for this study was established through reviewing literature on these topics. Prayer, including meditation and mindfulness meditation, may have a positive influence on well-being (Kirk & Lewis, 2013; Park et al., 2013; Reis & Menezes, 2017; Stöckigt et al., 2021). However, more research related to religiosity, prayer, and well-being is needed in varying demographic, religious, and cultural contexts. Also, religiosity may have a positive influence on well-being depending on whether one has a preexisting faith or not (Hollywell & Walker, 2009; Wachholtz & Sambamoorthi, 2011).

Praying the Rosary is associated with less acute anxiety (Anastasi & Newberg, 2008) as well as improved blood pressure, heart rate, and respiration (Bernardi et al., 2001). Praying the Rosary may also foster benefits to health and well-being (Stöckigt et al., 2021). Moreover, Catholics make up 1.3 billion or 17.7% of the world population (Holy See Press Office, 2019). Further, many Catholics have prayed the Rosary as a pious tradition for centuries, yet there has been no research on whether daily Rosary praying is associated with the well-being of Catholics in college. Therefore, this study

may lead to an awareness and knowledge about how Catholics in college and the health professionals who serve them may use the daily Rosary to help them to improve their well-being and thereby, create positive social change. Chapter 2 includes literature on well-being, religiosity, prayer, Rosary prayer, and related topics, such as meditation, mindfulness meditation, self-hypnosis, and Ignatian meditation.

Chapter 2: Literature Review

The specific problem identified in this literature review was that minimal peer-reviewed research has focused upon the association between the religious practice of praying the Rosary and well-being. According to Koenig et al. (2012), most research has shown that religiosity favors well-being. Minimal research has explored well-being related factors associated with praying the Rosary (Anastasi & Newberg, 2008; Bernardi et al., 2001; Stöckigt et al., 2021). In addition, Anastasi and Newberg (2008) suggested further study to explore associations between the Rosary prayer ritual and other psychological benefits, like well-being. Also, Hadzic (2011) requested more links between prayer and psychological health in various religious and spiritual contexts. Further, Baesler and Ladd (2009) posited that health is the holistic synthesis of physical, mental, and spiritual health, and emphasized the need for more research on the association between prayer and health. Moreover, Johnson (2018) requested more study of the use of prayer for effectively addressing well-being. Therefore, the purpose of this quantitative anonymous survey study was to address associations between religiosity (predictor variable) and well-being (outcome variable) and if frequency of praying the Rosary (mediator variable) mediates an association between religiosity and well-being of Catholic students in institutions of higher education in the U.S. in 2021 during the Coronavirus pandemic.

This literature review includes definitions of well-being and mental health, plus an explanation on how the daily Rosary symbolizes the great mysteries of the Catholic faith, plus 15 benefits on praying the Rosary given by the Blessed Virgin Mary followed by a brief history of the Rosary. Next, I review literature search strategies. Then, I review

research on well-being and its associations with religiosity, meditation, prayer, and the daily Rosary.

The Rosary Symbolizing the Sacred Mysteries of the Catholic Faith

The Rosary is both a material object and religious symbol comprised of a set of prayers and meditations, regardless of whether it is a simple hand-made craft or a detailed work of art (McClain, 2003). The Rosary presents the three great mysteries, also known as sacred mysteries, which include the joyful, sorrowful, and glorious mysteries of the life of Jesus Christ and the Blessed Virgin Mary (Marshall, 2020; Meznar, 2005; Montfort, 2016). These mysteries are important because they are the principal events in the life of Jesus Christ and His Blessed Mother. She is the mother of Jesus Christ by nature, and she becomes the spiritual mother of Catholics by grace through the Sacrament of Baptism, according to the Catholic faith (*The Penny Catechism*, 2012). St. Louis Marie de Montfort (2010) in the early 1700s taught in accordance with the Catholic faith that union with Jesus Christ is necessary for the salvation of one's soul, and that to be in perfect union with Him, one should truly devote oneself to Mary as one's spiritual Mother to be humbly united with Him in the same way that He came to us: in her, through her and with her.

Next, I give an example of one of several methods of how one may pray and meditate upon the sacred mysteries of the Rosary, according to St. Louis de Montfort (2016). The first joyful mystery to meditate on is the Incarnation of our Lord Jesus Christ in the womb of the Blessed Ever-Virgin Mary also known as the Annunciation, which is the time when St. Gabriel the Archangel announced to the Blessed Virgin, that she was chosen to become the mother of God. She humbly accepted, and Jesus was conceived by

the Holy Ghost in her womb: a virtue of the Annunciation to pray for and meditate on is humility (Montfort, 2016). The second joyful mystery to meditate on is the Visitation, which is the time when our Blessed Mother went to assist her cousin St. Elizabeth, who was pregnant with St. John the Baptist: a virtue of the Visitation to pray for and meditate on is charity (Montfort, 2016). The third joyful mystery to meditate on is the Nativity, which is the time when our Lord Jesus Christ was born of the Blessed Virgin Mary under the protection of His Guardian Father Saint Joseph in a stable in Bethlehem: a virtue of the Nativity to pray for and meditate on is detachment from the things of this world (Montfort, 2016). The fourth joyful mystery to meditate on is the Presentation of our Lord Jesus Christ in the Temple, which is the time when the Infant Jesus was presented in the Temple by His parents, the Blessed Virgin Mary and Saint Joseph, His guardian father: a virtue of the Presentation to pray for and meditate on is purity of soul and body (Montfort, 2016). The fifth joyful mystery to meditate on is the finding of our Lord Jesus Christ in the Temple, which is the time when the Child Jesus was found in the Temple teaching. A virtue of the Finding of the Child Jesus Teaching in the Temple to pray for and meditate on is for oneself and other sinners such as heretics, schismatics and pagans to be truly devoted or converted to Jesus Christ the Eternal Wisdom (Montfort, 2003, 2016).

The first sorrowful mystery to meditate on is the Agony in the Garden of Olives (Montfort, 2016). This was when our Lord Jesus Christ prayed alone in agony sweating drops of blood for the love of us during the night before He was betrayed and crucified. A virtue of this first sorrowful mystery to pray for and meditate on is true contrition or sorrow for sins (Montfort, 2016). The second sorrowful mystery to meditate on is the

Scourging at the Pillar, when Jesus was cruelly scourged at the pillar by the Roman soldiers in His Sacred Flesh: a virtue of the second sorrowful mystery to pray for and meditate on is mortification of the senses, which means to die to one's senses (Montfort, 2016). An example of mortifying the senses and of how this might impact well-being would be a person choosing not to overeat to feel satisfied instead of feeling regret and too full. The third sorrowful mystery is the Crowning with Thorns, when a crown of thorns was placed down on His Sacred Head: a virtue of the third sorrowful mystery to pray for and meditate on is contempt for the world with its fashions and vanities, or prudence to avoid occasions of sin, which involves avoiding harmful choices to one's soul and deciding to make correct or virtuous choices (Montfort, 2016). The fourth sorrowful mystery to meditate on is the Carrying of the Cross, when Jesus carried His Cross to Calvary. A virtue of the fourth sorrowful mystery to pray for and meditate on is patience in difficulties in carrying one's cross daily (Montfort, 1999, 2016). Patience is a virtue and beneficial in terms of helping a person to practice charity and avoid anxiety. The fifth sorrowful mystery to meditate on is the Crucifixion, when our Lord Jesus Christ was crucified and died on the Cross for us. A virtue of the fifth sorrowful mystery to pray for and meditate on is fidelity to Jesus Christ and to abide by His Commandments for a holy life and death (Montfort, 2016; *The Penny Catechism*, 2012). Moreover, fidelity involves being faithful to one's duties, obligations, and commitments.

The first glorious mystery to meditate on is the Resurrection, when the Lord Jesus Christ rose from the dead (see Montfort, 2016). A virtue of this first glorious mystery to pray for and meditate on is a stronger and more knowledgeable Catholic faith, which means that one more firmly believes what one professes, and one professes and practices

with more conviction what one believes (Montfort, 2016). The second glorious mystery to pray for and meditate on is the Ascension, when our Lord Jesus Christ triumphantly ascended into Heaven, and a virtue of this mystery is a stronger hope for Heaven our true home (Montfort, 2016). Hope assists one to be more trustful in God's divine providence and in terms of being optimistic about any negative or seemingly negative situation (Saint-Jure & Colombière, 2012). The third glorious mystery to meditate on is the Coming of the Holy Ghost, when the Holy Ghost came down from Heaven upon the Apostles and the Blessed Virgin Mary at Pentecost (Montfort, 2016). A virtue to pray for and meditate on for this third glorious mystery is a greater understanding of the truth, and to live and share the truth with others (Montfort, 2016). Understanding assists one to better understand God and His will and to be more empathic with oneself and others, which may help one to avoid frustration and practice kindness during times of confusion or disappointment. The fourth glorious mystery to meditate on is the Assumption of our Blessed Mother into Heaven, when her body and soul was assumed into Heaven: a virtue to pray for and meditate on for this fourth glorious mystery is a true devotion to Mary our Blessed Ever-Virgin Mother and Queen for the reign of Jesus Christ the King (Montfort, 2010, 2016). True devotion assists one in terms of being true followers or imitators of the virtues of Jesus and Mary (Montfort, 2010). The fifth glorious mystery to meditate on is the Coronation of the Blessed Virgin Mary when she was crowned as Queen of Heaven and Earth (Montfort, 2016). A virtue to pray for and meditate on for the last glorious mystery is the grace of final perseverance for oneself and those one prays for to grow in grace and virtue until death to receive an eternal reward in Heaven for the greater love and glory of God (Montfort, 2016). Final perseverance assists one in terms of being

consistent in practicing all the virtues while in the state of grace until the end of one's life.

The sacred mysteries of the Rosary are integral parts of the Rosary prayer (Montfort, 2016). According to Catholic belief, when these sacred mysteries and virtues of the life of Jesus Christ are meditated upon during the Rosary prayer, this can produce beneficial results in one's soul for a better life and eternity (Montfort, 2016). Moreover, a great apostle of the Rosary, Blessed Alanus de Rupe (Alan de la Roche) related that about the year 1460, he received 15 promises from the Blessed Virgin Mary on the benefits of praying the Rosary:

Blessed Virgin Mary's 15 Promises on Praying the Rosary

1. Whoever shall faithfully serve me by recitation of the Rosary shall receive signal graces.
2. I promise my special protection and the greatest graces to all who shall recite the Rosary.
3. The Rosary shall be a very powerful armor against hell; it will destroy vice, decrease sin, and defeat heresies.
4. The Rosary will cause virtue and good works to flourish; it will obtain for souls the abundant mercy of God; it will withdraw the hearts of men from the love of the world and its vanities, and will lift them to the desire for eternal things. Oh, that souls would sanctify themselves by this means.
5. The soul, which recommends itself to me by recitation of the Rosary, shall not perish.

6. Whoever shall recite the Rosary devoutly, applying himself to the consideration of its sacred mysteries, shall never be conquered and never overwhelmed by misfortune. God will not chastise him in His justice, he shall not perish by an unprovided death (unprepared for Heaven). The sinner shall convert. The just shall grow in grace and become worthy of eternal life.
7. Whoever shall have a true devotion for the Rosary shall not die without the Sacraments of the Church.
8. Those who are faithful to recite the Rosary shall have, during their life and at their death, the light of God and the plenitude of His graces; at the moment of death, they shall participate in the merits of the saints in paradise.
9. I shall deliver from purgatory those who have been devoted to the Rosary.
10. The faithful children of the Rosary shall merit a high degree of glory in heaven.
11. You shall obtain all you ask of me by the recitation of the Rosary.
12. All those who propagate the holy Rosary shall be aided by me in their necessities.
13. I have obtained from my Divine Son that all the advocates of the Rosary shall have for intercessors the entire celestial court during their life and at the hour of death.

14. All who recite the Rosary are my children and brothers and sisters of my only son, Jesus Christ.
15. Devotion to my Rosary is a great sign of predestination. (Rupe, 1460, as cited by Marshall, 2020, p. 22-23).

Therefore, with these great promises of our Blessed Mother on the benefits of praying the Rosary, one can understand how by praying the daily Rosary, a Catholic can achieve, maintain, or improve one's well-being. Now, we will review how praying the Rosary has influenced the lives of Catholics for many centuries.

Brief History Through the Middle Ages

The Blessed Virgin Mary taught St. Dominic the Rosary prayer to convert sinners from the Albigensian heresy and strengthen the faith of many Catholics, beginning in the 13th century (Leo XIII, 1891; Roche, as cited by Montfort, 2016; Rupe as cited by Marshall, 2020). The Rosary devotion spread around the world with the European explorers in the fifteenth and sixteenth centuries and encouraged many in the Catholic faith (Meznar, 2005). European Christians in the Middle Ages saw the Rosary as a mighty weapon in the defense of truth against erroneous beliefs (Meznar, 2005).

Rosary Prayer in England During the Protestant Revolt

In 1559, after England adopted Protestantism as the religion of the country, many English Catholics feared for what would happen to their souls, as Queen Elizabeth I's Act of Uniformity established Protestantism as the only legal religion of England (McClain, 2003). England became the only European nation where the practice of Catholicism was against the law (McClain, 2003). During the 100 years after the Act, many Sacraments, rituals, material objects, and places of worship were taken away from English Catholics,

and with the beginning of the penal laws in the 1570s, the number of Catholic priests and access to the Sacraments gradually decreased (McClain, 2003). Catholic churches became sites for Protestant worship, as Protestants destroyed many Catholic relics, images, and ornaments (McClain, 2003). Nonetheless, despite all these changes to the religious environment, the Rosary appears to have prevailed or possibly increased in popularity among English Catholics (McClain, 2003).

McClain (2003) discussed why the Rosary maintained its popularity during a time of persecution when many other Catholic devotionals and practices were declining in England, and the reason why English priests at home and in exile abroad encouraged the Rosary prayer:

> Rosaries are small, portable, and easily concealed. It is relatively easy to worship with a rosary, either praying at home or praying silently in public with the beads concealed in a pocket or the folds of a skirt. Although initially consecrated by a priest, rosaries do not rely on the immediate presence of a priest for their effectiveness. Once ritually blessed, the laity can carry away rosaries, distribute them freely, and use them independently or in groups. (p. 162)

In the absence of an institutional church setting or priests, an English Catholic could use a Rosary as a reliable, accessible, and flexible medium through which to worship according to the traditions of the Roman faith.

Rosary Prayer During the Past Century Until the Present

Today, Catholics may easily fail to use the Rosary to its potential, as the Rosary may be purchased as a souvenir, or carried about one's person, but many forget the immense power that the Rosary has when one actually prays it (Crowe, 2017, p. 30).

When this occurs, this is unfortunate, especially since the Rosary prayer devotion can be the aid or solution to many problems during this 21st-century (Crowe, 2017). In today's world, our society is confronted with the widespread loss of faith and the increase of evil, violence, and terrorism; in addition, we find an epidemic of broken families, increasing distractions and an overall lack of desire for holiness (Crowe, 2017). Nonetheless, the Rosary can help remedy these turbulent times because the Blessed Virgin Mary told us to pray the Rosary for peace and to help save souls from Hell: this message was given when she appeared to three shepherd children at approximately the same time each month from May 13 to October 13, 1917, at Fatima, Portugal (Crowe, 2017). She repeatedly told them to pray the Rosary daily to obtain peace for the world and an end to the war (Crowe, 2017).

Despite the longevity of this religious tradition, the Rosary prayer appears to have been studied only minimally in the research literature (Anastasi & Newberg, 2008; Bernardi et al., 2001; Stöckigt et al., 2021). According to Lugo et al. (2008, March 27) of the Pew Research Center, approximately 43% of Latinos say they pray the Rosary once or twice a month; no other research findings on the frequency of the Rosary prayer by any other ethnic group were given. Moreover, there have been no apparent attempts to offer the Rosary prayer a theoretical foundation or explain it in the light of a larger conceptual framework. Therefore, this chapter will explain the Rosary within a theoretical foundation called Choice Theory and explain it as part of a biopsychosocial-spiritual conceptual framework.

Literature Search Strategy

As preparation for this literature review, the Walden Library database, Thoreau, and Google Scholar provided peer-reviewed scholarly research articles and a dissertation from multiple search engines. The following key search items were explored with the Thoreau database and the Google Scholar to provide the research material for this literature review: *Coronavirus*, *COVID-19, pandemic, college students, prayer, meditation, mindfulness meditation, spirituality, religiosity, Choice Theory, biopsychosocial-spiritual model, mental health, mental health crisis in America, stress in America, psychological well-being, well-being*, and the *Rosary*. Both a Google search and a Google Scholar search were also done on research on the Rosary, *mindfulness* and psychological well-being, and mindfulness and well-being. Additionally, the following combinations of search items assisted in the research material for this literature review: Rosary and well-being, well-being and prayer, well-being and meditation, well-being and spirituality, well-being and religiosity, well-being and Choice Theory, well-being and the biopsychosocial-spiritual model, Choice Theory and meditation, *guided imag*ery and well-being, *self-hypnosis* and well-being, and *Ignatian meditation* and well-being. The scope of the literature review focused on all years for research articles pertaining to the Rosary and/or each of the other key search items. The remainder of the literature review focused on research articles from the most recent years, especially the last five, when possible. Since there was a lack of research on Rosary prayer, this literature review provides a review of the peer-reviewed literature on general prayer and well-being along with other related topics.

Conceptual Framework and Theoretical Foundation

Biopsychosocial-Spiritual Framework

The conceptual framework for this research study on daily Rosary praying and well-being is the biopsychosocial-spiritual framework. This framework advocates a whole person or holistic approach to healthcare (Galbadage et al., 2020; Gordon, 2008; Tanhan et al., 2020). This holistic approach includes the spiritual, which goes beyond the biopsychosocial model of healthcare (Gordon, 2008). Vayalilkarottu (2012, p.1) asserted that the human person is comprised of a mind, body, and a soul that is mainly moral and religious-spiritual. The biopsychosocial-spiritual framework incorporates the conscience and beliefs of the person's mind or soul with the body, and prayer and meditation are categorized under the spiritual component of the model (Gordon, 2008; Hatala, 2013). Therefore, since the Rosary is a prayer and a meditation, any influence of the daily Rosary on well-being may be observed within the conceptual framework of the biopsychosocial-spiritual model. Choice Theory, which will be used as the theoretical foundation of the dissertation, will be explained in the next section.

Choice Theory

This dissertation study on daily Rosary praying, religiosity, and well-being will use Glasser's (1998) Choice Theory, as the theoretical foundation due to its being a comprehensive theory of human motivation and behavior (Wubbolding, 2015). One research study by Turkdogan and Duru (2012), like this dissertation study, applied Choice Theory as a theoretical foundation for well-being in college students. Turkdogan and Duru studied basic needs satisfaction of 627 university students in Turkey. Turkdogan and Duru's results demonstrated that basic needs satisfaction significantly

predicted subjective well-being for all the domains of Choice Theory basic needs, and freedom, power, and fun were the strongest predictors of well-being in the university students (Glasser, 1998). Therefore, the research findings of Turkdogan and Duru, concerning basic needs satisfaction predicting well-being for all the domains of Choice Theory basic needs, provided research support for the selection of Choice Theory as the theoretical foundation for this dissertation.

In Choice Theory, Glasser (1998) posited that all behavior is Total Behavior and is made up of four interdependent parts including a person's thoughts, actions, feelings, and physiology, which work together synergistically (Glasser, 1998). Further, Glasser proposed that a change in one part simultaneously effects a change in the other parts (Glasser, 1998). For example, whenever a person performs an action, one's thoughts and feelings also take place at the same time. Glasser's Choice Theory teaches that one exercises direct control over one's thoughts and actions, and that one indirectly controls most of one's feelings and much of one's physiology. Additionally, Glasser posited that our behaviors are driven by five genetic basic needs: survival, love and belonging, power or achievement, freedom, and fun or enjoyment. Glasser indicated that one may choose to include the need for faith or spirituality in Choice Theory (Wubbolding, 2015). Nonetheless, Glasser's Choice Theory has been acclaimed as a comprehensive theory of human perception, motivation, and behavior (Wubbolding, 2015).

However, this need for faith or spirituality can be satisfied in the need for love and belonging on the spiritual level, as this study will only focus on the five basic needs outlined in Choice Theory. Furthermore, according to Catholic belief, God is love. Hence, based on this Catholic belief, persons have a need for God. Therefore, with this

Catholic perspective in mind, the need for love and belonging on the spiritual level is synonymous with the need for God.

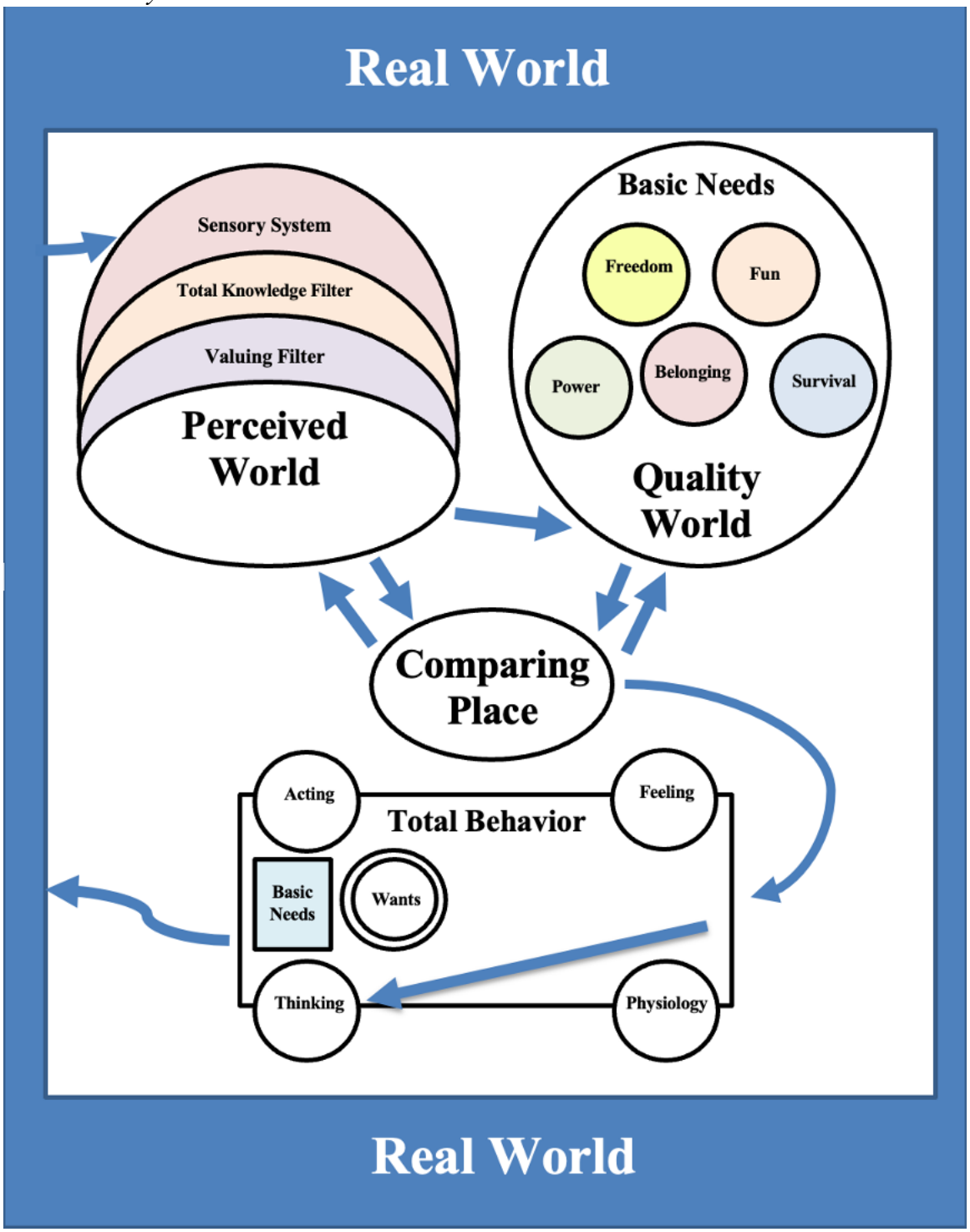
Choice Theory (Glasser, n.d.,1998) may be identified as having five main components: the Real World, the Perceived World, the Comparing Place, Total Behavior, and the Quality World (see Figure 2). The Real World is the first main component of Choice Theory, and one experiences the Real World through one's sensory system, which is made up of one's five senses of seeing, hearing, smelling, tasting, and touching (Glasser, n.d.). Then, the sensory system passes sensory information through the perceptual system, which is made up of the total knowledge filter, and the valuing filter (Glasser, n.d.), to become part of one's Perceived World, the second component, before passing it on to one's Comparing Place, the third component, where one will choose by thinking and acting with one's Total Behavior, the fourth main component, whether or how one will act on this information from one's perceptual system and whether to keep this information in one's Quality World, which is the last main component identified in the Choice Theory Behavioral Chart (see Figure 2). A person's Comparing Place is where one evaluates what one would like to have in one's Quality World now or in the future, compared with what one perceives to have (Perceived World) in the Real World (Glasser, n.d.). A person's Comparing Place exists in the thinking and acting parts of a person's Total Behavior (Glasser, n.d.).

Glasser (1998) explained that the Quality World is comprised of one's genetic basic needs. This Quality World begins at our birth, and comprises our thoughts, ideas, or images of experiences that we have had or would like to have to feel most satisfied in fulfilling one or more of our basic needs (Glasser, 1998). Further, each of us have what

he calls a Quality World of images or pictures in our minds that we may want to create, maintain, or change when we evaluate the images or ideas that we are perceiving from the Real World (Glasser, 1998). What these mental pictures represent are: “1) the persons that we most want to be with, 2) the things that we most want to own or experience, and 3) the ideas or systems of belief that govern much of our behavior” (Glasser, 1998, p.44). Again, Total Behavior is made up of one’s thoughts and actions that one has direct control of, which simultaneously and indirectly influence one’s feelings and physiology (physical health and functioning) (Glasser, 1998). Thus, Total Behavior responds to the basic needs of one's Quality World, which exists in and receives input from one’s Perceived World, as shown in Figure 2, the Choice Theory Behavior Chart, which was condensed from William Glasser’s (n.d.) Choice Theory Chart in “Chart Talk” with the permission of Carlene Glasser (see Appendix H).

Figure 2

Choice Theory Behavior Chart



Note. Chart condensed from Glasser's (n.d.) Choice Theory Chart with the permission of Carleen Glasser.

In applying Glasser's Choice Theory to daily Rosary praying, the daily Rosary entails using one's thoughts and actions, as in praying and meditating with one's thoughts while verbalizing prayers and holding onto a Rosary bead for each prayer. According to Glasser (1998), each thought or action strives to satisfy one or more of our basic needs. A person, for example, may choose to satisfy the need for love and belonging by praying the daily Rosary, as an attempt to grow in love for God our Father and our Blessed Mother Mary in our spiritual family in Heaven. The first prayer of the Rosary begins with the Sign of the Cross before the Apostles' Creed, which is a summary profession of the Catholic faith that includes belief in the communion of Saints. The Rosary is a way for Catholics to commune with God and the Saints, and to satisfy the need for love and belonging on the spiritual level. In applying Glasser's Choice Theory further, these thoughts and actions influence indirectly one's feelings and physiology, as in one's well-being. Thus, this study proposes to discover the influence of daily Rosary praying on religiosity and on the well-being of Catholic adult college students.

Concerning theoretical models of the association between prayer and health, Breslin and Lewis (2008) pointed out that the increased empirical studies on this association have not sufficiently addressed the theoretical causal components, such as the psychological or spiritual components, of the association between prayer and health. Breslin and Lewis explained that since the phenomenon of prayer is not fully understood, an analysis of prayer utilizing a conceptual approach will suffice. Nonetheless, this study is not a conceptual analysis of prayer, but I would add that I agree that the phenomenon of prayer cannot be fully understood by one who does not have faith because a prayer is an act of faith in God, according to Catholic belief.

What constitutes positive mental health and negative mental health will be reviewed for the purpose of examining and understanding how the daily Rosary may benefit one's well-being. In doing this, from the Choice Theory perspective, one may see the importance of meditating on the virtues modeled by Jesus and Mary in the mysteries of the daily Rosary, which, by meditating on and developing these virtuous thoughts and images in the Quality World of one's mind, virtuous actions may be more easily chosen (Glasser, 1998). Thus, the daily Rosary may assist one in choosing these virtuous actions for the enjoyment of positive mental health and well-being plus its benefits, and the avoidance of negative mental health and its harmful effects.

Mental health is an important part of well-being (VandenBos, (Ed.), 2015). In looking at the American Psychological Association's (VandenBos, (Ed.), 2015) definition of well-being, well-being is partly described with the words: "overall good physical and mental health" (p. 996). Moreover, this description of well-being coincides with the holistic theoretical foundation of this dissertation, which is Glasser's (1998) Choice Theory and its axiom that all behavior is Total Behavior; this will be further explained later in this chapter. Moreover, the American Psychological Association partly described mental health as: "emotional well-being" (p. 568). Therefore, emotional well-being and mental health are important components of well-being.

In conducting their research on mental health in the workplace, LaMontagne et al. (2014) reported that clinical mental health problems (e.g., major depression, anxiety disorders) and sub-clinical mental health problems (e.g., psychological distress) are usually found in the working population, of which, many are college students. LaMontagne, et al. concluded that an integrated approach to mental health is needed to

address mental health issues in the workplace. Therefore, if daily Rosary praying is associated with well-being, this may be a skill for Catholic employees to learn or develop and practice for the prevention or lessening of mental health difficulties in work environments.

According to LaMontagne et al. (2014), there are three types of interventions for dealing with mental health issues in the workplace: primary intervention is directed towards changing the work environment to decreased job stressors; secondary intervention is directed at changing how workers handle stress from work; tertiary intervention responds to the worker's mental health problems with treatment and support for returning to work. Therefore, this study will examine whether a link exists between the daily Rosary and well-being. Ultimately, the findings from this study may indicate daily Rosary praying to be an effective secondary intervention, to alleviate stress or reduce anxiety from work (Anastasi & Newberg, 2008; Reis & Menezes, 2017; Stöckigt et al., 2021).

Since mental health is part of well-being, which will be examined in this dissertation, it is important to know what leads to mental health and what does not. Positive mental health and negative mental health each have corresponding emotions. With positive mental health, positive emotions include feelings of harmony, well-being, peace, joy, and happiness; positive cognitive processes are comprised of beliefs of meaning and purpose in life and thinking in adaptive ways with hope and optimism (Koenig et al., 2012). With negative mental health, negative emotions consist of anxiety, restlessness, fear, loneliness, loss of interest, sadness, and rage or uncontrolled anger (Koenig et al., 2012). Negative mental health also includes negative cognitive processes,

such as delusional beliefs, confused thinking, and paranoia (Koenig et al., 2012). Examples of negative behaviors include addictions to drugs or alcohol, sex, food, or the antisocial behaviors of lying, cheating, stealing, or other self-centered acts that disrespect or harm others (Koenig et al., 2012). Negative mental health also includes serious mental issues such as anxiety, depression, drug or alcohol abuse/dependence, personality pathology, and psychosis (Koenig et al., 2012). Untreated mental problems, such as anxiety and depression, may lead to suicide. For example, according to the Centers for Disease Control and Prevention (CDC) (2023), suicide was reported to be the 9th leading cause of death for ages 10-64 with 48,183 deaths in 2021, about 36% more than in 2000, or about one every 11 minutes. The CDC also reported suicide to be the second leading cause of death for ages 10 to 14 and 20 to 34 in 2021. Thus, mental health issues should be addressed and evaluated for early and effective treatment.

Koenig et al. points out that both positive and negative mental health states are affected by environmental influences such as nurturing during infancy and childhood, training and education, and circumstances and life events during the lifecycle. Nonetheless, Koenig et al. (2012) inferred that since free persons can make choices that impact their mental health, individuals are not predetermined solely by their environment or biology. Glasser's (1998) Choice Theory posited that persons can make choices to improve their mental health, especially by evaluating how well they are satisfying their basic needs and deciding on what they can do to improve. Individuals are faced with daily choices many times each day regarding family, social, or work life which inevitably influence their life course (Koenig et al., 2012). Hence, I used Glasser's Choice Theory to explain more about choices and their influence on one's mental health and well-being.

Choices and Consequences

Choices have consequences for one's well-being (Glasser, 1998). In Choice Theory, Glasser (1998) posited that one only has control over one's own behavior or one's own choices, and that the choices that one makes in one's relationships, with oneself and others, primarily determines one's mental health or well-being. Choice Theory is an internal control psychology, which focuses on what choices one can make to improve one's most important relationships. In contrast, Choice Theory is not an external control psychology, in which one tries to control the choices of others, because this leads to frustration for oneself and others (Glasser, 1998). Negative choices have negative consequences that create distress and poor mental health; for example, stealing, cheating, dishonesty, revenge, infidelity, or neglecting friends or family all lead to undesirable consequences, such as poor relationships, separation, divorce, or even incarceration (Koenig et al., 2012). Whereas, for a person's choices to be helpful, practicing positive choices or caring relationship habits will go a long way toward improving one's relationships and well-being (Glasser, 1998).

Therefore, Glasser (1998) recommended seven caring habits for improving or maintaining healthy relationships: accepting, respecting, listening, supporting, encouraging, trusting, and negotiating differences; in contrast, he warned against the disconnecting relationship habits of criticizing, complaining, blaming, nagging, threatening, punishing, and bribing to control. Moreover, humility, honesty, forgiveness, kindness, gratefulness, faithfulness, diligence, and patience have consequences towards improved mental health (Koenig et al., 2012). The consequences of caring habits and positive choices improve personal, marital, family, social, and work relationships along

with diminishing stress (Glasser, 1998; Koenig et al., 2012). Therefore, as mentioned earlier, Glasser's Choice Theory was used as the theoretical foundation to help explain the findings of this dissertation on the associations between religiosity, daily Rosary, and well-being. Finally, as a form of religious coping, the daily Rosary may be explained as a way that might help one to cope with stress and to aid one to practice the virtues by providing one with graces to assist in making healthy choices that promote well-being.

Literature Review Related to Key Variables and/or Concepts

This section related to key variables and/or concepts will review research literature on college students' well-being before and during the COVID-19 pandemic, links between religiosity and well-being, and links between meditation and well-being. Then, links between the following constructs: mindfulness meditation, self-hypnosis or guided imagery, and Ignatian meditation since each of these constructs are forms of meditation. Finally, research on prayer and well-being will be reviewed before reviewing the minimal research on the Rosary and well-being.

College Students' Well-being Before the COVID-19 Pandemic

Even before the pandemic, the trend in the well-being of college students over the past decade has appeared to be declining, as indicated by reports of increased mental health problems (Duffy et al., 2019). Downs et al. (2017) cited that college students were significantly at risk for mental health difficulties with problematic symptoms as high as 53.8% for moderate to severe depression (Garlow et al., 2008) and 52.8% for moderate to severe anxiety (Rosenthal & Schreiner, 2000). Moreover, Duffy et al. (2019) examined Heathy Minds Study data from 2007–2017 in a sample of 155,026 students from 196 U.S. campuses. In summary, 26.9% screened positive for depression and 8.2% reported

suicidal ideation (Duffy et al., 2019). They also discovered that suicidal ideation increased over the past decade, from 5.8% in 2007 to 10.8% in 2016–2017 (Duffy et al., 2019). Therefore, preventive mental health services were encouraged by Duffy et al. along with more attention to the mental health needs of college students. With the mental health crisis among college students, it is hoped that this dissertation study might show how the daily Rosary prayer may be a mental health strategy to help support the well-being of Catholic adult college students for a positive social change.

College Students' Well-Being During the COVID-19 Pandemic

During the Coronavirus pandemic, the mental health and well-being of many college students in the United States has been either seriously challenged or in crisis, or somewhere on a continuum between the two (Browning et al., 2021; Charles et al., 2021; Healthy Minds Network, 2022; Healthy Minds Network and the American College Health Association, 2020; Hoyt et al., 2021; Lederer et al., 2021; Omary, 2021; Son et al., 2020; Wang et al., 2020). Findings in an online cross-sectional survey of over 2500 college students attending seven different universities in the United States between mid-March and early May 2020, according to Browning et al. (2021), suggested that 85% of the students experienced emotional distress and worry time due to negative impacts of COVID-19 on mental health and lifestyle. The students reported these negative effects due to lack of motivation, stress, anxiety, social distancing, and isolation, plus going out less, and education changes.

In another study, Wang et al. (2020) surveyed the mental health status and depression and anxiety severity of college students attending Texas A & M University during the COVID-19 pandemic. Of the 2031 participants, 48.14% (n=960) exhibited a

moderate-to-severe level of depression, 38.48% (n=775) exhibited a moderate-to-severe level of anxiety, and 18.04% (n=366) admitted suicidal thoughts (Wang et al., 2020). Of these dire findings, they reported the proportion of students with suicidal thoughts to be "alarming", and they emphasized the urgent need for this serious mental health issue and well-being crisis to be addressed and understood further (Wang et al., 2020, p. 8).

In a different study of college students during the pandemic, Son et al. (2020) researched the effects of the pandemic by conducting interview surveys in a qualitative and quantitative study on the mental health and well-being of 195 students at a large public university in the United States. Of the 195 students, 71% showed higher stress and anxiety due to the pandemic related stress, anxiety, and depressive thoughts. The students reported fear and worry concerning their health and the health of their loved ones (Son et al., 2020). Other adverse consequences of the pandemic reported by the students were: 91% complained of negative impacts of the pandemic; 89% had problems concentrating; 86% reported sleep pattern disruptions, and less social interactions due to physical distancing; and 82% indicated increased concerns about academic performance. Based on their findings, Son et al. emphasized the grave need for preventive strategies and interventions to address the mental health and well-being needs of college students throughout the pandemic.

More recently in a much larger study, during 2021 and 2022, the Healthy Minds Study (N=95,860) surveyed undergraduate and graduate students in the United States on their mental health (Healthy Minds Network, 2022). Only 32% of the students were reported to have been experiencing positive mental health, which they also referred to as psychological well-being (Healthy Minds Network, 2022). For example, the students

were asked, “In the past 4 weeks, how many days have you felt that emotional or mental difficulties have hurt your academic performance” (Healthy Minds Network, 2022, p. 6)? Seventeen percent responded, “none”; 29% responded “1 – 2 days”; 27% responded “3 - 5 days”, and 27% responded “6 or more days” (Healthy Minds Network, 2022, p. 6). Moreover, 44% reported depression either severe or moderate, and 37% reported anxiety either severe or moderate; in addition, 15% reported suicidal ideation and 28% reported non-suicidal self-injury during the previous year (Healthy Minds Network, 2022, p. 6).

However, in a study at the beginning of the pandemic in spring 2020, approximately 60% of the college students (N=18,764) who looked for mental health services found difficulties accessing them due to COVID-19 (Healthy Minds Network and the American College Health Association, 2020). Nonetheless, many did find mental health services. However, among college students with positive depression or anxiety screens (past year), only 60% of the students reported that they had received some mental health therapy/counseling and/or psychiatric medication (Healthy Minds Network, 2022). Therefore, mental health services to improve the well-being of college students were more especially needed during the pandemic (Charles et al., 2021; Hoyt et al., 2021). In order to help address the mental health and well-being needs of college students throughout the pandemic, mental health screening instruments have been needed; however, screening instruments are limited for identifying college students at risk for distress, anxiety, and depression factors affecting their well-being (Downs et al., 2017), Nonetheless, Downs et al. (2017) found the WHO-5 to have a significant correlation with psychometrically sound instruments measuring symptoms of distress, anxiety, depression and well-being (Downs et al., 2017). Downs et al. (2017) pointed out that their study of

the WHO-5 was the first time that this well-being instrument has been used with a population of college students, even though it has often been used to screen for depression in medical settings around the world (Topp et al., 2015). Therefore, this dissertation study helps to fulfill the gap in the literature regarding the use of the WHO-5 for assessing the well-being of Catholic students in college (Downs et al., 2017).

Links Between Religiosity and Well-Being

Scholarly studies in communication, psychology, and medicine, according to Baesler and Ladd (2009), have suggested that health is not just the absence of disease in the physical, mental, or social domains. Hence, Baesler and Ladd inferred that health is the holistic synthesis of physical, mental, and spiritual health, and more study is needed on the association between prayer and health. Grundmann (2014) concluded that engagement in religious practices is a cost-effective way to cope with life stressors and manage mental health for a positive influence on the overall health of many affected by the public mental health crisis. Thus, in this section, possible links between religiosity and well-being will be discussed.

To extend the research on religiosity and well-being, Diener et al. (2011) examined representative samples to discover how widespread religiosity is across cultures and whether it varies based on society traits. In Study 1 conducted by The Gallup Organization, Diener et al. measured religiosity from a daily U.S. poll of 353,845 participants in 50 states and the District of Columbia. In Study 2, Diener et al. measured religiosity using the Gallup World Poll from 2005 to 2009, which sampled 455,104 individuals from 154 nations, an average of 2,955 per country. Diener et al. measured religiosity with one question: “Is religion an important part of your daily life” (p. 1)? In

Study 1, they found about 66% of U.S. participants reported religion to be important in their lives. In Study 2, they found 74% of the worldwide respondents regarded religion to be important in their lives and 48% reported that they attended worship or a religious service during the past week. Diener et al. discovered that the positive influences of religion on social relationships and well-being appear to be dependent on the culture of society. Therefore, in this dissertation study, the influence of the daily Rosary prayer on religiosity and well-being was studied in the context of the predominantly non-Catholic culture of society in the United States.

Park et al. (2013) studied a nationally representative sample of adults (N = 1,431) to develop four typologies of religiousness/spirituality based on individuals' prayer, positive religious coping, religious service attendance, and daily spiritual exercises: 1) minimally religious or non-religious, 2) somewhat religious, 3) moderately religious, and 4) highly religious. Park et al. found distinct differences in well-being among the four classes, as the highly religious had the greatest probability of being happy and content with finances and the least probability of being distressed. Park et al. asserted the need for further studies to better understand the association between religiosity/spirituality and well-being. Park et al. encouraged further research to include indicators of pain intensity and duration, physical functioning, and disease diagnosis and other traits of well-being such as mental health, health beliefs, substance use and abuse, parenting behaviors, and orientations to end-of-life care. Therefore, in answer to Park et al.'s request for more studies on the association between religiosity/spirituality and well-being, this dissertation on the daily Rosary and well-being is offered as an attempt to help fulfill that request.

Ellison and Fan (2008) studied survey data from the General Social Survey (GSS) from 3,000 US adults in 1998 and 2004 because in those years, the GSS had special modules on religion and spirituality – the Daily Spiritual Experience Scale (DSES) that included data on aspects of well-being, such as self-esteem, happiness, psychological distress, and optimism. Ellison and Fan's results indicated that the net effects of daily spiritual experiences supported positive affect in four dimensions: satisfaction with self, happiness, excitement with life, and optimism about the future. For example, Ellison and Fan related that the DSES items (overall, theistic, and non-theistic) are all strongly positively associated with positive affect, net of the controls of social demographic characteristics and conventional religious activities (attendance and prayer), which suggests that DSES has an influence on positive affect through spiritual aspects other than conventional religious activities. Thus, since the daily Rosary may be considered a daily spiritual exercise, an association between the daily Rosary and well-being is investigated in this dissertation (Montfort, 2016).

Concerning spirituality/religiosity and well-being, Williams et al. (2012) studied quantitative and qualitative questionnaire responses on spiritual well-being among 500 older African Americans aged 55–105 in Milwaukee, Wisconsin, a hyper-segregated city where they are confronted with health and socio-economic difficulties. Williams et al. found that the respondents relied on spirituality and their relationship with God to help with their difficulties. Thus, spirituality appeared to be beneficial in assisting this older African American population in coping with their challenges, which was beneficial to their mental health.

Regarding prayer, as a form of spirituality, and mental health in various religious

or spiritual contexts, Hadzic (2011) reviewed the effect of spirituality on mental health, and recommended that to progress further, research needs to (1) acknowledge differences among religions; (2) formulate context-specific definitions of spirituality, as in the context of a particular faith; and (c) design studies to evaluate context-specific measures of spirituality. Hadzic asserted that the implementation of these recommendations provides for comprehensive analytical and comparative studies and will precede "groundbreaking" (p. 223) research findings. Hadzic (2011) emphasized the need to acknowledge differences in religion in new studies along with a context-specific study of spirituality. Hence, more research is needed to adequately address the links between prayer and mental health in various religious and spiritual contexts (Hadzic, 2011).

Further research in this area conducted by Kirk and Lewis (2013) reviewed the influence of religious activity such as frequency of prayer and religious service attendance on the well-being of 647 emerging adults, which is a stage of life when the number of religious practices usually decreases and the probability of substance abuse, risky sexual activity, and mental problems increase. The results showed that when emerging adults engaged in religious behaviors, they had less substance abuse, decreased sexual behavior, and a higher life satisfaction (Kirk & Lewis, 2013). For example, frequent prayers reported less alcohol use, alcohol intoxication, and marijuana use than the group that never prayed or meditated; the frequent prayers also reported higher life satisfaction, yet differences in sexual behavior had no statistical significance (Kirk & Lewis, 2013). My study will build on this work by discovering how the frequency of the daily Rosary prayer may mediate an association of religiosity with well-being.

Kirk and Lewis (2013) also noted that frequency of prayer and/or meditation

significantly predicted life satisfaction and marijuana use was less likely, but with smaller effects than religious attendance. They found that non-prayers were 3.9 times more likely to use marijuana than those who prayed on a weekly basis. However, Kirk and Lewis pointed out that when both indicators -- frequency of prayer/meditation and religious attendance -- were combined, frequent service attendees who prayed/meditated at least weekly reported higher life satisfaction and were much less likely to use substances and engage in sexual behavior. These results showed that during emerging adulthood, there is a marked association between religious activity, risky behavior, and satisfaction with life, and the commencing or maintaining of religious behaviors may help to prevent difficulties as these emerging adults transition into being responsible adults. Kirk and Lewis reasoned that there may be any number of reasons, such as: Their religious actions increase the meaning and purpose in their lives, or because they have chosen to adhere to a strict moral code with fear of social reprisal or eternal damnation. This aligns closely with the conclusion of Barcus (1999) that church attendance is often fruitless in effecting psychological well-being in the person's life if the person does not develop a relationship with God and a satisfying and meaningful life. Hence, prayer as a religious behavior to develop a meaningful relationship with God may help to influence emerging adults into becoming responsible adults, and thereby aid in improving their well-being.

Concerning religiosity, religious coping may be considered as a part of one's religiosity. Pérez and Smith (2015) examined religious coping and its association with well-being in cancer patients. Pérez and Smith studied 179 ambulatory cancer patients to discover the potential mediating role of control-related religious coping and self-efficacy

for coping with cancer. Control-related religious coping, according to Pérez and Smith, referred to the extent of one's sharing control of a situation with God falls into three styles: Active Religious Surrender—actively sharing control with God (e.g., Did my best and then trusted God to handle the situation), Passive Religious Deferral—passively waiting for God to handle the situation (Didn't try to do much; just expected God to handle it), and Pleading for Direct Intercession— indirectly seeking control by pleading with God for a miracle or divine intervention (Pleaded to God for things to turn out okay). Pérez and Smith found that active religious surrender was associated with increased well-being whereas pleading for direct intercession was associated with decreased well-being. These differences indicate the need for more research on mechanisms that link religious factors to well-being among cancer patients. Interestingly, Pérez and Smith also discovered a negative direct correlation between pleading for God's assistance and emotional well-being; nonetheless, they gave no explanation for this other than what may be inferred from their results that if one trusts less in God's control over one's matters, then one is likely to have less emotional well-being. Thus, their trust in God, a form of religious coping, appears to give them the psychological or spiritual comfort of being taken care of by God's divine providence (Saint-Jure & Colombière, 2012). Thus, the daily Rosary, as a profession of faith and trust in God, may also be considered a form of religious coping (Montfort, 2016; Wachholtz & Sambamoorthi, 2011).

To explore religiosity and spirituality as a resilience strategy in the daily lives of older adults, Reis, and Menezes (2017) conducted qualitative research interviews with 14 older adults registered at a family health unit in Brazil. Their qualitative results suggested

that God was central in the participants' lives, and that they used Bible reading, Rosary praying and other prayers as resilience strategies to cope with difficult situations, health issues, and the achievement and maintaining of health and well-being. One of the participants, for example, an 80-year-old woman stated, "when I'm here in the house alone, I get my rosary and I pray, it helps me so much! It gives me some relief" (Reis & Menezes, 2017, p. 763). Thus, the Rosary was a helpful form of religious coping.

Leondari and Gialamas (2009) examined the association between religiosity and psychological well-being in a sample of Greek Orthodox Christians (N = 363) located in Greece. Ages ranged from 18 to 48 with the mean age 24.6 years (SD = 6.9); about 71% of the participants were undergraduate university students, and 24% were full-time professionals recruited from in-service teacher training courses (Leondari & Gialamas, 2009). As mentioned earlier, Leondari and Gialamas operationally defined religiosity as belief salience, frequency of prayer, and church attendance. Leondari and Gialamas hypothesized a greater life satisfaction and less psychological distress in Greek Orthodox participants who exhibited increased religiosity. For outcome measures, Leondari and Gialamas assessed satisfaction with life and the absence of psychological distress such as loneliness, anxiety, and depression. They found that belief salience and church attendance were positively correlated with improved life satisfaction. They also found a strong positive association between anxiety and personal prayer frequency (Leondari & Gialamas, 2009). In other words, more anxiety was linked to more personal prayer. The authors concluded that one possibility for these results may be that many people that pray are anxious or stressed, which may skew the results to show that increased prayer leads to increased anxiety or stress, instead of vice versa. I agree that it is possible that the

positive correlation between anxiety and personal prayer frequency may have been an indication that the participants that were under greater stress or anxiety prayed more, and I would add that their anxiety level may have been greater, if they had not prayed.

Further, the research results of Leondari and Gialamas indicated that personal beliefs about God did not appear to be associated with psychological well-being. One explanation for this finding may be found in a limitation of their study: the study sample was not representative of the general population because it was mostly well-educated university students (Leondari & Gialamas, 2009). Nonetheless, the findings of their study only partially support the hypothesized positive association of religiosity and psychological well-being (Leondari & Gialamas, 2009). Hence, this dissertation will look for links between religiosity and well-being.

Links between Meditation and Well-Being

Because the Rosary prayer is a meditative prayer, this section will discuss previous research linking meditation as mindfulness and self-hypnosis or guided imagery, Ignatian meditation and well-being, as these forms of meditation have similar characteristics with praying the Rosary. Ireland (2012) described meditation in psychological terms as behaviors that are self-regulatory and goal-directed, which aim to cultivate and train awareness and attention skills. The Rosary not only serves a devotional purpose, but it also has an educational purpose: those who pray the Rosary recall and meditate on the lives of Jesus Christ and the Blessed Virgin Mary, His mother and Saint Joseph, His Guardian Father to better model or imitate them and their virtues (Marshall, 2020; Meznar, 2005; Montfort, 2016). Thus, praying the Rosary helps individuals

meditate on these mysteries to better learn and practice the virtues related to each mystery.

The goal of meditation skills development, according to Ireland (2012), entails the development of increased understanding and control over mental states and processes to improve psychological health and functioning. Ireland added, meditation skill development includes systematic self-regulatory behaviors utilizing the manipulation of breathing, posture, and states of consciousness. Ireland referred to the careful monitoring and refocusing of attention as examples of meditation skills along with meditation practices that use movement and visualization. Similarly, the Rosary prayer/meditation includes movement of one's fingers from bead to bead as one changes from one vocal prayer to the next, and visualization of each of the mysteries to better learn to imitate the virtues of Our Lord and Our Lady, the Blessed Virgin (Meznar, 2005; Montfort, 2016).

According to Ireland (2012), meditation appears to be associated with mental health and functioning, yet additional research is needed with refined methodology for definitive conclusions on meditation results. In a recent randomly assigned pretest posttest study (N = 61) with university students in Poland, Kaplan-Rakowski et al. (2021) studied the effectiveness of meditation with the use of virtual reality compared to using a video for meditation. Quantitative results showed virtual reality meditation to be significantly more helpful than video meditation; however, the students experienced improved well-being either way, as the students reported either form of meditation beneficial in reducing pre-exam anxiety (Kaplan-Rakowski et al., 2021). These visual forms of mediation are very similar to meditation on the sacred mysteries of the Rosary,

and meditation as self-hypnosis or guided imagery, which I will review later in this chapter.

Links Between Mindfulness Meditation and Well-Being

According to Appel and Kim-Appel (2009), mindfulness meditation seeks to develop directed attention or non-reactive present moment awareness, since the number of tasks that our brains can efficiently do simultaneously may be limited. Many people, for example, try to multitask and talk on the phone while driving; however, instead of doubling the brain areas activated, the amount of neural activity for each task is substantially decreased (Appel & Kim-Appel, 2009). Mindfulness facilitates a more practical and powerful utilization of directed neural activity, and implications of this may be increased empathy, an improved sense of self along with less self-centeredness (Appel & Kim-Appel, 2009). Psychological suffering, according to Appel and Kim-Appel, is usually related to a high degree of attention focused on self; mindfulness may aid in a balanced attention of the self/other. Thus, in mindfulness meditation, like other meditation approaches, there is the aspiration to deepen and refine one's attention and awareness for improved life outcomes (Appel & Kim-Appel, 2009). Further, mindfulness meditation is a systematic, intentional, human activity, and mindfulness meditation utilizes many techniques or forms (Appel & Kim-Appel, 2009). The Rosary is a Christian form of mindfulness (Appel & Kim-Appel, 2009; Lenihan, 2015), as one purposefully thinks about or meditates on the sacred mysteries of the Rosary and their related virtues (Montfort, 2016).

Since no research was found which assessed the Rosary as a form of mindfulness influencing well-being, other types of mindfulness are part of this literature review

(Lenihan, 2015). Martin et al. (2022), for example, sought to identify factors that may affect stress and well-being in nursing students who had resiliency skills training with mindfulness practices. Martin et al. emailed recruitment fliers to 2264 potential participants from three nursing programs in North Texas, and 417 students completed online surveys that collected demographic and health related factors plus measures of well-being and stress. Mindfulness meditation was associated with higher well-being measures and lower stress, but this association was less in a multivariate model when individual demographic and health related factors were considered (Martin et al., 2022). Nonetheless, Martin et al. concluded that resiliency skills training with mindfulness practices may help nursing students reduce stress, improve overall well-being, and help students to avoid burnout and stress-related illness after employment.

Martin et al. (2022) reported that the nursing students spent an average of 56.79 minutes per week in mindfulness meditation, and 39.2% of students reported no time meditating. However, longer meditation time was associated with increased life satisfaction (Martin et al., 2022). Further, Martin et al reported that most of the nursing student participants were interested in volunteering for a training program that would include mindfulness meditation. Mindfulness meditation training and practice appears to be important in helping students to learn and effectively utilize mindfulness meditation skills.

Concerning mindfulness meditation training and practice, technology offers some innovative options, such as mindfulness meditation apps. Regarding studies that examine mindfulness meditation apps, Gál et al. (2021) conducted a meta-analysis of random controlled trials that used a mindfulness meditation app as the primary intervention to

improve participants' well-being and mental-health related outcomes. After reviewing 34 trials (N = 7566) of 2637 records, they found significant small or medium effect sizes at post-test for perceived stress, anxiety, depression, and psychological well-being; significant effects were not found for distress and general well-being (Gál et al., 2021). Due to the small number of studies in the meta-analysis, Gál et al. asserted that the results should be interpreted cautiously. Therefore, Gál et al. tentatively concluded that mindfulness apps appeared to be promising to improve well-being and mental health.

In a mindfulness study with college students, Rosini et al. (2017) studied mindfulness' role in 42 undergraduate students experiencing negative emotions and lifestyle behaviors. Their study results indicated higher mindfulness levels were associated with improved lifestyle habits, lower stress levels, and decreased negative affect (Rosini et al., 2017). Rosini et al. concluded that the results showed the effectiveness of the mindfulness practices on the well-being of 42 undergraduate students.

Oman and Bormann (2015) studied 132 outpatient post-traumatic stress disorder (PTSD) veterans of a Veteran's Administration Clinic regarding the effectiveness of the Mantram Repetition Program, as a form of mindfulness meditation, on self-efficacy to manage PTSD symptoms. Random participants of Oman and Bormann's study chose a sacred phrase from a spiritual tradition and repeated the phrase silently during the day to stop unwanted thoughts and actions and improve concentration and attention. Oman and Bormann found significant treatment effects on self-efficacy, which brought about treatment effects on mental health, spiritual well-being, satisfaction with physical health, depression, and self-reported and clinician-assessed PTSD symptoms. Oman and

Bormann concluded that the Mantram Repetition Program promotes self-efficacy to manage PTSD symptoms while positively influencing various aspects of well-being.

Null and Pennesi (2017) examined mindfulness techniques for 12 weeks in a health diary that monitored any changes in the physical, mental, and emotional well-being of 166 adult participants. Null and Pennesi studied how an intervention of diet, lifestyle, and behavior modification, including a plant-based diet, daily exercise and mindful techniques, would affect their chronic moderate to severe depression and anxiety and other conditions. Null and Pennesi found that the majority of participants reported substantial benefits that persisted after a six-month follow-up, with improvements in depression and anxiety as well as fatigue, insomnia, and pain. Mindfulness and de-stress techniques, such as 20 minutes of daily meditation, prayer, guided imagery, and mindfulness in nature were included as part of the interventions (Null & Pennesi, 2017).

Links Between Self-Hypnosis or Guided Imagery and Well-being

Self-hypnosis has been linked to well-being (Bragard et al., 2017). Self-hypnosis occurs when one induces oneself into a daydream-like or sleep-like state known as a trance or hypnotic state for the purpose of healing or improving oneself; a self-hypnotic state is similar to a meditative state (Caprio & Berger, 1998; Zieg, 2008). Self-hypnosis may also be considered as a form of guided imagery because in self-hypnosis, one guides one's imagination to a goal in a relaxed state (Zieg, 2008). Guided imagery, also known as visualization, occurs when the mind is led to create or recall images for the purpose of eliciting an improvement in psychological or physical health (Bedford, 2012). Thus, the Rosary with its meditative prayer and visualization of the sacred mysteries may be considered as a form of guided imagery or self-hypnosis, except that the Rosary

originated from God through Holy Mary the Mother of God and leads to Jesus Christ true God and true man through her (Montfort, 2016).

Self-hypnosis is a form of meditation, because according to Zieg (2008), self-hypnosis, meditation, mindfulness, and related states have some common characteristics; for example, they all are dependent on modifications in attention, and changes in the intensity of one's cognitions or emotions, and dissociative actions through the use of imagination. Also, a meditation can start by giving one's attention to an imaginary scene, a virtue, a word, or a mantra (Zieg, 2008). Further, relaxation exercises can add a different intensity to one's total behavior (Zieg, 2008). However, Zieg pointed out that self-hypnosis, meditation, and mindfulness may be similar to hypnosis, but they are differentiated by the fact they are self-directed; whereas, hypnosis is directed by someone else. Nonetheless, it is interesting to note that self-hypnosis may be considered as a form of meditation or mindfulness, because the Rosary is also a form of meditation and mindfulness (Lenihan, 2015; Montfort, 2016). In the next study, self-hypnosis will be examined and compared with cognitive-behavioral therapy and yoga as possible ways to decrease distress in breast cancer patients (Bragard et al., 2017).

Bragard et al. (2017) studied 99 breast cancer patients who chose to participate in 1 of 3 mind-body interventions cognitive behavioral therapy: n = 10; yoga: n = 21; and self-hypnosis: n = 68). Bragard et al. studied each of these interventions on their feasibility, ease of compliance, and impact on the participants' distress, quality of life, sleep, and mental adjustment. Results demonstrated high feasibility and high compliance (Bragard et al., 2017) However, the cognitive behavioral therapy group had no significant effect, but the yoga and self-hypnosis groups showed significant positive effects on

lowering patients' distress (Bragard et al., 2017). The self-hypnosis group also showed significant positive effects on quality of life, sleep, and mental adjustment (Bragard et al., 2017). Based on Bragard et al.'s research, breast cancer patients may experience less distress from the use of mind-body interventions, such as self-hypnosis.

Links Between Ignatian Meditation and Well-Being

Ignatian meditation is a Catholic spirituality and meditation technique that includes contemplation, which is a form of meditation. Staral (2002) studied the use of Ignatian Spirituality in social work students, and concluded that meditation may positively influence psychological well-being, yet more sound research studies are needed. Ignatian meditation, which seeks to help one to always know and do God's Holy Will, originated from *The Spiritual Exercises of St. Ignatius Loyola,* written over 400 years ago and is esteemed by the Roman Catholic Church (Egan, 2021). This spirituality, according to Staral, contains Christian premises because it is established in contemplations or reflections on events referred to as mysteries in the life of Jesus, and it is intended to be understood within the framework of the Christian Gospels.

There are several Ignatian forms of prayer, but the two main prayer forms are contemplation and the examen, also called the examen of conscience, which is usually done at night to review one's day to evaluate the past day to acknowledge God's presence, thank Him for blessings, ask for His forgiveness for shortcomings, and faults or sins, and plan and pray for a better day tomorrow (Lonsdale, 1990; Plante, 2022b). Contemplation uses the imagination to mentally work with stories, images, and pictures; for example, Ignatius used contemplation to present Christian truths or meanings (Lonsdale, 1990). Similarly, in the Rosary prayer, each of the mysteries of the Rosary

may be mentally depicted by images and scriptural accounts, which are reflected upon during the recitation of each corresponding Rosary prayer, as in each Hail Mary prayer. This method is followed to review how one is living one's life according to the Christian virtues demonstrated in the Rosary mysteries also known as the sacred mysteries of the life of Jesus Christ and His Mother, the Blessed Virgin Mary.

Links Between Prayer and Well-Being

Since there has been only minimal research on Rosary prayer and well-being, this section will cover research on prayer more generally and well-being. I will identify four types of prayer in this section, and then explain what the research shows about the association between prayer and well-being.

Ai et al. (2008) studied the psychological mechanism by which faith factors may affect health-related well-being in middle-aged and older patients after open-heart surgery. They conducted three interviews with 295 patients to assess postoperative mental health, optimism, acute stress, and chronic conditions; they used structural equation modeling to analyze the data pertaining to their research questions including one question: Which styles or types of prayer usage may have potential protection in postoperative outcomes (Ai et al., 2008)? Thus, Ai et al. studied four types of prayer from Poloma and Gallup's (1991) large-scale American study: ritual prayer, colloquial (conversational) prayer, meditative prayer, and petitionary prayer. Ai et al. unexpectedly found petitionary prayer to be the only prayer type associated with better postoperative well-being that was attributed to optimism, which appeared to offset the unwanted stress effect. Whereas, conversational prayer, for example, was related to poor results (Ai et al., 2008).

Concerning prayer frequency and well-being, Francis et al. (2008) administered the abbreviated Revised Eysenck Personality Questionnaire and a measure of prayer frequency to discover the association between prayer and psychological health with two samples of 16 to 18-year-old pupils attending Catholic (N = 1246) and Protestant (N = 1060) schools in Northern Ireland. They found higher prayer frequency to be associated with lower psychoticism scores, which may indicate better psychological health. However, there was no indication as to whether the pupils had higher prayer frequencies all their lives or only a certain period (Francis et al.). These findings confirmed the dominant findings from other cultural contexts that increased frequency of prayer was associated with decreased psychoticism scores (Francis et al., 2008).

However, Francis et al. (2008) also found that the Catholic group's higher prayer levels were associated with increased neuroticism. Neuroticism is defined as a personality dimension that is "characterized by a chronic level of emotional instability and proneness to psychological distress" (VandenBos, 2015, p. 622). Therefore, the higher prayer levels in Francis et al.'s study suggested much lower levels of psychological health for the Catholic group. As mentioned earlier, it will be interesting to discover in this dissertation what will be the association between increased daily Rosaries and well-being.

Regarding further studies on prayer frequency and well-being, Hollywell and Walker (2009) systematically reviewed 26 correlational or quantitative studies since 1990 on private or personal prayer as a suitable intervention for hospitalized patients. However, most of the studies that showed positive correlations between prayer and psychological well-being were found in samples that demonstrated a relatively high level of prayer use and church attendance (Hollywell & Walker, 2009). Hence, for these

studies that Hollywell and Walker reviewed, as prayer increased, psychological well-being appeared to increase. Greater function, optimism, and well-being appeared to be associated with devotional prayers to a supportive God, whereas prayers for help without a pre-existing faith tended to be associated with more distress and less quality function (Hollywell & Walker, 2009). Therefore, the context of a pre-existing faith in God appeared to be a significant mediating variable between prayer and well-being.

In a national survey (N = 22,306), Wachholtz and Sambamoorthi (2011) studied the efficacy of prayer as a coping mechanism. Hence, it would be interesting to know whether the participants in the Wachholtz and Sambamoorthi national survey had a pre-existing faith or not because the participants in the survey exhibited research findings showing a significant 6% increase in prayer use as a coping mechanism for health issues in the national survey from 2002 (43%) to 2007 (49%). Wachholtz and Sambamoorthi organized the participants into three groups: prayed in the last year, did not pray in the last year, and never prayed. Further, the data studied did not distinguish the type of prayer used, as in whether it was petitionary or meditative, individual or group (Wachholtz & Sambamoorthi, 2011). Nonetheless, it appears more people in the United States between 2002 and 2007 were utilizing prayer as a coping mechanism for health concerns, and that people with a pre-existing faith were able to achieve greater function and psychological well-being through increased prayer (Hollywell & Walker, 2009; Wachholtz & Sambamoorthi, 2011). Nonetheless, more research is needed to discover more about the research variables concerning the characteristics of the participants and the types of prayer used. Therefore, this dissertation study will aim to help fill the gap in the research

literature concerning the study of participants with specific characteristics, such as a pre-existing faith, and utilizing a specific type of prayer.

Leondari and Gialamas (2009) studied a sample of Greek Orthodox Christians (N = 363) for the association between religiosity and psychological well-being. Religiosity was defined as involvement in religious activities (church attendance, frequency of prayer) and belief salience (Leondari & Gialamas, 2009, p. 3). The results demonstrated a significant positive correlation between frequency of personal prayer and levels of anxiety; specifically, more frequent personal prayer was associated with higher levels of anxiety. This directly contradicts the research findings of Hollywell and Walker (2009); so, Leondari and Gialamas (2009) suggested that the stressor response model of Ellison and Levin (1998), which was likely unknown to Holywell and Walker, may be an explanation for the positive correlation between personal prayer and anxiety. According to Ellison and Levin's stressor response model, stressors, such as chronic illness, influence individuals to increase the frequency of their religious activities. Hence, the relationship between frequency of prayer and anxiety may mean that the anxious people in Leondari and Gialamas' study prayed more often because they used prayer as a buffer for stress.

Kirk and Lewis (2013) suggested prayer frequency predicted improved life satisfaction. Kirk and Lewis reported frequency of prayer to be a significant predictor of increased life satisfaction and decreased marijuana use; however, the effects were less than the impact of religious attendance on the same outcomes. The non-prayers exhibited a 3.9 times greater probability to use marijuana than those who prayed weekly (Kirk & Lewis, 2013). When Kirk and Lewis (2013) combined religious attendance and weekly

prayer, they found that those who prayed at least weekly and attended regular religious services reported greater life satisfaction and a much less likelihood to use substances or engage in sexual activity. However, as noted by Wachholtz and Sambamoorthi (2011), the researchers did not distinguish what kind of prayers were prayed and under what context of belief, faith, and/or situation.

Schnitker and Richardson (2019) examined the effect of thanksgiving on well-being by comparing a secular form of gratitude with a prayerful form of gratitude. Schnitker and Richardson asked undergraduate students (N = 196) to write 10 things that they were grateful for, once a week for five weeks; students were randomly assigned to: 1) read their thanks aloud to themselves, 2) read their thanks to another person, or 3) pray their thanks aloud to God. Students in the prayer condition experienced a reduction in negative affect, and students in the prayer condition who also gave high effort showed an increase in gratitude, positive affect, and hope (Schnitker & Richardson, 2019). Schnitker and Richardson concluded that the non-significant effects of the social condition imply that the mediators explaining the prayer effects are associated with the theistic and sacred elements of prayer instead of its social features. Lastly, Schnitker and Richardson recommended further experimental studies to investigate whether the ability of prayer to increase well-being effects may be transferred to other prayer types. Though this dissertation study will not be an experimental study of a prayer type, it will be non-experimental study of the Rosary prayer and well-being, and a step in the direction towards future studies examining more closely the association between prayer and well-being.

Many studies suggest that prayer and mindfulness meditation may have a positive influence on well-being, yet more research related to religiosity, prayer, and well-being is needed in varying demographic contexts including context of belief, faith, and/or situation (Bormann et al., 2013; Hollywell & Walker, 2009; Ireland, 2012; Kirk & Lewis, 2013; Oman & Bormann, 2015; Wachholtz & Sambamoorthi, 2011). Therefore, this study aims to help fill this gap in the research.

Links Between Rosary Praying and Well-Being

This section covers the minimal research on the link between Rosary praying and well-being. Stöckigt et al. (2021) interviewed 10 devout Rosary praying Roman Catholic German adults to explore the experiences and perceived effects of praying the Rosary on issues concerning health and well-being, spirituality, and religiosity. Effects of praying the Rosary alone or in a group, reported by Stöckigt et al., were relaxation, peace, stability and strength in life, self-discipline, and experiencing "the presence of God" along with a contemplative link with Jesus and Mary through the mysteries of the Rosary (Stöckigt et al., 2021). Participants also reported that the Rosary had the potential to prevent or decrease stress, anxiety, and sadness (Stöckigt et al., 2021). Additional effects experienced were feelings of a entering a "spiritual rhythm" with the recitation of the Rosary prayers and being in a "holy space" that was "deep" and "trance"-like, a place of connection with one's subconscious, a tranquil relief from the distractions and stressors of daily life (Stöckigt et al., 2021, p. 3893). Further, participants shared experiences of greater trust in God and His will while being less self-centered and less focused on their will; thus, they were progressing in the virtues of humility and charity, which they gave further example of by their expressing how they were being more friendly and helpful to

others (Stöckigt et al., 2021). Moreover, the Rosary was seen not only as having the powerful potential to positively impact the participants, but also the lives of others plus society and politics around the world (Stöckigt et al., 2021). Concerning possible reasons for the effects of the Rosary, the participants most often attributed the Rosary benefits to "the prayer itself, trust and devotion, faith, God and their connection to God" (Stöckigt et al., 2021, p. 3895). These possible reasons for the Rosary benefits (Stöckigt et al., 2021) align with the research conclusions of Schnitker and Richardson (2019), mentioned earlier, who concluded in their study on gratitude that the mediators explaining the beneficial prayer effects were associated with the sacred and theistic aspects of prayer.

Concerning other research on the Rosary, Bernardi et al. (2001) concluded probable psychological benefits from praying the Rosary, which was prayed in Latin. Bernardi et al. (2001) studied the association between the Rosary prayer ritual and autonomic cardiovascular rhythms, in which the authors indicated probable psychological benefits due to the physiological benefits of improved heart, blood pressure, and respiration rates from praying the Rosary. Bernardi et al. (2001) did conclude that the Rosary and yoga formulas each had positive psychological and probable physiological benefits; further, they stated, "The rosary might be viewed as a health practice as well as a religious practice" (p.1449). The researchers did not discuss details about the positive psychological benefits but inferred that there would be psychological benefits due to the likely physiological benefits. This inference of psychological benefits based on the likely physiological benefits is in line with the Choice Theory Total Behavior concept. Choice Theory posits that all behavior is Total Behavior (Glasser, 1998). For example, according to this Choice Theory Total Behavior concept, a change in a person's physiology

immediately effects a corresponding change in one's other components of behavior: thoughts, actions, and feelings (Glasser, 1998). Therefore, Bernardi et al.'s inference of the Rosary's psychological benefits based on reduced breathing rate and heart rate appear to be a logical conclusion, especially from a biopsychosocial-spiritual conceptual framework and the Total Behavior concept of Choice Theory (Glasser, 1998). Nonetheless, more research is needed to expand on the link between the Rosary prayer and well-being.

In a study in which one participant prayed the Rosary in a group, Bier et al. (2008) studied two participants with dementia; one participant learned to use a calendar, with the help of his wife, to cue his memory with a spaced retrieval method for answering his repetitious questions regarding the current date and family calls. However, this method was not easy for him to incorporate into his daily routine (Bier et al., 2008). The second of the two participants prayed the Rosary in a group away from her home, new learning resulted as she learned to associate the ring of an alarm clock with the time to go to the Rosary group. She attended the Rosary group about two or three times per week, or about half of the times that the group met to pray the Rosary (Bier et al., 2008). Application of this learning was difficult, which is about all that was mentioned about the Rosary group benefits from this study; therefore, Bier et al. encouraged further studies. Concerning future research, it would be interesting to discover the association between daily or weekly praying of the Rosary in a group (i.e., family, church group, or congregation), and well-being including the presence or absence of dementia in older adults, as compared with those who meet in a social group for some other type of religious activity.

Páez et al. (2018) studied a representative sample of the Chilean population and found collective religious rituals, which they identified as public religiosity, to be positively associated with satisfaction with life. In contrast, Páez et al. found private religiosity to have no association with life satisfaction. These findings of Páez et al. favor the idea that it is the social part of religiosity, which supports well-being. Therefore, this dissertation in Chapter 3 will distinguish whether one prays the Rosary alone or with one or more persons, as the social part of praying the Rosary with another person or persons may confound the results of any daily Rosary association with well-being. Nonetheless, the group Rosary was not analyzed in this study, yet it would be interesting to explore in another study.

Nonetheless, Anastasi and Newberg (2008) noted, after reviewing the research literature, that many prayer rituals have demonstrated both psychological and physiological effects, but they wanted to design their study to have true rigor to capture the Rosary prayer effects on acute anxiety. They, therefore, employed a true pre-test post-test factorial design to compare two groups: one group prayed the Rosary, and the other group viewed a video about Catholic values and messages. Each group filled out the State–Trait Anxiety Inventory immediately before and after the treatment condition; Anastasi and Newberg found that praying the Rosary reduced acute anxiety in a sample of 30 students from a small Catholic college. These findings, according to Anastasi and Newberg, indicated that the Rosary ritual may significantly contribute to psychological well-being. This study by Anastasi and Newberg appeared to be the only quantitative research study that measured the association between praying the Rosary and some form of well-being, such as reduced acute anxiety. Therefore, the aim of this dissertation is to

help fill the gap in research studies, concerning the lack of studies on the association between praying the Rosary and well-being.

Summary and Conclusions

The purpose of this study was to address the link between the religiosity, and the frequency of praying the daily Rosary, and the well-being of Catholic adult students in U.S. institutions of higher education during the Coronavirus pandemic. The need for this study was established through reviewing literature concerning religiosity, meditation, prayer, the Rosary, and well-being. Overall, this literature review indicates that in many studies, prayer and mindfulness meditation may have a positive influence on well-being, yet more research related to religiosity, prayer, and well-being is needed in varying situations or contexts involving belief and faith. Also, religiosity may have a positive influence on well-being depending on the cultural context, as in some cultures there is no influence or a negative influence, yet more sound research is needed on the relationship between religiosity and well-being, depending on the cultural context.

Anastasi and Newberg (2008) suggested praying the Rosary is associated with less acute anxiety. Stöckigt et al. (2021) suggested that praying the Rosary may foster benefits to health and well-being. In addition, Bernardi et al. (2001) indicated the Rosary prayer improved heart and respiratory rates and blood pressure, leading to probable physiological benefits and possible psychological benefits. Baptized Catholics make up 1.3 billion or 17.7% of the world population of 7.4 billion (Holy See Press Office, 2019), and many Catholics have prayed the Rosary daily as a pious tradition for centuries, yet there has been no research on whether the ritual of daily Rosary praying is associated

with the well-being of Catholic adult college students. Therefore, I aimed to fill this gap in literature.

This study has the potential for a positive social change in terms of creating a new or greater awareness in Catholic adult college students about praying the Rosary daily may have a positive influence on their well-being. Further, this study has the potential to complement the work of health practitioners and others who work with Catholic students in college by their learning of how the daily Rosary may improve the well-being of these students, even during a time of crisis like the Coronavirus pandemic. Chapter 3 includes the methodology, setting, sample, instrumentation, and data analysis methods.

Chapter 3: Research Method

This chapter includes an explanation of the quantitative nonexperimental research method that was used for this survey study. The purpose of this study was to discover if there were any associations between religiosity and well-being, and if frequency of praying the daily Rosary mediated any associations between religiosity and well-being of Catholic adults enrolled as students at colleges or universities, vocational schools or colleges, or institutions of higher education in the U.S. in 2021. Specifically, in this chapter, I review the research design and rationale, methodology, data analysis plan, ethical procedures, and threats to validity.

Research Design and Rationale

Simple linear regressions, Spearman correlations, and multiple linear regression mediation analyses were used to examine any associations between religiosity, well-being, and frequency of praying the daily Rosary based on participants' online responses to survey questions on the following assessments: the DUREL, the Daily Rosary Frequency Questions, and the WHO-5 Well-Being Index. Five linear regressions, four Spearman correlations, and four multiple linear regression mediation analyses were used to address whether there were associations between religiosity, praying the daily Rosary, and individual well-being, including whether daily Rosary frequency (mediator variable) mediated an association between religiosity (predictor variable) and well-being (outcome variable).

Quantitative research involves examining empirical data by using deductive reasoning to make statistical conclusions (Burkholder et al., 2016; Leavy, 2017). Quantitative methodologies often involve using explanatory research to examine

correlations, associations, and causal relationships (Leavy, 2017). This study was quantitative because it involved addressing any associations between well-being, religiosity, and daily Rosary frequency, along with whether daily Rosary frequency mediated any associations between religiosity and well-being via linear regression mediation analyses. Although there has been much research showing positive influences of religiosity on well-being, there has been no research on daily Rosary frequency as a potential catalyst that may spur positive associations between religiosity and well-being among Catholics. Therefore, this study may help to fill this gap in the literature.

Regression is a statistical technique that involves making predictions based on associations between variables (Gravetter & Wallnau, 2009). More specifically, linear regression involves discovering the best-fitting straight line for any set of data, in which the best-fitting straight-line will most accurately describe data points on a graph with a linear equation (Gravetter & Wallnau, 2009). A mediator is the vehicle or means by which a predictor variable impacts an outcome variable (Baron & Kenny, 1986; Frazier et al., 2004). Determining the significant presence of a mediator helps in terms of determining processes through which independent variables are related to dependent variables. Regression mediation analysis has been often used as a statistical method in the social and psychological sciences. However, researchers have developed more accurate methods such as the bootstrapping approach to analyze whether predictor variables influence outcome variables via mediation or indirect effects (Hayes, 2022; Jose, 2013). In this study, the bootstrapping approach was used as part of the multiple linear regression mediation analysis process to examine whether there was a statistically significant mediating or indirect effect of religiosity on well-being via daily Rosary

frequency.

This study may lead to a positive social change by increasing the awareness of Catholics students in college to the potential benefits of praying the Rosary daily related to religiosity and well-being. In addition, this study may lead to a positive social change by prompting more research on praying the Rosary daily and its possible influence on the religiosity and well-being of Catholic students in college. This study may be helpful to educators and health professionals in terms of educating and treating Catholic college students concerning their well-being and to motivate them to pray the daily Rosary by themselves, or as families, or in groups or churches.

Methodology

Population, Power, and Sample Size

The target population was Catholic adult university, college, and vocational students in the U.S. The power of a statistical test is the probability of a result showing a statistically significant effect if an effect is truly present in the sample under study (Darlington & Hayes, 2017). High power is desired for conducting a hypothesis test in a study. A statistical power analysis and power table determined that a sample size of 59 was needed to achieve at least 0.80 probability to reject null hypotheses and accept alternative hypotheses.

Therefore, a convenience sample of at least 59 participants was a minimum goal for this study. However, only a minimum sample size of 55 was required for the first nine research questions using a simple linear regression to determine statistical significance, based on G*Power 3.1 statistical analysis with the following criteria: effect size $f^2 = .15$ (medium effect size), $\alpha = .05$, power = .80, predictors = 1 (Faul et al., 2009). However,

the minimum target sample size for this study was 59 because for the last four mediation analysis research questions, a 0.80 statistical power would require a sample size of 59 with a large effect size of 0.59 for path *a* of the mediation model and a medium effect size of 0.39 for path *b* (Fritz & MacKinnon, 2007). Larger sample sizes have been generally recommended for better results (Darlington & Hayes, 2017). Therefore, the minimum target sample size for this study was 59 participants.

Sampling and Sampling Procedures

The sample for this study was a convenience probabilistic sample, including snowball sampling, of Catholic students from institutions of higher education in the United States. All participants were baptized Catholics, professed to be Catholic, were age 18 or older, enrolled in an institution of higher education in the U.S., and lived in the U.S. at the time of the survey.

Procedures for Recruitment, Participation, and Data Collection

After the proposal was approved from the Institutional Review Board (IRB #08-27-21-0269227), participant recruitment began. This included the following steps:

First, during the recruitment step, I emailed study invitation flyers to contact people at four nationwide organizations, of which two were Catholic, one was professional, and one was Catholic and professional, who had potential participants as members; one organization agreed to participate. This organization's contact person then forwarded the invitation via email to all potential participants in the organization who may have been interested in participating in the survey. Also, the Walden University Participant Pool approved my request to post invitations for volunteer participants to participate in my study (see Appendix C). Plus, I emailed family and friends as well as

others who may have been interested, as snowballing was encouraged to distribute invitation flyers to potential participants. Invitations were also distributed via social media, and some social media contacts used list servs or other organizational and group email lists to share invitations with their colleagues. The invitation flyer (see Appendix A) had a link to access the survey, which began with screening questions to ensure eligibility (see Appendix B). After potential participants confirmed eligibility, they were requested to click “next” and proceed to survey instructions, which included the consent step.

Second, in the survey instructions and consent step, the eligible participants reviewed the consent form. Written instructions on the survey questionnaire explained to participants that they should complete the consent form and survey questionnaire as soon as possible. The consent form and survey questions were estimated to take approximately 5 to 8 minutes for participants to complete. Further, written directions on the survey questionnaire also stated that each participant may withdraw from participation at any time, as participation was completely voluntary, and there was no financial incentive for participation. They were instructed to click “next” to indicate their consent to complete the survey.

Third, in the data collection step, the participants proceeded to complete an anonymous online survey. A data collection log kept a collection of participant responses and dates in a securely encrypted site by SurveyMonkey. After completion of the survey, the participants were given the following message: "Thank you for taking your time to complete this survey! God bless you more!" There were no procedures required to follow-up this survey.

Instrumentation and Operationalization of Constructs

There were four measures used for this study: Demographic Questionnaire, Duke University Religion Index (DUREL), Daily Rosary Frequency Questions, and the World Health Organization-Five (WHO-5) Well-Being Index.

Demographic Questionnaire

A demographic questionnaire asked participants questions concerning age, which college, university, or vocational school they attended, and whether the participant was currently a member of a Catholic student organization, association, or ministry. For a statistical description of the study sample and results, age was divided into three categories based on Erik Erikson's (1982) stages of development: Young Adult -- ages 18 to 34, Middle-aged Adult – ages 35 to 64, and Late Adult – ages 65 to death.

Duke University Religion Index

The Duke University Religion Index (DUREL) is a five-item scale developed by Koenig and Büssing (2010) that assesses religiosity and three major dimensions of religiosity in separate subscales: organizational religious activity (ORA), non-organizational religious activity (NORA) and intrinsic or subjective religiosity (IR). The data collection did occur during the COVID-19 pandemic, which will likely impact individuals' scores on organizational religious activity. However, because this measure is multifactorial in nature assessing different dimensions of one's religiosity, this measure likely still captures variability in individuals' religiosity. Organizational religious activity includes public religious activities with others, as in Church services, or prayer groups (Koenig & Büssing, 2010). Non-organizational religious activity pertains to private religious activities engaged in while alone or in private, such as prayer, Scripture reading,

watching religious programs or listening to religious music (Koenig & Büssing, 2010). Intrinsic religiosity assesses personal religious motivation or sincerity of religious commitment (Koenig & Büssing, 2010).

Koenig and Büssing (2010) recommended that each subscale be measured separately by regression models in their associations with health variables, instead of just a single composite religiosity score. In this way, a low religiosity score on one scale will not cancel out a high religiosity score on another scale (Koenig & Büssing, 2010). Therefore, in this study, each subscale was measured separately in addition to the composite score. The composite score, known as the religiosity score of the DUREL, ranges from the lowest score of 5 to the highest score of 27 (Koenig & Büssing, 2010).

Psychometric studies have demonstrated the DUREL to be a reliable and valid religiosity measure (Koenig & Büssing, 2010). The DUREL's two-week test-retest reliability was high with an intra-class correlation coefficient of 0.91 (Storch et al., 2004a, as cited in Koenig & Büssing, 2010). The DUREL's internal consistency with Cronbach's α between 0.78 and 0.91, convergent validity with other established religiosity measures (r's = 0.71–0.86), and factor structure have been exhibited and validated in three separate community and clinical samples by independent research groups (Plante et al., 2002 and Storch et al., 2004b, as cited in Koenig & Büssing, 2010). Permission was obtained from Harold Koenig, MD to use the DUREL (See Appendix F) and to add the words *over the past two weeks* to the directions for the last three items of the instrument.

Daily Rosary Frequency Questions

In order to ask the participants about how often they prayed the daily Rosary, and to ask whether they prayed the daily Rosary together with one or more persons, I created two daily Rosary frequency questions: The first daily Rosary frequency (DRF) item had the participant share the number of times the Rosary had been prayed by the participant over the past 14 days with or without beads, as it can be prayed with one's fingers and thumbs to represent the ten Hail Mary prayers of each decade of the Rosary. Also, one may have chosen to pray the Rosary quietly, which would also be acceptable, if the prayers were said in a soft or whisper tone, or at least mentally. Specifically, the question states: "During the past fourteen days, approximately how many days did you pray the Rosary (five decades or more) at one or more times of the day, with or without the actual Rosary. The second daily Rosary frequency item asked about how many days during the past 14 days that the participant prayed the Rosary together with one or more persons, as in a group; therefore, this is called the group Rosary frequency (GRF).

World Health Organization-Five Well-Being Index.

The fourth scale, the World Health Organization-Five Well-Being Index (WHO-5), is a five-item measurement of well-being (e.g., "I have felt cheerful and in good spirits") over the past 14 days on a 6-point Likert-type scale from 0 (not present) to 5 (constantly present) (Bech, 2012; Downs et al., 2017; Topp et al., 2015). The WHO-5 scores range from 0 to 25, and higher scores suggest greater well-being. Scores of 12 or lower suggest poor well-being or possibly depression (Downs et al., 2017).

The WHO-5 has been used as a well-being assessment to discover college students at risk for mental health difficulties in the United States in recent years (e.g.,

Downs et al., 2017). Downs et al. (2017), for example, studied the psychometric properties of the WHO-5, and their results suggested that the WHO–5 is a valid and reliable measure of well-being in college students. Concerning validity, exploratory factor analysis examined the factor structure of the five items of the WHO–5 scale with a college student sample: the items on the WHO–5 had an eigenvalue of 3.26 that accounted for 65.19% of the variance, and the factor loadings for the items ranged from .79 to .84 (Downs et al., 2017). Also, the WHO–5 showed acceptable internal consistency ($\alpha = .86$) and test-retest reliability ($r = .77$) (Downs et al., 2017). Permission was obtained to use the WHO-5 (Bech, 2012; Topp et al., 2015), even though it is in the public domain (See Appendix G).

Operationalization

For this dissertation, a Catholic is someone who has been baptized as a Catholic and continues to profess to be Catholic. The operational definition of the Rosary was having prayed at least five decades of the Rosary at one or more times of the day, with or without an actual Rosary for use to pray with. The predictor variable religiosity was the score from the DUREL religiosity scale. The potential mediator variable, daily Rosary frequency, was the answer to the first daily Rosary frequency question, which equals the number of days (0-14) that the daily Rosary was prayed, divided by 14. The dependent or outcome variable was well-being, the WHO–5 Well-Being Index score (interval scale) of each participant on a 6-point Likert-type scale from 0 (not present) to 5 (constantly present) (Downs et al., 2017; Topp et al., 2015). The WHO-5 scores (ratio scale) range from 0 to 25, and higher scores suggest greater well-being. Scores of 12 or lower suggest poor well-being or possibly depression (Downs et al., 2017).

Data Analysis Plan

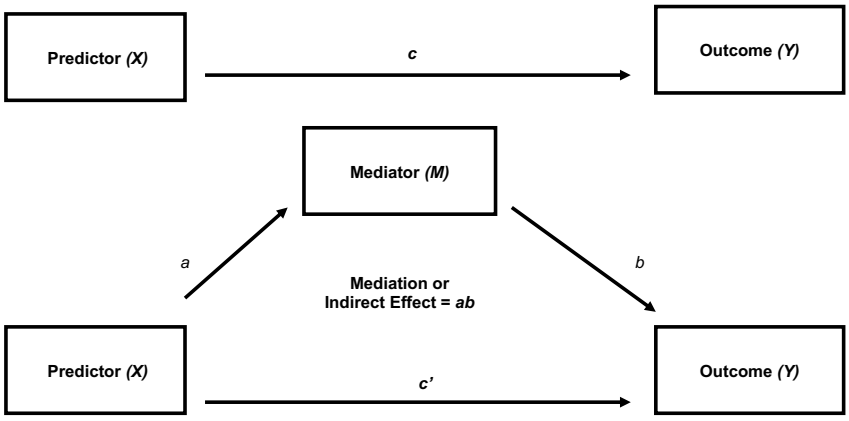
According to Baron and Kenny (1986), there needed to be a statistically significant association between a predictor variable and an outcome variable before it could be shown that a mediating variable mediates that association with a statistical significance. However, a statistically significant association between a predictor variable and an outcome variable is not needed to show mediation or the indirect effect of a predictor variable on an outcome variable through a mediator variable (Hayes, 2022; MacKinnon, 2008). In addition, for mediation analysis, Hayes (2022), has recommended the statistical technique of using at least 5,000 or 10,000 bootstrap samples with a 95% confidence interval to test the statistical significance of a mediator variable. If the 95% confidence interval entirely excludes zero, then a statistically significant mediation or indirect effect of a predictor variable on an outcome variable through a mediator variable can be indicated (Hayes, 2022). Therefore, this mediation analysis approach is part of my data analysis plan.

After the last survey was completed, the participant responses were securely exported to my computer for data analysis as a data set. SPSS version 28 software and the Hayes PROCESS Software Version 4.1 for SPSS were used to analyze the associations and mediation analyses presented in the research questions. Simple linear regression (RQs 1, 4, 5, 6, 9), Spearman's rank-order correlation (RQs 2, 3, 7, 8), and simple linear regression mediation analyses with confidence interval bootstrapping (RQs 10-13) were the chosen methods for the data analyses. For the mediation analysis plan, as shown in the Mediation Model in Figure 3, the independent variable *(X)* was referred to as the predictor, the dependent variable *(Y)* was referred to as the outcome, and the mediator

variable *(M)* was referred to as the mediator. Path *a* is the path between *X* and *M*, and path *b* is the path between *M* and *Y*. The mediation or indirect effect is the product of path *a* times path *b.* The direct effect of *X* on *Y* while controlling for *M* is represented by *c'* in the mediation model. The total effect *c* equals the indirect effect *ab* plus the direct effect *c'*. For the mediation analysis to be statistically significant, the mediation or indirect effect *(ab)* must be different from zero, and to determine this I used 50,000 bootstrap samples, with a custom seed of 153, and a 95% confidence interval (Hayes, 2022). I will now explain the data cleaning procedures that I used in this study.

Figure 3

Mediation Model



Note. a = Effect of X on M. b = Effect of M on Y while controlling for X. c = Total effect of X on Y including the indirect effect of M. c' = Direct effect of X on Y independent of the indirect effect of M. ab = Indirect effect of X on Y through M.

Data Cleaning Procedures

Missing Data

As part of data analysis, the survey data was screened for missing or omitted response data. Next, the data set was screened for outliers, which included error outliers and model fit outliers, and their management.

Outlier Detection and Management

Error Outliers. Data was screened for errors. One case was removed because it was likely to be a participant response from a foreign university, since only an acronym was given on the survey for the name of the institution of higher education, and the most common Google search result for the acronym was a foreign university. In addition, four error outliers were identified as data entry errors in reporting the daily Rosary frequency (DRF) score because the group Rosary frequency (GRF) score was greater than the DRF score for four cases (participant responses), which indicated that the GRF score was not included in the DRF score as it should have been. So, to correct these error outliers, the GRF score was added to the DRF score in these four cases.

Model Fit Outliers. First, in following a two-step approach recommended by Aguinis et al. (2013) to find model fit outliers, I searched for data points of cases most likely to influence the fit of the model because they greatly differed from the data points of other cases in the data set. Second, I tested these cases to determine if they influenced the model fit (Aguinis et al., 2013) to such an extent that their exclusion or inclusion made the difference between statistically significant or non-significant results. The results of this two-step approach to discover and exclude model fit outlier cases are shown and further explained in Chapter 4.

Research Questions and Hypotheses

In the following research questions and hypotheses, religiosity was measured using the DUREL scale. Well-being was measured using the WHO-5 scale. Daily Rosary frequency was measured by each participant's answer to the first of two daily Rosary frequency questions. The following research questions were explored by this study of Catholic adult students in institutions of higher education in the United States.

RQ1: Is there a significant association between religiosity and well-being?

$H_0$1: There is no significant association between religiosity and well-being.

H_a1: There is a significant association between religiosity and well-being.

RQ2: Is there a significant association between ORA and well-being?

$H_0$2: There is no significant association between ORA and well-being.

H_a2: There is a significant association between ORA and well-being.

RQ3: Is there a significant association between NORA and well-being?

$H_0$3: There is no significant association between NORA and well-being.

H_a3: There is a significant association between NORA and well-being.

RQ4: Is there a significant association between IR and well-being?

$H_0$4: There is no significant association between IR and well-being.

H_a4: There is a significant association between IR and well-being.

RQ5: Is there a significant association between religiosity and daily Rosary frequency?

$H_0$5: There is no significant association between religiosity and daily Rosary frequency.

H_a5: There is a significant association between religiosity and daily Rosary frequency.

RQ6: Is there a significant association between ORA and daily Rosary frequency?

H_06: There is no significant association between ORA and daily Rosary frequency.

H_a6: There is a significant association between ORA and daily Rosary frequency.

RQ7: Is there a significant association between NORA and daily Rosary frequency?

H_07: There is no significant association between NORA and daily Rosary frequency.

H_a7: There is a significant association between NORA and daily Rosary frequency.

RQ8: Is there a significant association between IR and daily Rosary frequency?

H_08: There is no significant association between IR and daily Rosary frequency.

H_a8: There is a significant association between IR and daily Rosary frequency.

RQ9: Is there a significant association between daily Rosary frequency and well-being?

H_09: There is no significant association between daily Rosary frequency and well-being.

H_a9: There is a significant association between daily Rosary frequency and well-being.

RQ10: Does daily Rosary frequency mediate an association between religiosity and well-being?

$H_0$10: Daily Rosary frequency does not mediate an association between religiosity and well-being.

H_a10: Daily Rosary frequency does mediate an association between religiosity and well-being.

RQ11: Does daily Rosary frequency mediate an association between ORA and well-being?

$H_0$11: Daily Rosary frequency does not mediate an association between ORA and well-being.

H_a11: Daily Rosary frequency does mediate an association between ORA and well-being.

RQ12: Does daily Rosary frequency mediate an association between NORA and well-being?

$H_0$12: Daily Rosary frequency does not mediate an association between NORA and well-being.

H_a12: Daily Rosary frequency does mediate an association between NORA and well-being.

RQ13: Does daily Rosary frequency mediate an association between IR and well-being?

$H_0$13: Daily Rosary frequency does not mediate an association between IR and well-being.

H_a13: Daily Rosary frequency does mediate an association between IR and well-being.

Threats to Validity

Research validity pertains to how well a study is truly measuring what the researcher is investigating, comparing, or analyzing (Leavy, 2017; Patino & Ferreira, 2018) In this study, associations and any mediation between variables were examined. There are two domains of validity in a research study: internal validity and external validity (Patino & Ferreira, 2018).

Internal Validity

Internal validity pertains to the extent to which findings of the sample participants represent the reality of the population being studied (Leavy, 2017; Patino & Ferreira, 2018). In this study, I support as well as possible that the study has internal validity, with no significant threats to validity coming from errors in measurement or in the selection of participants (Patino & Ferreira, 2018).

External Validity

External validity refers to whether the study results can be accurately generalized from the sample participants to the population from which the sample came (Patino & Ferreira, 2018). External validity means that a study will be able to be replicated with similar results using different participants (Kenny, 2019). Hence, this study will have external validity, if it can be replicated with other baptized Catholic college students attending other institutions of higher education in the United States during a similar time of global or nationwide crisis.

Internal and external validity may have been threatened in this study because the time in history was in autumn 2021 when the Coronavirus pandemic adversely affected numerous individuals, families, and our nation. Consequently, the Coronavirus pandemic contributed to the mental health difficulties of the majority of college students due to problematic fears, anxiety, depressing thoughts, which adversely influence their academic performance and well-being (Healthy Minds Network, 2022; Son et al., 2020). Also, the pandemic likely decreased the frequency of organizational church involvement and attendance. On the other hand, the Coronavirus pandemic may have led some people to pray more often than usual. I was aware of these potential threats to external validity and took note of them in the discussion of the results.

Ethical Procedures

The IRB approval process was followed for ethical procedures including the required documents. Ethical concerns may be found in protecting the privacy and confidentiality of the participants, and in making sure that the potential participants do not sense any pressure or coercion to participate in the dissertation study (APA, 2017). In order to address the ethical concerns of privacy and confidentiality, and protect data security in this anonymous survey study, I had the participants answer survey questions on an encrypted SurveyMonkey.com website that does not record or reveal their identities – only their participant number. Then, to make sure that the potential participants did not feel any pressure or coercion to voluntarily participate in the proposed study, the participants found pertinent information at a secure SurveyMonkey.com website provided to them from email, listserv, or social media invitations, the survey flyer, or the Walden University Participant Pool.

Further, participation in the survey study posed minimal risk to well-being, such as one may experience stress from any activity of daily living. Nonetheless, if for any reason a participant was to experience any unexpected stress from the survey study that was uncomfortable, such as depressing or suicidal thoughts, then the informed consent form suggested seeking help from the free National Helpline Network: 1-800-784-2433. Moreover, the informed consent form stated that the participant may discontinue participation any time. Thus, participation was totally voluntary.

Summary

This chapter included an explanation of the quantitative nonexperimental research method I used for this study, which involved using linear regressions, Spearman correlations, and multiple linear regression mediation analyses with confidence interval bootstrapping. The purpose of this study was to address if there were associations between religiosity and well-being, and if frequency of praying the Rosary mediated any associations between religiosity and the well-being of Catholic adult students in institutions of higher education in the U.S. during the pandemic in 2021. Specifically, I reviewed the research design and rationale, methodology, data analysis, ethical procedures, and threats to validity. I next report and analyze results in Chapter 4.

Chapter 4: Results

The purpose of this study was to address if there were associations between religiosity and well-being, and if daily Rosary frequency mediated associations between religiosity and well-being of Catholic adult students enrolled at institutions of higher education in the U.S. during the pandemic in 2021.

RQ1: Is there a significant association between religiosity and well-being?

$H_0$1: There is no significant association between religiosity and well-being.

H_a1: There is a significant association between religiosity and well-being.

RQ2: Is there a significant association between ORA and well-being?

$H_0$2: There is no significant association between ORA and well-being.

H_a2: There is a significant association between ORA and well-being.

RQ3: Is there a significant association between NORA and well-being?

$H_0$3: There is no significant association between NORA and well-being.

H_a3: There is a significant association between NORA and well-being.

RQ4: Is there a significant association between IR and well-being?

$H_0$4: There is no significant association between IR and well-being.

H_a4: There is a significant association between IR and well-being.

RQ5: Is there a significant association between religiosity and daily Rosary frequency?

$H_0$5: There is no significant association between religiosity and daily Rosary frequency.

H_a5: There is a significant association between religiosity and daily Rosary frequency.

RQ6: Is there a significant association between ORA and daily Rosary frequency?

$H_0$6: There is no significant association between ORA and daily Rosary frequency.

H_a6: There is a significant association between ORA and daily Rosary frequency.

RQ7: Is there a significant association between NORA and daily Rosary frequency?

$H_0$7: There is no significant association between NORA and daily Rosary frequency.

H_a7: There is a significant association between NORA and daily Rosary frequency.

RQ8: Is there a significant association between IR and daily Rosary frequency?

$H_0$8: There is no significant association between IR and daily Rosary frequency.

H_a8: There is a significant association between IR and daily Rosary frequency.

RQ9: Is there a significant association between daily Rosary frequency and well-being?

$H_0$9: There is no significant association between daily Rosary frequency and well-being.

H_a9: There is a significant association between daily Rosary frequency and well-being.

RQ10: Does daily Rosary frequency mediate an association between religiosity and well-being?

$H_0$10: Daily Rosary frequency does not mediate an association between religiosity and well-being.

H_a10: Daily Rosary frequency does mediate an association between religiosity and well-being.

RQ11: Does daily Rosary frequency mediate an association between ORA and well-being?

H_011: Daily Rosary frequency does not mediate an association between ORA and well-being.

H_a11: Daily Rosary frequency does mediate an association between ORA and well-being.

RQ12: Does daily Rosary frequency mediate an association between NORA and well-being?

H_012: Daily Rosary frequency does not mediate an association between NORA and well-being.

H_a12: Daily Rosary frequency does mediate an association between NORA and well-being.

RQ13: Does daily Rosary frequency mediate an association between IR and well-being?

H_013: Daily Rosary frequency does not mediate an association between IR and well-being.

H_a13: Daily Rosary frequency does mediate an association between IR and well-being.

This chapter includes results of the study, including data collection procedures, results of statistical analyses to answer research questions, and a summary of results.

Data Collection

Recruitment for this study occurred from September 1 to October 31, 2021. Prior to data collection, I selected three nationwide organizations from which to request potential participants. I chose these organizations because of their large membership of college students, and the likelihood that many of their members would profess to be Catholics, yet my email request to the contact persons of these organizations for their assistance with participation recruitment was not successful. However, during the first month of data collection, at the request of contacts on social media, I considered three other organizations that may have many members who profess to be Catholics. After further inquiry and email correspondence, I discovered only one of the organizations to be willing to email their members to inform them of my request for adult Catholic students to participate in my survey study. I also sent direct requests for participants via email and social media. In addition, I posted survey invitations and the recruitment flyer to social media posts. Recruitment was aided by others (i.e., family and friends) interested in contacting potential participants, as they shared the study invitation or flyer via email, list servs, and social media.

The recruitment process attracted 99 potential participants who answered the six screening questions (Appendix B) before 27 discovered themselves to be ineligible to participate in the survey study. Thus, 72 participants started the survey by answering the six screening questions. Then, eight of 72 participants or cases were excluded due to omitted survey data from the participants' responses, which left 64 cases. Next, the data set was cleaned of any other ineligible cases and model fit outlier cases.

Data Cleaning

From the 64 participants who completed the survey, five cases (participants) were cleaned from the data set, which left 59 cases: one case was ineligible due to attendance at a foreign university and four were excluded because they were model fit outlier cases, as shown in Table 1. These four model fit outlier cases were not shown by casewise diagnostics as having standardized residuals of greater than ± 3, which may have indicated an outlier case (Laerd Statistics, 2018). However, the four model fit outlier cases did have daily Rosary frequency (DRF) scores of 7/14 or more, which was over two times higher than the average DRF of the data set. Further, the model fit outlier cases differed from, about one and a half to three times greater than, the average differences between the religiosity and well-being scores of the data set to such an extent that they influenced the regression model to be not statistically significant. Therefore, I excluded one ineligible case and four model fit outlier cases from the data set, which brought the total cases down from 64 to 59 cases. In contrast, case number 58 as noted in Table 1, was not excluded from the data set even though casewise diagnostics showed that it had standardized residuals of - 3.070 and - 3.257 for RQ4 and RQ9 respectively.

Table 1

Scores of Four Model Fit Outlier Cases Excluded from the Data Set

Case	Daily Rosary Frequency (DRF)	Religiosity Score	Well-Being Score	Difference of Religiosity & Well-Being
17	14	26	14	12
60	14	23	15	8
50	10	19	10	9
49	7	26	10	16
58*	1	25	16	9

Note. $N = 59$. Means of data set for: DRF = 3.0, religiosity = 21.7, well-being = 16.7. Average difference between religiosity and well-being scores of the data set = 5.0. *After the exclusion of the four model fit outlier cases, case #58 was not excluded from the data set even though casewise diagnostics showed that it had standardized residuals of -3.070 and -3.257 for RQ4 and RQ9 respectively.

Demographic Characteristics

Table 2 includes a demographic description of the participants included in this study's sample. Demographics collected from four demographic survey questions included age, age category, the name of the higher education institution attended, and whether the participant was a member of a Catholic student organization, association, or ministry. From the screening questions (see Appendix B), all participants were living in the United States and attended an institution of higher education in the United States; all participants were 18 years of age or older, were baptized as a Catholic, and professed to be a Catholic. The demographic characteristics of this sample were only representative of those surveyed in this study. According to the Association of Religion Data Archives (ARDA, 2020), about 73 million Catholic adults are in the United States. Hence, while the aim of this study ideally would seek to generalize to all Catholic college students in the United States, the sample size of this study is insufficient to make such a large claim.

However, this study may generalize the results to a similar population sample of Catholic adult students.

In Table 2, means and standard deviations were calculated for the age of the participants: M = 32.6, SD = 13.2, Range 18-68. The youngest (Min) participants were age 18, the median (Mdn) age participant was age 30, and the oldest (Max) participant was age 68. In the young adult age group that incorporated the 18-year-olds of the adolescent adult group, 42 participants were in the young adult age group (age 18 to 39), 16 were in the middle-aged adult group (age 40 to 64), and one participant was in the late adult (age 65 and older) age group (Erikson, 1982). Twenty-nine participants or 49.2% of the participants were members of a Catholic student organization, association, or ministry, and 30 participants or 50.8% of the participants were not members. The next section presents the results to the research questions of this survey study.

Table 2

Age and Catholic Student Group Membership Statistics

Variable	**n**	**%**
Age Group		
Young Adult – 18 to 39	42	71.2
Middle-aged Adult – 40 to 64	16	27.1
Late Adult – 65 and older	1	1.7
Membership in a Catholic Student Organization, Association or Ministry		
Yes	29	49.2
No	30	50.8

	N	M	SD	Min	Mdn	Max	S	K
Age	59	32.6	13.2	18	30	68	.88	-.10

Note. N = 59. Age groupings derived from Erikson's (1982) work, and 5 adolescent adults age18 were included in the young adult group. n =Frequency. S=Skewness. K=Kurtosis.

Table 3

Participants' Schools Located by Regions of the United States of America

Region[+] [#states, #schools]	**Frequency**	**Percent**
Northeast [3, 4]	4	6.8 %
West [2, 3]	5	7.9 %
Midwest [5, 6]	14*	23.7 %
South [6, 20]	36**	61.0 %

Note. N = 59. *Nine participants attended 2 schools in Minnesota. **Twenty-nine participants attended 14 Texas schools. [+]According to the U.S. Census Bureau American Community Survey Office (2020).

As shown in Table 4, 30 participants attended private institutions of higher education, 28 attended state institutions of higher education, and one attended a private vocational school. Concerning any religious affiliation of the institutions of higher education as shown in Table 5, 12 attended Catholic institutions, two attended Christian institutions, and 45 attended non-religiously affiliated institutions including one vocational school.

Table 4

Participants by Institution of Higher Education Type

Type	**Number**	**Percentage**
Private	30	50.8%
State	28	47.5%
Vocational*	1	1.7%

Note. N = 59. * Private.

Table 5

Participants by Religious Affiliation of Institution of Higher Education

Type	**Number**	**Percentage**
Catholic	12	20.3%
Christian	2	3.4%
Not Religiously Affiliated*	45	*76.3%*

Note. N = 59. * One vocational school included.

Statistical Results

Descriptive Statistics

In Table 6, the minimum and maximum, and the mean and standard deviation raw scores for the variables in this study are shown.

Table 6

Mean and Standard Deviation Raw Scores of Variables

Variables	Min	Max	Mean	SD
Religiosity	10	27 (27)	21.75	4.34
Daily Rosary Frequency	0	14 (14)	3.02	4.50
Well-Being	4	24 (25)	16.66	3.90
Organizational Religious Activity	1	6 (6)	4.56	1.45
Non-Organizational Religious Activity	1	6 (6)	4.08	1.61
Intrinsic Religiosity	7	15 (15)	13.10	2.01
Group Rosary Frequency	0	10 (14)	1.10	2.23

Note. $N = 59$. Maximum possible total raw scores are shown in parentheses.

In Table 7, the frequency, mean, and standard deviation results of the five Likert scale questions of the DUREL) are shown. The five questions assessed religiosity, which was assessed by three dimensions of religiosity: ORA, NORA, and IR. The first question assessed ORA, the second question assessed NORA, and the third, fourth, and fifth questions assessed IR. Aggregate mean and standard deviation scores for religiosity, which comprised all three dimensions assessed, were: M = 21.75 and SD = 4.34 of a total possible maximum religiosity score of 27 points. The composite mean and standard deviation scores for IR were: M = 13.10 out of a possible 15 points, and SD = 2.01.

Table 7

Frequency Results of the Duke University Religion Index (DUREL)

Question	n	%		
(1) How often do you attend church or other religious meetings?				
1. Never	3	5.1		
2. Once a year or less	4	6.8		
3. A few times a year	6	10.2		
4. A few times a month	8	13.6		
5. Once a week	20	33.9		
6. More than once/week	18	30.5		
			M	SD
			4.56	1.45
(2) How often do you spend time in private religious activities, such as prayer, meditation, or Bible study?				
1. Rarely or never	5	8.5		
2. A few times a month	8	13.6		
3. Once a week	6	10.2		
4. Two or more times/week	11	18.6		
5. Daily	16	27.1		
6. More than once a day	13	22.0		
			M	SD
			4.08	1.61
(3) In my life, I experience the presence of the Divine (*i.e.*, God)				
1. Definitely *not* true	1	1.7		
2. Tends not to be true	1	1.7		
3. Unsure	4	6.8		
4. Tends to be true	16	27.1		
5. Definitely true of me	37	62.7		
			M	SD
			4.47	.84
(4) My religious beliefs are what really lie behind my whole approach to life				
1. Definitely *not* true	0	0		
2. Tends not to be true	1	1.7		
3. Unsure	5	8.5		
4. Tends to be true	21	35.6		
5. Definitely true of me	32	54.2		
			M	SD
			4.42	.72
(5) I try hard to carry my religion over into all other dealings in life				
1. Definitely *not* true	0	0		
2. Tends *not* to be true	4	6.8		
3. Unsure	6	10.2		
4. Tends to be true	23	39.0		
5. Definitely true of me	26	44.1		
			M	SD
			4.20	.89

Note. N = 59. Religiosity: M = 21.75, SD =4.34. Intrinsic Religiosity (IR) 3,4,5 composite: M = 13.10, SD = 2.01.
Permission obtained from Harold Koenig, MD to use the DUREL © 2010 by Koenig and Büssing.

Table 8 displays the results of the two Rosary frequency questions. The first daily Rosary frequency question was: “During the past 14 days, approximately how many days, if any, did you pray the Rosary (five decades or more) at one or more times of the day, with or without actual Rosary beads?” The mean number of days that a participant prayed the Rosary during the previous 14 days was 3.02 with a standard deviation of 4.50, and zero was the minimum and 14 was the maximum number of days that any of

the participants prayed the Rosary daily. Twenty-seven participants or 45.8% did not pray the Rosary; five participants or about 8.5 % of the participants prayed the Rosary daily.

The group Rosary frequency question was: “During the past 14 days, approximately how many days, if any, did you pray the Rosary together with one or more persons?” The results for the group Rosary frequency question were: M = 1.10, SD = 2.23, the minimum number of days the Rosary was prayed as a group was zero, and the maximum number of days was 10. Further, it is noted that 38 participants or 64.4% did not pray the Rosary with one or more persons. Thus, 21 participants or 35.6% did pray the Rosary for one or more days with one or more persons during the previous 14 days.

Table 8

Daily Rosary Frequencies

	n	%	Days	n	%
During the past 14 days, how many days, if any, did you pray the Rosary (5 decades or more) at one or more times of the day with or without the Rosary beads?					
		Daily Rosary Frequency (DRF)			
0	27	*45.8*	**7**	5	*8.5*
1	6	*10.2*	**8**	--	--
2	8	*13.6*	**9**	1	*1.7*
3	1	*1.7*	**10**	2	*3.4*
4	--	--	**11**	--	--
5	3	*5.1*	**12**	1	*1.7*
6	--	--	**13**	--	--
			14	5	*8.5*
During the past 14 days, approximately how many days, if any, did you pray the Rosary together with one or more persons?					
		Group Rosary Frequency (GRF)			
0	38	*64.4*	**7**	--	--
1	8	*12.5*	**8**	--	--
2	5	*8.5*	**9**	--	--
3	2	*3.4*	**10**	2	*3.4*
4	1	*1.7*	**11**	--	--
5	1	*1.7*	**12**	--	--
6	2	*3.4*	**13**	--	--
			14	--	--

Note. N = 59. DRF; M = 3.02, SD = 4.50. GRF: M = 1.10, SD = 2.23.

In Table 9, the frequency results of the five Likert scale items of the WHO-5 (Bech, 2012; Topp et al., 2015) are shown with the first item, a statement of happiness: "I felt cheerful and in good spirits". This item assessed happiness on a six-point Likert scale with M = 3.44, SD = .10, which means the participants' average frequency of happiness was between "More than half the time" and "Most of the time". The second item, a

statement of tranquility, “I have felt calm and relaxed”, assessed tranquility on a six-point Likert scale with M = 3.02, SD = .14, which means the participants’ average frequency of tranquility was about “More than half the time”. The third item, a statement of vitality, “I have felt active and vigorous”, assessed vitality on a six-point Likert scale with M = 3.27, SD = .13, which means the participants’ average frequency of vitality was about “More than half the time”. The fourth item, a statement of restedness, “I woke up feeling fresh and rested”, assessed restedness on a six-point Likert scale with M = 2.97, SD = .14, which means the participants’ average frequency of restedness was about “More than half the time”. The fifth item, a statement of interest, “My daily life has been filled with things that interest me”, assessed interest on a six-point Likert scale with M = 3.75, SD = .12, which means the participants’ average frequency of interest was about “Most of the time”.

Table 9

Frequency Results of the World Health Organization Well-Being Index-5 (WHO-5)

	All the time	Most of the time	More than half the time	Less than half	Some of the time	At no time
Item	**5**	**4**	**3**	**2**	**1**	**0**
I felt cheerful and in good spirits						
n	3	29	24	6	1	
%	4.8	46.0	38.1	9.5	1.6	
					M	SD
					3.4	0.8
I have felt calm and relaxed						
n	5	16	21	16	5	
%	7.9	25.4	33.3	25.4	7.9	
					M	SD
					3.0	1.1
I have felt active and vigorous						
n	4	26	21	7	4	1
%	6.3	41.3	33.3	11.1	6.3	1.6
					M	SD
					3.3	1.1
I woke up feeling fresh and rested						
n	2	22	19	12	7	1
%	3.2	34.9	30.2	19.0	11.1	1.6
					M	SD
					3.0	1.1
My daily life has been filled with things that interest me						
n	12	33	11	4	3	
%	19.0	52.4	17.5	6.3	4.8	
					M	SD
					3.8	1.0

Note. $N = 59$. WHO-5 (Bech, 2012; Topp et al., 2015)

In Table 10, the results are shown of the calculations of the Spearman Rho correlations between survey study variables: religiosity, organizational religious activity (ORA), non-organizational religious activity (NORA), intrinsic religiosity (IR), well-being, daily Rosary frequency (DRF), and group Rosary frequency (GRF). Religiosity and DRF appear to be the only variables statistically significantly correlated with well-being. In addition, religiosity was shown to be significantly positively correlated with

daily Rosary frequency, group Rosary frequency, and each of its three other dimensions studied: organizational religious activity, non-organizational religious activity, and intrinsic religiosity.

Table 10

Spearman Rho Correlations Between Survey Variables

		Religiosity	Organizational Religious Activity (ORA)	Non-Organizational Religious Activity (NORA)	Intrinsic Religiosity (IR)	Well-Being	Daily Rosary Frequency (DRF)	Group Rosary Frequency (GRF)
Religiosity	Correlation Coefficient	1.000						
	Sig. (2-tailed)	-						
Organizational Religious Activity	Correlation Coefficient	**.812****	1.000					
	Sig. (2-tailed)	<.001	-					
Non-Organizational Religious Activity	Correlation Coefficient	**.862****	**.605****	1.000				
	Sig. (2-tailed)	<.001	<.001	-				
Intrinsic Religiosity	Correlation Coefficient	**.847****	**.558****	**.579****	1.000			
	Sig. (2-tailed)	<.001	<.001	<.001	-			
Well-Being	Correlation Coefficient	**.291***	.165	.187	.255	1.000		
	Sig. (2-tailed)	.026	.212	.156	.051	-		
Daily Rosary Frequency	Correlation Coefficient	**.547****	**.539****	**.399****	**.448****	**.325***	1.000	
	Sig. (2-tailed)	<.001	<.001	.002	<.001	.012	-	
Group Rosary Frequency	Correlation Coefficient	**.367****	**.366****	**.278***	.233	.196	**.601****	1.000
	Sig. (2-tailed)	.004	.004	.033	.066	.136	<.001	-

*Note. N = 59. **Correlation is significant at the .01 level (2-tailed). *Correlation is significant at the .05 α level (2-tailed).*

Assumptions for Substantive Analyses

Regarding research questions RQ1 through RQ5, RQ8 and RQ9, the seven assumptions of a simple linear regression are that it includes: a continuous dependent variable and a continuous independent variable; a linear relationship between the two variables; independence of observations; homoscedasticity; no significant outliers other than the model fit outlier cases; and the regression line's residuals (errors) are approximately normally distributed (Laerd Statistics, 2015). Concerning research questions RQ1 through RQ5, RQ8 and RQ9, these research questions met all seven

assumptions for a linear regression. However, for research questions RQ10 through RQ13 with mediation analyses, which used the bootstrap confidence interval approach, the assumptions of homoscedasticity and normalcy were not required for valid inferences (Hayes, 2022). Nonetheless, for research questions RQ1 through RQ5, RQ8 and RQ9 with simple linear regressions, here is a brief description of how the last five assumptions were tested by running linear regressions with SPSS:

The first of the last five assumptions, to test for linearity with the visual inspection of a scatterplot, indicated a linear relationship between the variables. The second of the last five assumptions, for independence of observations, a Durbin-Watson statistic of approximately 2 in a range of 0 to 4 indicated that there was no correlation between residuals, and that the observations were independent (Laerd Statistics, 2015). The third of the last five assumptions, homoscedasticity, indicated that the variance of the errors (residuals) is constant across all the values of the predictor variable (Laerd Statistics, 2015). Therefore, equal error variances were checked and confirmed by inspecting a plot of the unstandardized or standardized residuals against the predicted (i.e., fitted) values or standardized predicted values (Laerd Statistics, 2015). For the fourth of the last five assumptions, there were no significant outliers excluded other than the previously mentioned four model fit outlier cases that were excluded from the data set. There was only one case, case number 58 as presented in Table 1, with a standardized residual with a value of greater than ±3, which is a common cut-off criterion used to define whether a particular residual might be representative of an outlier (Laerd Statistics, 2015). For the last assumption of a simple linear regression, residuals were normally

distributed as assessed by visual inspection of a normal probability plot (Laerd Statistics, 2015).

Research questions RQ2, RQ3, RQ6, and RQ7 did not meet the second assumption of a simple linear regression because they each have an ordinal independent variable. Hence, to test the hypotheses for research questions RQ2, RQ3, RQ6, and RQ7, a Spearman correlation was used for these research questions because this statistical model can include an ordinal independent variable and a continuous dependent variable (Laerd Statistics, 2018). Thus, the first assumption of the Spearman correlation model was met, which required that there be two variables measured on an ordinal and/or continuous variable scale (Laerd Statistics, 2018). The second assumption of the Spearman correlation was that the two variables represented paired observations (Laerd Statistics, 2018). These research questions RQ2, RQ3, RQ6, and RQ7 met this requirement of paired observations because the two variables in each of these research questions were observed by the participants over the previous two-week period from the date of their surveys (Laerd Statistics, 2018); therefore, the observations were paired observations. The last assumption of the Spearman correlation model was that there is a monotonic relationship between the two variables, which means that both variables either increase or decrease, or as one variable increases, the other variable decreases (Laerd Statistics, 2018).

Research Findings

The research findings will be reported under each of the research questions from RQ1 to RQ13.

RQ1

To test the hypotheses for RQ1, regression analyses were conducted to examine whether religiosity predicted well-being. Assumptions required for a simple linear regression were assessed before analyses were conducted. To assess linearity, a scatterplot of well-being against religiosity with superimposed regression line was plotted with the unstandardized coefficients found in Table 13, as shown in Figure 4. Visual inspection of the scatterplot indicated a linear relationship between religiosity and well-being. The Durbin-Watson statistics of 1.692, approximately 2 in a range of 0 to 4, as shown in Table 11 indicated that there were no correlations between residuals, and that the observations were independent (Laerd Statistics, 2015). Further, other than the previously excluded model fit outlier cases in Table 1, there were no significant outliers as there were no standardized residuals with a value of greater than ±3, as noted in Table 11 (Laerd Statistics, 2015). Residuals were normally distributed as assessed by visual inspection of the normal probability plot in Figure 5.

The simple linear regression for RQ1 established that religiosity was statistically significantly associated with well-being, $F(1, 58) = 4.673$, $p = .035$, $\alpha < .05$ (Table 12) and religiosity accounted for 7.6% (R^2 in Table 11) of the explained variability in well-being, a small effect size (Cohen, 1988). Therefore, for RQ1, the null hypothesis was rejected. Thus, there was a significant association between religiosity and well-being.

Figure 4

Scatter Plot of Well-Being by Religiosity

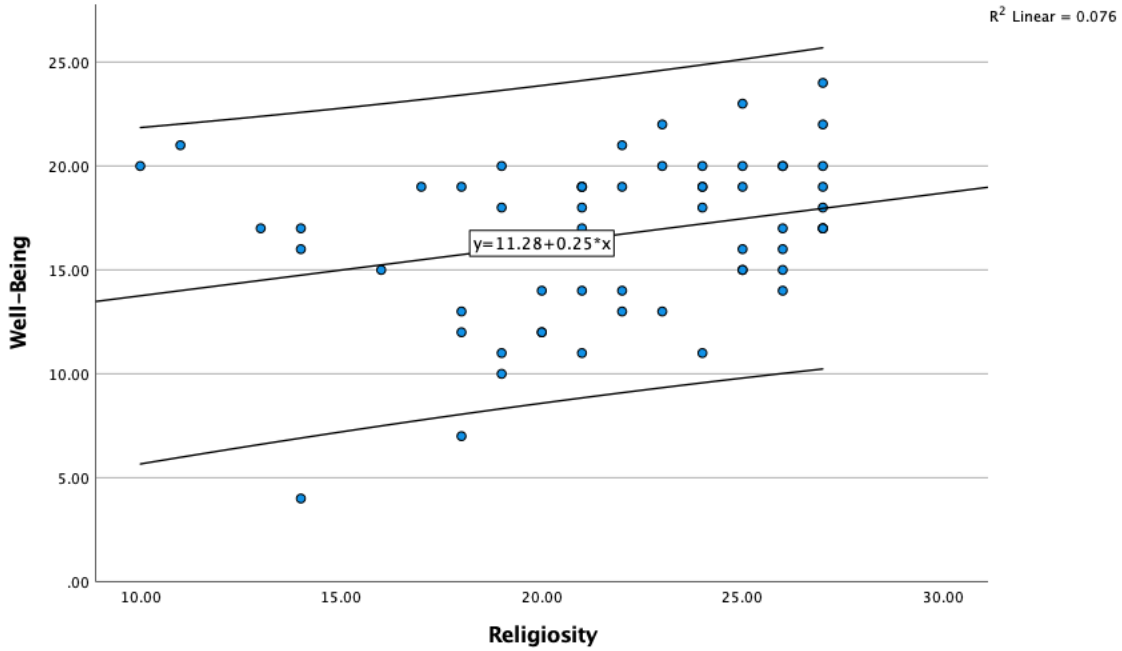


Figure 5

Normal Probability Plot of Regression Standardized Residual Well-Being by Religiosity

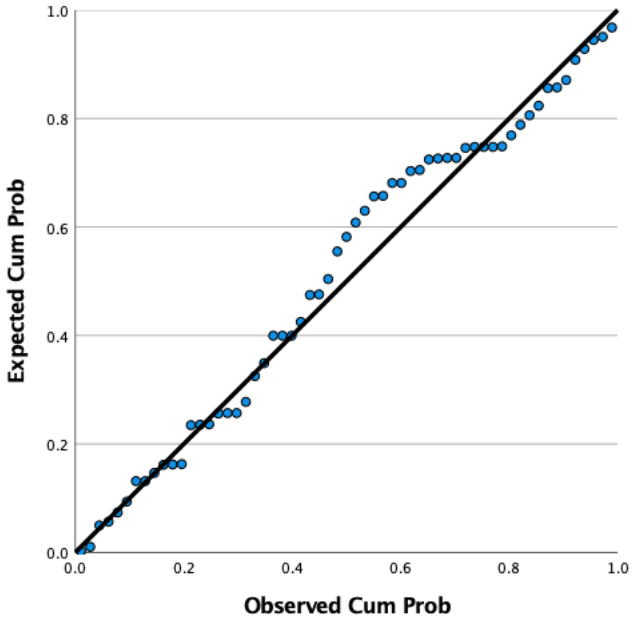


Table 11

Model Summary for RQ1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.275	.076	.060	3.78004	1.692

Note. N = 59. Predictor variable is religiosity. Outcome variable is well-being. Minimum standardized residual = -2.843 and the maximum standardized residuals =1.851.

Table 12

ANOVA for RQ1

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	66.766	1	66.766	4.673	.035
Residual	814.454	57	14.289		
Total	881.220	58			

Note. N = 59. Predictor variable is religiosity. Outcome variable is well-being. α <.05.

Table 13

Coefficients for RQ1

	Unstandardized Coefficient		Standard Coefficient			95% Confidence Interval for B	
	B	**Std. Error**		**t**	**Sig.**	**Lower Bound**	**Upper Bound**
Constant	11.282	2.537		4.448	<.001	6.203	16.361
Religiosity	.247	.114	.275	2.162	.035	-.018	.477

Note. N = 59. Predictor variable is religiosity. Outcome variable is well-being. α <.05.

RQ2

For RQ2, a Spearman's rank-order correlation was run to assess the association between organizational religious activity (ORA) and well-being in this convenience

sample of 59 Catholic adult students. Preliminary analysis indicated the association to be monatomic, as assessed by visual inspection of the scatter plot in Figure 6. The association between ORA and well- being was not statistically significant, $r_s = 0.165$, $p = 0.212$, $\alpha < .05$ as shown in Table 14. Thus, the null hypothesis could not be rejected, and the alternative hypothesis could not be accepted. Therefore, there was no significant association between ORA and well-being in this convenience sample of 59 Catholic adult students.

Figure 6

Scatterplot of Well-Being by ORA

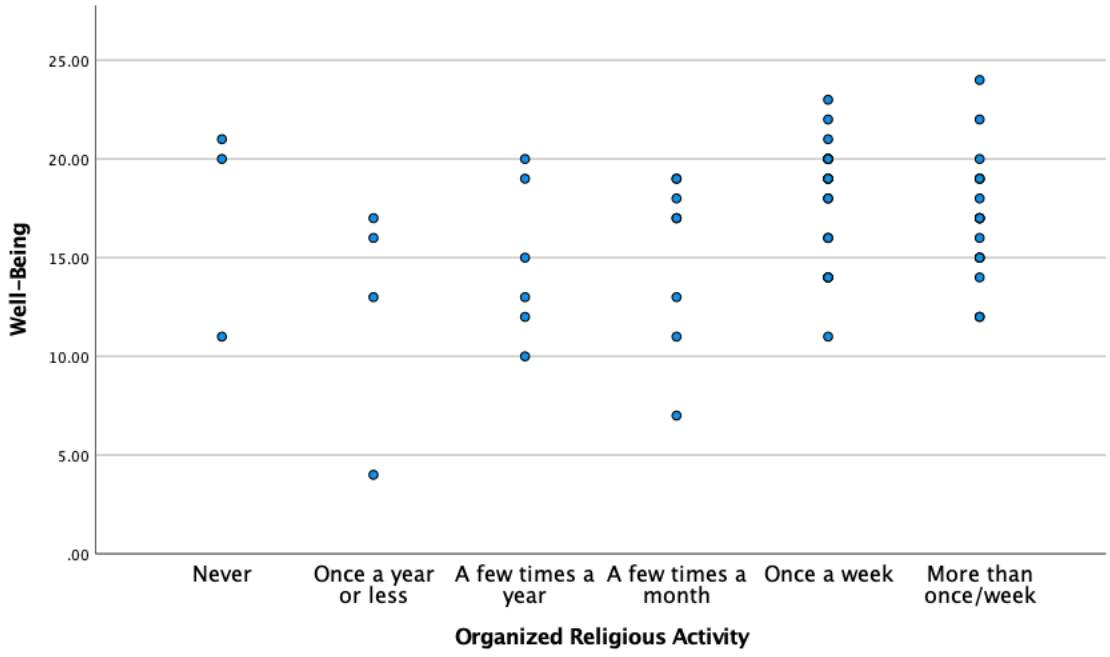


Table 14

Spearman Correlation for the Association Between ORA and Well-Being

Variable	Results	Organizational Religious Activity (ORA)	Well-Being
Organizational Religious Activity	Correlation Coefficient	1.000	.165
	Sig. (2-tailed)	-	.212
Well-Being	Correlation Coefficient	.165	1.000
	Sig. (2-tailed)	.212	-

Note. $N = 59$.

RQ3

For RQ3, a Spearman's rank-order correlation was run to assess the relationship between NORA and well-being in this convenience sample of 59 Catholic adult students. Preliminary analysis showed the relationship to be monotonic, as assessed by visual inspection of scatterplot, as shown in Figure 7. There was no statistically significant correlation between NORA and well-being, $r_s = 0.187$, $p = 0.156$, as shown in Table 15. Thus, the null hypothesis could not be rejected, and the alternative hypothesis could not be accepted. Therefore, there was no significant association between NORA and well-being in this convenience sample of 59 Catholic adult students.

Figure 7

Scatterplot of Well-Being by NORA

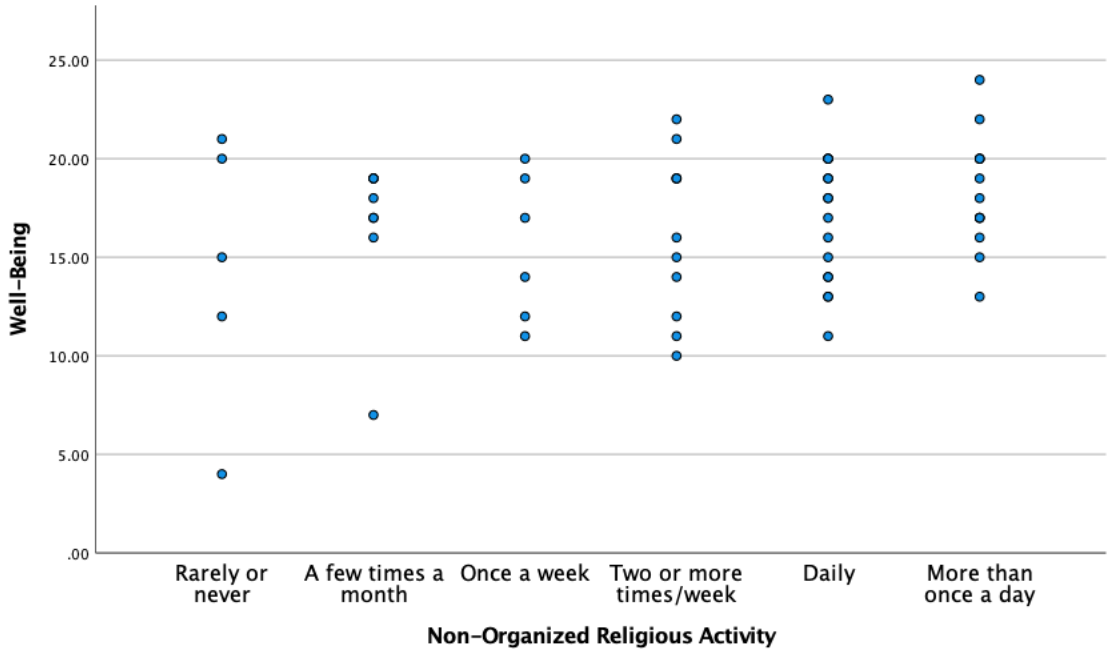


Table 15

Spearman Correlation for the Association Between NORA and Well-Being

Variable	Results	Non-Organizational Religious Activity	Well-Being
NORA	Correlation Coefficient	1.000	.187
	Sig. (2-tailed)	-	.156
Well-Being	Correlation Coefficient	.187	1.000
	Sig. (2-tailed)	.156	

Note. N =59.

RQ4

For RQ4, regression analyses were conducted to examine whether IR predicted well-being. Assumptions required for a simple linear regression were assessed before analysis was conducted. To assess linearity, a scatterplot of well-being against IR with superimposed regression line was plotted with the unstandardized coefficients found in Table 18, as shown in Figure 8. Visual inspection of the scatterplot indicated a linear relationship between IR and well-being. The Durbin-Watson statistic of 1.765, approximately 2 in a range of 0 to 4, as shown in Table 16 indicated that there was no correlation between residuals, and that the observations were independent (Laerd Statistics, 2015). Further, other than the previously excluded model fit outlier cases in Table 1, there were no significant outlier cases as there were no standardized residuals with a value of greater than ±3, except for case number 58 with a standardized residual of -3.070, as noted in Table 16 (Laerd Statistics, 2015). Residuals were normally distributed as assessed by visual inspection of the normal probability plot in Figure 9.

A simple linear regression for RQ4 established that IR was not statistically significantly associated with well-being, $F(1, 58) = 2.676$, $p = 0.107$, $\alpha < .05$ (Table 17) and IR accounted for 4.5% (R^2 in Table 16) of the explained variability in well-being, a small effect size (Cohen, 1988). Therefore, for RQ4, the null hypothesis could not be rejected. Thus, there was not a significant association between IR and well-being.

Figure 8

Scatterplot of Well-Being by Intrinsic Religiosity

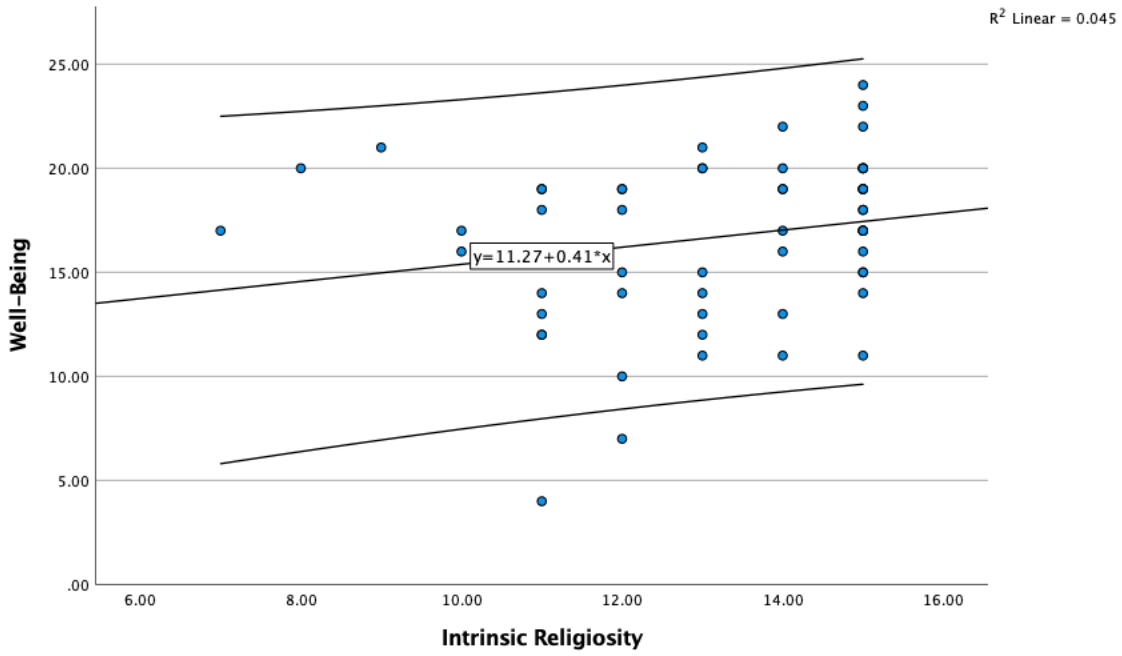


Figure 9

Normal Probability Plot of Regression Standardized Residual Well-Being by IR

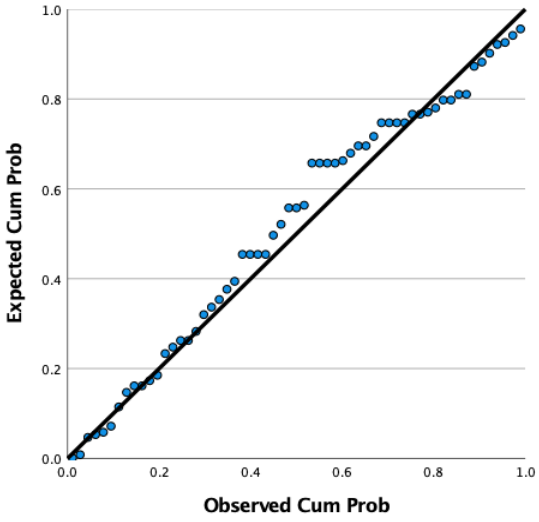


Table 16

Model Summary for RQ4

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.212	.045	.028	3.84275	1.765

Note. N = 59. Predictor variable is intrinsic religiosity. Outcome variable is well-being. Minimum standardized residual = -3.070 (case #58) and the maximum standardized residual =1.707.

Table 17

ANOVA for RQ4

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	39.515	1	39.515	2.676	.107
Residual	841.705	57	14.767		
Total	881.220	58			

Note. N = 59. Predictor variable is IR. Outcome variable is well-being. α <.05.

Table 18

ANOVA for RQ4

	Unstandardized Coefficient		Standard Coefficient			95% Confidence Interval for B	
	B	Std. Error		t	Sig.	Lower Bound	Upper Bound
Constant	11.270	3.333		3.381	.001	4.595	17.945
IR	.411	.252	.212	1.636	.107	-.092	.915

Note. N = 59. Predictor variable is intrinsic religiosity. Outcome variable is well-being. α <.05.

RQ5

For RQ5, regression analyses were conducted to examine whether religiosity predicted daily Rosary frequency. Assumptions required for a simple linear regression

were assessed before analyses were conducted. To assess linearity, a scatterplot of daily Rosary frequency against religiosity with superimposed regression line was plotted with the unstandardized coefficients found in Table 21, as shown in Figure 10. Visual inspection of the scatterplot indicated a linear relationship between religiosity and daily Rosary frequency. The Durbin-Watson statistic of 2.123, approximately 2 in a range of 0 to 4, as shown in Table 19 indicated that there was no correlation between residuals, and that the observations were independent (Laerd Statistics, 2015). Further, other than the previously excluded model fit outlier cases in Table 1, there were no significant outliers, as there were no standardized residuals with a value of greater than ±3, as noted in Table 19 (Laerd Statistics, 2015). Residuals were normally distributed as assessed by visual inspection of the normal probability plot in Figure 11.

A simple linear regression for RQ5 established that religiosity was statistically significantly associated with daily Rosary frequency, $F(1, 58) = 18.433$, $p < 0.001$, $\alpha < .05$ (Table 20) and religiosity accounted for 24.4% (R^2 in Table 19) of the explained variability in daily Rosary frequency, a small effect size (Cohen, 1988). Therefore, for RQ5, the null hypothesis is rejected. Thus, there was a significant association between religiosity and daily Rosary frequency.

Figure 10

Scatterplot of Daily Rosary Frequency by Religiosity

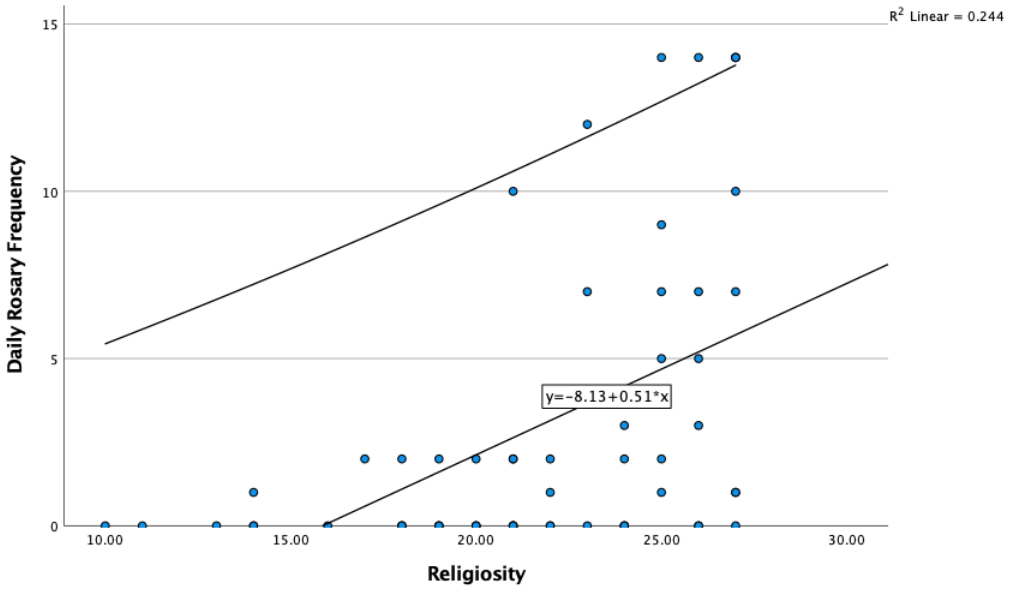


Figure 11

Normal Probability Plot of Regression Standardized Residual Daily Rosary Frequency by Religiosity

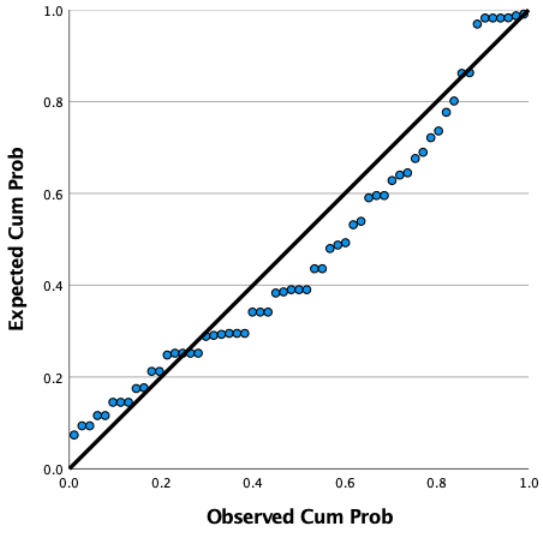


Table 19

Model Summary for RQ5

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.494	.244	.231	3.943	2.123

Note. N = 59. Predictor variable is religiosity. Outcome variable is well-being. Minimum standardized residual = -1.448 and the maximum standardized residual = 2.362.

Table 20

ANOVA for RQ5

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	286.629	1	286.629	18.433	<.001
Residual	886.354	57	15.550		
Total	1172.983	58			

Note. N = 59. Predictor variable is religiosity. Outcome variable is daily Rosary frequency. α <.05.

Table 21

ANOVA for RQ5

	Unstandardized Coefficient		Standard Coefficient			95% Confidence Interval for B	
	B	**Std. Error**	**Beta**	**t**	**Sig.**	**Lower Bound**	**Upper Bound**
Constant	-8.128	2.646		-3.072	.003	-13.427	-2.829
Religiosity	.513	.119	.494	4.293	<.001	.273	.752

Note. N = 59. Predictor variable is religiosity. Outcome variable is daily Rosary frequency. α <.05.

RQ6

For RQ6, a Spearman's rank-order correlation was run to assess the association between ORA and daily Rosary frequency in this convenience sample of 59 Catholic adult students. Preliminary analysis indicated the association to be monatomic, as assessed by visual inspection of the scatter plot in Figure 12. The association between

ORA and daily Rosary frequency was statistically significant, $r_s = 0.539$, $p = <.001$, $\alpha < .01$ as shown in Table 22. Thus, the null hypothesis was rejected, and the alternative hypothesis was accepted. Therefore, there was a significant association between ORA and daily Rosary frequency in this convenience sample of 59 Catholic adult students.

Figure 12

Scatterplot of Daily Rosary Frequency by ORA

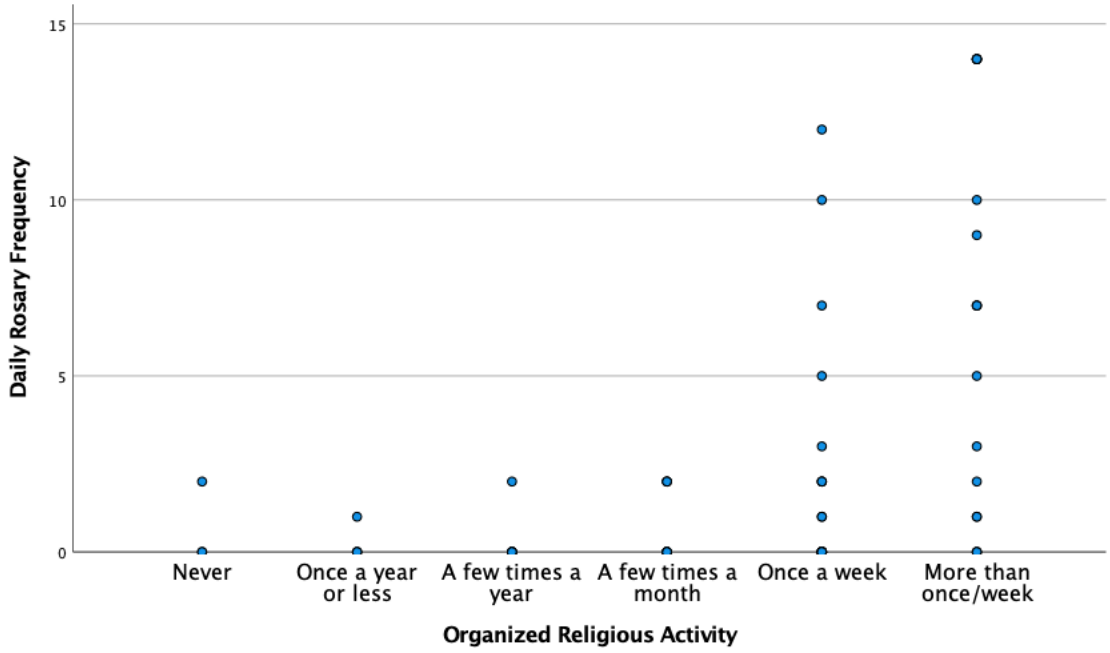


Table 22

Spearman Correlation for Association Between ORA and DRF

Variable	Results	Organizational Religious Activity	Daily Rosary Frequency (DRF)
Organizational Religious Activity	Correlation Coefficient Sig. (2-tailed)	1.00 -	.539* <.001
Daily Rosary Frequency	Correlation Coefficient Sig. (2-tailed)	.539* <.001	1.000 -

Note. $N = 59$. *Correlation is significant at the .01 α level (2-tailed).

RQ7

For RQ7, a Spearman's rank-order correlation was run to assess the association between NORA and daily Rosary frequency in this convenience sample of 59 Catholic adult students. Preliminary analysis indicated the association to be monatomic, as assessed by visual inspection of the scatter plot in Figure 13. The association between NORA and daily Rosary frequency was statistically significant, $r_s = 0.399$, $p = .002$, $\alpha < .01$ as shown in Table 23. Thus, the null hypothesis was rejected, and the alternative hypothesis was accepted. Therefore, there was a statistically significant association between NORA and daily Rosary frequency in this convenience sample of 59 Catholic adult students.

Figure 13

Scatterplot of Daily Rosary Frequency by NORA

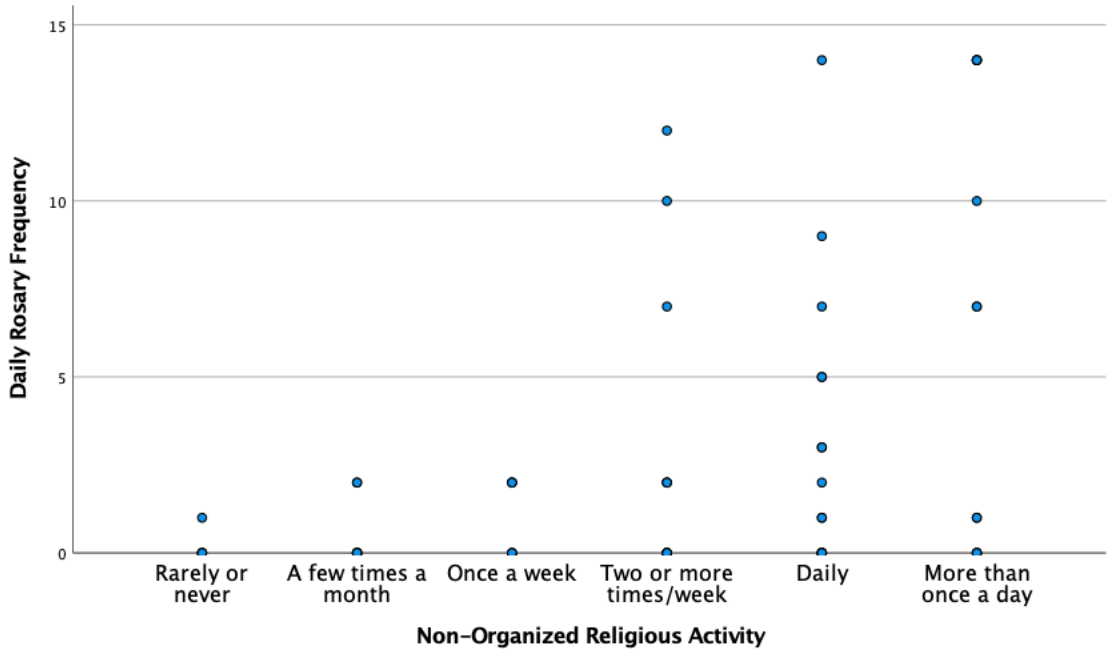


Table 23

Spearman Correlation for Association Between NORA and DRF

Variable	Results	Non-Organizational Religious Activity	Daily Rosary Frequency (DRF)
Non-Organizational Religious Activity	Correlation Coefficient Sig. (2-tailed)	1.00 -	.399* .002
Daily Rosary Frequency	Correlation Coefficient Sig. (2-tailed)	.399* .002	1.000 -

Note. N = 59. *Correlation was significant at the .01 α level (2-tailed).

RQ8

For RQ8, regression analyses were conducted to examine whether IR predicted daily Rosary frequency. Assumptions required for a simple linear regression were assessed before analyses were conducted. To assess linearity, a scatterplot of IR against daily Rosary frequency with superimposed regression line was plotted with the unstandardized coefficients found in Table 26, as shown in Figure 14. Visual inspection of the scatterplot indicated a linear relationship between IR and daily Rosary frequency. The Durbin-Watson statistic of 2.169, approximately 2 in a range of 0 to 4, as shown in Table 24 indicated that there was no correlation between residuals, and that the observations were independent (Laerd Statistics, 2015). Further, other than the previously excluded model fit outlier cases in Table 1, there were no significant outliers as there were no standardized residuals with a value of greater than ±3, as noted in Table 23 (Laerd Statistics, 2015). Residuals were normally distributed as assessed by visual inspection of the normal probability plot in Figure 15.

A simple linear regression for RQ8 established that IR was statistically significantly associated with daily Rosary frequency, F (1, 58) = 9.516, p = 0.003, α <.01 (Table 25) and IR accounted for 14.3% (R^2 in Table 24) of the explained variability in daily Rosary frequency, a small effect size (Cohen, 1988). Therefore, for RQ8, the null hypothesis was rejected. Thus, there was a significant association between IR and daily Rosary frequency.

Figure 14

Scatterplot of Daily Rosary Frequency by IR

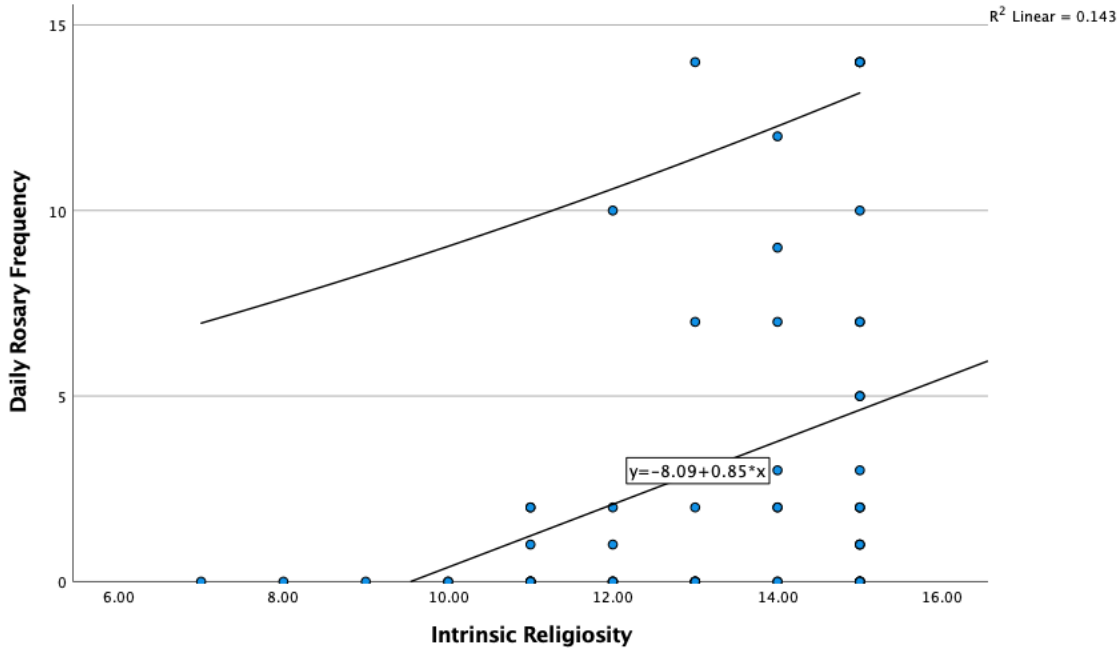


Figure 15

Normal Probability Plot of Regression Standardized Residual Daily Rosary Frequency by IR

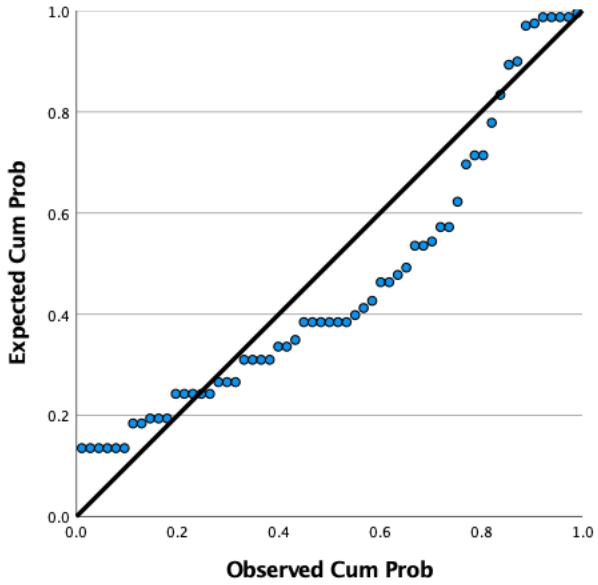


Table 24

Model Summary for RQ8

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.378	.143	.128	4.199	2.169

Note. N = 59. Predictor variable is IR. Outcome variable is well-being. Minimum standardized residual = -1.102 and the maximum standardized residual =2.636.

Table 25

ANOVA for RQ8

	Sum of Squares	df	Mean Square	F	Sig.
Regression	167.804	1	167.804	9.516	.003
Residual	1005.179	57	17.635		
Total	1172.983	58			

Note. N = 59. Predictor variable is IR. Outcome variable is well-being. α <.01.

Table 26

Coefficients for RQ8

	Unstandardized Coefficient		Standard Coefficient			95% Confidence Interval for B	
	B	**Std. Error**		**t**	**Sig.**	**Lower Bound**	**Upper Bound**
Constant	-8.092	3.643		-2.222	.030	-15.378	-.798
DRF	.848	.275	.378	3.085	.003	.297	1.398

Note. N = 59. Predictor variable is IR. Outcome variable is well-being. α <.05.

RQ9

To test hypotheses for RQ9, regression analyses were conducted to examine whether daily Rosary frequency predicted well-being. Assumptions required for a simple linear regression were assessed before analyses were conducted. To assess linearity, a scatterplot of well-being against daily Rosary frequency with superimposed regression line was plotted with the unstandardized coefficients found in Table 29, as shown in Figure 16. Visual inspection of the scatterplot indicated a linear relationship between daily Rosary frequency and well-being. The Durbin-Watson statistic of 1.729, approximately 2 in a range of 0 to 4, as shown in Table 27 indicated that there was no correlation between residuals, and that the observations were independent (Laerd Statistics, 2015). Further, as shown in Figure 16 and noted in Table 27, there were no significant outlier cases other than the previously excluded model fit outlier cases shown in Table 1, as there were no standardized residuals with a value of greater than ±3 except for case number 58 that was not excluded from the data set (Laerd Statistics, 2015). Residuals were normally distributed as assessed by visual inspection of the normal probability plot in Figure 17.

A simple linear regression for RQ9 established that daily Rosary frequency was statistically significantly associated with well-being, F (1, 58) = 7.052, p = 0.010, α <.05

(Table 28) and daily Rosary frequency accounted for 11.0% (R^2 in Table 27) of the explained variability in well-being, a small effect size (Cohen, 1988). Therefore, for RQ9, the null hypothesis is rejected. Thus, there was a significant association between daily Rosary frequency and well-being.

Figure 16

Scatterplot of Well-Being by Daily Rosary Frequency

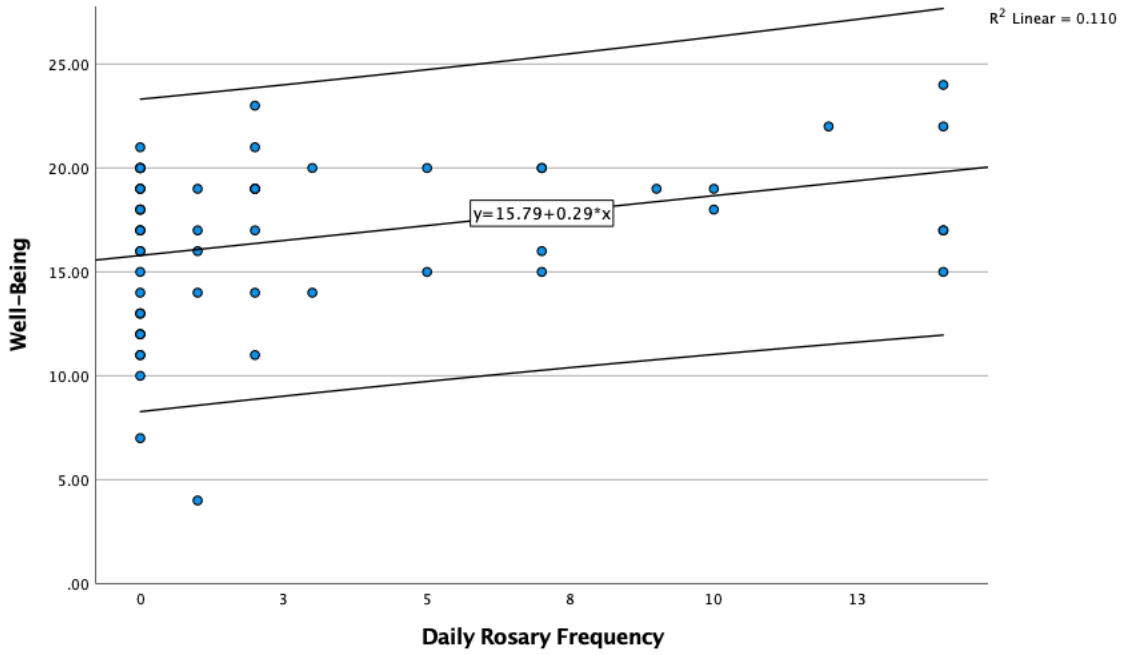


Figure 17

Normal Probability Plot of Regression Standardized Residual: Well-Being by Daily Rosary Frequency

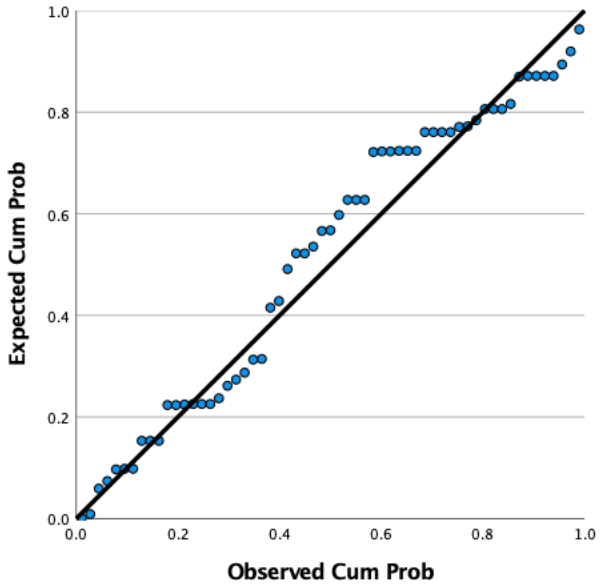


Table 27

Model Summary for RQ9

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.332	**.**110	.904	3.70917	1.722

Note. N = 59. Predictor variable is intrinsic religiosity. Outcome variable is well-being. Minimum standardized residual = -3.257 (case #58) and the maximum standardized residual =1.812.

Table 28

ANOVA for RQ9

	Sum of Squares	df	Mean Square	F	Sig.
Regression	97.016	1	97.016	7.052	.010
Residual	784.205	57	13.758		
Total	881.220	58			

Note. N = 59. Predictor variable is daily Rosary frequency. Outcome variable is well-being. α <.05.

Table 29

Coefficients for RQ9

	Unstandardized Coefficient		Standard Coefficient			95% Confidence Interval for B	
	B	**Std. Error**		**t**	**Sig.**	**Lower Bound**	**Upper Bound**
Constant	15.793	.583		27.088	<.001	14.626	16.961
DRF	.288	.108	.332	2.655	.010	.071	.504

Note. N = 59. Predictor variable is DRF. Outcome variable is well-being. α <.05.

RQ10

For RQ10, a simple linear regression mediation analysis was conducted using Hayes (2022) PROCESS procedure for SPSS Version 4.1, as illustrated by Figure 18, Table 30, and Table 31. First, the relationship between religiosity and daily Rosary frequency was assessed. The strength of the relationship along path *a* was 0.5125, p = .0001, which indicated a statistically significant positive relationship. Second, the relationship between daily Rosary frequency and well-being was assessed while controlling for religiosity. The strength of the relationship along path *b* between daily Rosary frequency and well-being was 0.2245, p = .0768, which indicated no statistically significant positive relationship. Hence, there was no evidence that daily Rosary frequency influenced well-being independent of its effect on religiosity.

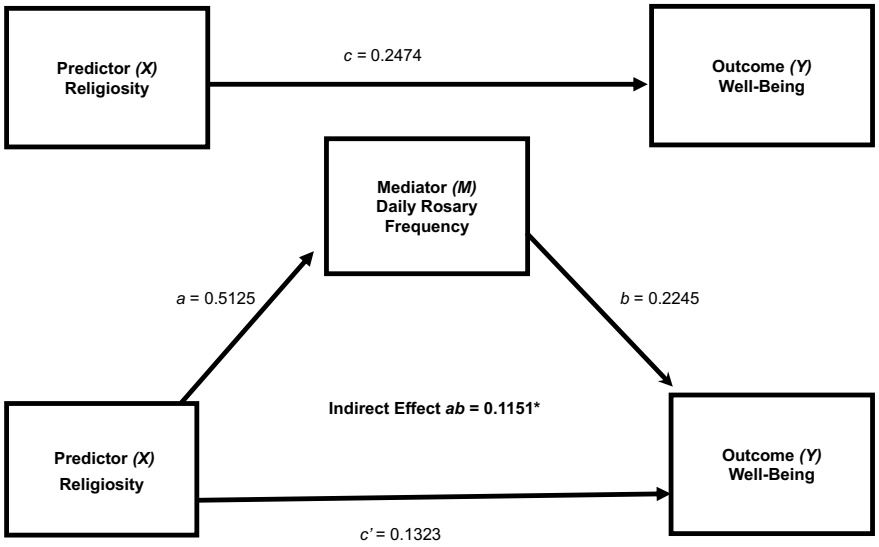
Next, the relationship between religiosity and well-being was assessed. As presented by Figure 18, Table 30, and Table 31, the strength of the direct effect of religiosity on well-being along path *c'* was 0.1323, p = .3100, indicating no statistically significant positive relationship. Finally, the 95% confidence interval for the indirect effect *ab* = 0.1151 based on 50,000 bootstrap samples, with a custom seed of 153, was entirely above zero from .0040 to .2547. The results indicated a statistically significant

positive indirect effect between religiosity and well-being when daily Rosary frequency was treated as a mediator, since the 95% confidence interval was entirely above zero (Hayes, 2022). Thus, the null hypothesis was rejected. Therefore, the alternative hypothesis was accepted, as there was a statistically significant positive link between religiosity and well-being when daily Rosary frequency was treated as a mediator.

As illustrated by Figure 18 and reported in Table 31, two adult Catholic students who differed by one scale point higher in *religiosity (X)* were estimated to be *.2474* scale points higher in well-being *(Y)* on average, which was the total effect *c* of religiosity on well-being (Hayes, 2022). They differed by *.1151* scale points higher on average as a result of the mediation or indirect effect *ab* of *religiosity (X)* on daily Rosary frequency *(M)* which in turn affected well-being *(Y)* (Hayes, 2022). The remainder of the difference, the difference of *.1323* scale points higher, was the result of the direct effect *c'* of *religiosity (X)* on well-being *(Y)* independent of daily Rosary frequency *(M)* (Hayes, 2022).

Figure 18

Mediation Model: Indirect Effect of Religiosity on Well-Being via Daily Rosary Frequency



Note. N =59. a = Effect of religiosity on daily Rosary frequency (DRF). b = Effect of daily Rosary frequency on well-being while controlling for religiosity. c = Total effect of religiosity on well-being including the indirect effect of daily Rosary frequency. c' = Direct effect of religiosity on well-being independent of the indirect effect of daily Rosary frequency. ab = Indirect effect of religiosity on well-being through daily Rosary frequency. * The indirect effect ab of 0.1151 was statistically significant based on 50,000 bootstrap samples with a custom seed of 153 because the 95% confidence interval was entirely above zero from .0040 to .2547.

Table 30

Model Coefficients for Religiosity, DRF, and Well-Being

		Outcome						
		M (DRF)				*Y* (WELL-BEING)		
Predictor		Coeff.	*SE*	*p*		Coeff.	*SE*	*p*
X (RELIGIOSITY)	*a*	0.5125	0.1194	0.0001	*c'*	0.1323	0.1291	0.3100
M (DRF)		---	---	---	*b*	0.2245	0.1245	0.0768
constant	i_M	-8.1282	2.6462	0.0033	i_Y	13.1069	2.6860	0.0000
		R^2 = 0.2444 F = 18.4326, df1 = 1 / df2 = 57, p = 0.0001				R^2 = 0.1265 F = 4.0538, df1 = 2 / df2 = 56, p = 0.0227		

Note. N = 59. M = DRF (Daily Rosary Frequency)

Table 31

Total, Direct, and Indirect Effects of Religiosity on Well-Being

Total effect of X (Religiosity) on Y (Well-Being)						
	Effect	Se	t	p	LLCI	ULCI
c	.2474	.1144	2.1616	.0349	.0182	.4765
Direct effect of X on Y						
	Effect	Se	t	p	LLCI	ULCI
c'	.1323	.1291	1.0246	.3100	-.1264	.3909
Indirect effect of X on Y through M (daily Rosary frequency)						
	Effect	BootSE	BootLLCI	BootULCI		
ab	.1151	.0640	.0040	.2547		

Note. N = 59. Process Model: 4. Custom Seed: 153. Level of confidence for all confidence intervals: 95. Number of bootstrap samples for percentile bootstrap confidence intervals: 50,000. Generated using PROCESS procedure for SPSS Version 4.1.

RQ11

For RQ11, a simple linear regression mediation analysis was conducted using Hayes (2022) PROCESS procedure for SPSS Version 4.1, as shown in Figure 19, Table 32, and Table 33. First, the relationship between ORA and daily Rosary frequency was assessed. The strength of the relationship along path *a* was 1.4643, p = .0002, which indicated a statistically significant positive relationship. Second, the relationship between daily Rosary frequency and well-being was assessed. The strength of the relationship along path *b* between daily Rosary frequency and well-being was 0.2352, p = .0631, which indicated no statistically significant positive relationship. Hence, there was no evidence that daily Rosary frequency influenced well-being independent of its effect on ORA.

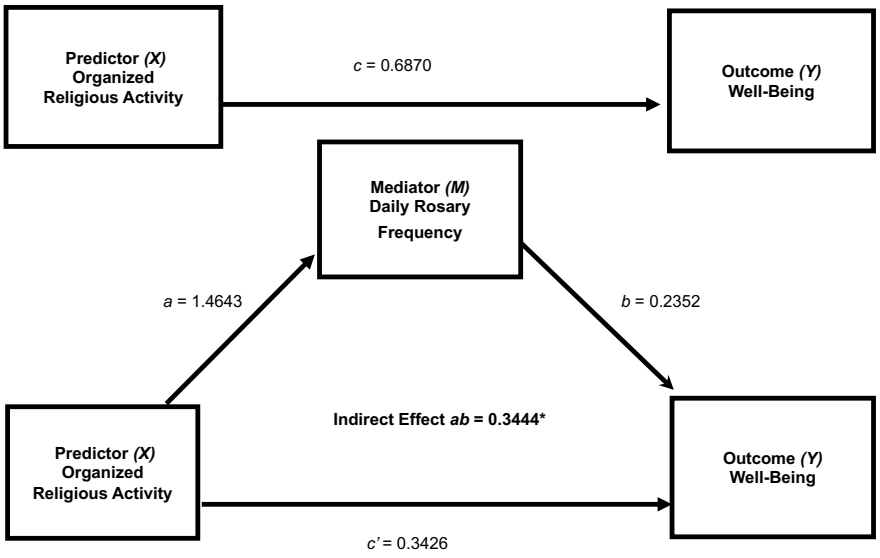
Next, the relationship between ORA and well-being was assessed. As presented by Figure 19, Table 32, and Table 33, the strength of the direct effect of ORA on well-being along path c' was 0.3426, p = .3724, indicating no statistically significant positive relationship. Finally, the 95% confidence interval for the indirect effect ab = 0.3444 based on 50,000 bootstrap samples, using a custom seed of 153, was entirely above zero

.0210 to .7495. The results indicated a statistically significant positive indirect effect between ORA and well-being when daily Rosary frequency was treated as a mediator, since the 95% confidence interval was entirely above zero (Hayes, 2022). Thus, the null hypothesis was rejected. Therefore, the alternative hypothesis was accepted, as there was a statistically significant positive link between religiosity and well-being when daily Rosary frequency was treated as a mediator.

As illustrated by Figure 19, two adult Catholic students who differed by one scale point higher in *ORA (X)* were estimated to be *.6870* scale points higher in well-being *(Y)* on average (Hayes, 2022). They differed by *.3444* scale points higher on average because of the indirect effect of *ORA (X)* on daily Rosary frequency *(M)* which in turn affected well-being *(Y)* (Hayes, 2022). The remainder of the difference, the difference of *.3426* scale points higher, was the result of the direct effect of *ORA (X)* on well-being *(Y)* independent of daily Rosary frequency *(M)* (Hayes, 2022).

Figure 19

Mediation Model: Indirect Effect of ORA on Well-Being via Daily Rosary Frequency



Note. $N = 59$. a = Effect of organizational religious activity (ORA) on daily Rosary frequency. b = Effect of daily Rosary frequency on well-being while controlling for religiosity. c = Effect of ORA on well-being including the indirect effect of daily Rosary frequency (DRF). c' = Direct effect of ORA on well-being independent of the indirect effect of daily Rosary frequency. ab = Indirect effect of ORA on well-being through daily Rosary frequency. * The indirect effect ab of 0.3444 was statistically significant based on 50,000 bootstrap samples with a custom seed of 153 because the 95% confidence interval was entirely above zero from .0210 to .7495.

Table 32

Model Coefficients for ORA, DRF, and Well-Being

		Outcome						
		M (DRF)				*Y* (WELL-BEING)		
Predictor		Coeff.	*S E*	*p*		Coeff.	*SE*	*p*
X (ORA)	*a*	1.4643	0.3610	0.0002	*c′*	0.3426	0.3810	0.3724
M (DRF)		---	---	---	*b*	0.2352	0.1231	0.0613
constant	i_M	-3.6593	1.7261	0.0384	i_Y	14.3894	1.6670	0.0000
		$R^2 = 0.2240$				$R^2 = 0.1228$		
		F = 16.4544 df1 = 1 / df2 = 57, p = 0.0002				F = 3.9183 df1 = 2 / df2 = 56, p = 0.0255		

Note. $N = 59$.

Table 33

Total, Direct, and Indirect Effects of ORA on Well-Being

Total effect of X (ORA) n Y (Well-Being)						
	Effect	Se	t	p	LLCI	ULCI
C	.6870	.3433	2.0009	.0502	-.0005	1.37
Direct effect of X on Y						
	Effect	Se	t	p	LLCI	ULCI
c'	.3426	.3810	.8993	.3724	-.4206	1.1059
Indirect effect of X on Y through M (daily Rosary frequency)						
	Effect	BootSE	BootLLCI	BootULCI		
(ab)	.3444	.1809	.0210	.7495		

Note. N=59. Process Model: 4. Custom Seed: 153. Level of confidence for all confidence intervals: 95. Number of bootstrap samples for percentile bootstrap confidence intervals: 50000. Generated using PROCESS procedure for SPSS Version 4.1 (Hayes, 2022).

RQ12

For RQ12, a simple linear regression mediation analysis was conducted using Hayes (2022) PROCESS procedure for SPSS Version 4.1, as illustrated by Figure 20, Table 34, and Table 35. First, the relationship between NORA and daily Rosary frequency was assessed. The strength of the relationship along path *a* was 1.2081, p = .0006, which indicated a statistically significant positive relationship. Second, the relationship between daily Rosary frequency and well-being was assessed. The strength of the relationship along path *b* between daily Rosary frequency and well-being was 0.2402, p = .0508, which indicated no statistically significant positive relationship. Hence, there was no evidence that daily Rosary frequency influenced well-being independent of its effect on NORA.

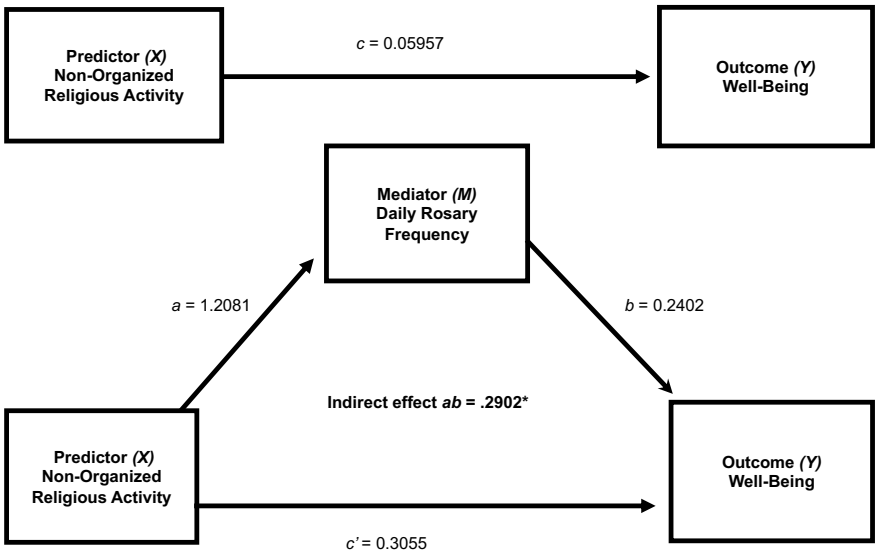
Next, the relationship between NORA and well-being was assessed. As presented by Figure 20, Table 34, and Table 35, the strength of the direct effect of NORA on well-being along path c' was 0.3055, p = .3669, indicating no statistically significant positive relationship. Finally, the 95% confidence interval for the indirect effect, ab = 0.2902, based on 50,000 bootstrap samples, using a custom seed of 153, was entirely above zero

at 0.0419 to 0.6233. The results indicated a statistically significant positive indirect effect between NORA and well-being when daily Rosary frequency was treated as a mediator, since the 95% confidence interval was entirely above zero (Hayes, 2022). Therefore, the null hypothesis was rejected. The alternative hypothesis was accepted, as there was a statistically significant positive link between NORA and well-being when daily Rosary frequency was treated as a mediator.

As illustrated by Figure 20, two adult Catholic students who differed by one scale point higher in *NORA (X)* are estimated to be *.5957* scale points higher in well-being *(Y)* on average (Hayes, 2022). They differed by *.2902* scale points higher on average as a result of the indirect effect of *NORA (X)* on daily Rosary frequency *(M)* which in turn affected well-being *(Y)* (Hayes, 2022). The remainder of the difference, the difference of *.3055* scale points higher, was the result of the direct effect of *NORA (X)* on well-being *(Y)* independent of daily Rosary frequency *(M)* (Hayes, 2022).

Figure 20

Mediation Model: Indirect Effect of NORA on Well-Being via DRF



Note. N = 59. a = Effect of Non-Organizational Religious Activity (NORA) on daily Rosary frequency. b = Effect of daily Rosary frequency (DRF) on well-being while controlling for NORA. c = Total effect of NORA on well-being including the indirect effect of daily Rosary frequency. c' = Direct effect of NORA on well-being independent of the indirect effect of daily Rosary frequency. ab = Indirect effect of NORA on well-being through daily Rosary frequency. * The indirect effect ab of 0.2902 was statistically significant based on 50,000 bootstrap samples with a custom seed of 153 because the 95% confidence interval was entirely above zero from .0419 to .6233.

Table 34

Mediation Model Coefficients for NORA and DRF

		Outcome						
		M (DRF)				*Y* (WELL-BEING)		
Predictor		Coeff.	*SE*	*P*		Coeff.	*SE*	*p*
X (NORA)	*a*	1.2081	0.3333	0.0006	*c'*	0.3055	0.3358	0.3669
M (DRF)		---	---	---	*b*	0.2402	0.1203	0.0508
constant	i_M	-1.9179	1.4617	0.1947	i_Y	14.6885	1.3477	0.0000
		R^2 = 0.1874 F = 13.1422, df1 = 1 / df2 = 57, p = 0.0006				R^2 = 0.1230 F = 3.9288, df1 = 2 / df2 = 56, p = 0.0253		

Note. N = 59.

Table 35

Total, Direct, and Indirect Effects of NORA on Well-Being

Total effect of X (NORA) on Y (Well-Being)						
	Effect	Se	T	p	LLCI	ULCI
C	.5957	.3106	1.9181	.0601	-.0262	1.2176
Direct effect of X on Y						
	Effect	Se	T	p	LLCI	ULCI
c'	.3055	.3358	.9096	.3669	-.3673	.9782
Indirect effect of X on Y through M (daily Rosary frequency)						
	Effect	BootSE	BootLLCI	BootULCI		
ab	.2902	.1489	.0419	.6233		

Note. N = 59. Process Model: 4. Custom Seed: 153. Level of confidence for all confidence intervals: 95. Number of bootstrap samples for percentile bootstrap confidence intervals: 50,000. Generated using PROCESS procedure for SPSS Version 4.1.

RQ13

For RQ13, a simple linear regression mediation analysis was conducted using Hayes' PROCESS procedure for SPSS Version 4.1, as illustrated by Figure 21, Table 36, and Table 37. First, the relationship between IR and daily Rosary frequency was assessed. The strength of the relationship along path *a* was .8479, p = .0031, which indicated a statistically significant positive relationship. Second, the relationship between daily Rosary frequency and well-being was assessed. The strength of the relationship along path *b* between daily Rosary frequency and well-being was 0.2546, p = .0345, which indicated a statistically significant positive relationship. Hence, daily Rosary frequency influenced well-being independent of its effect on IR.

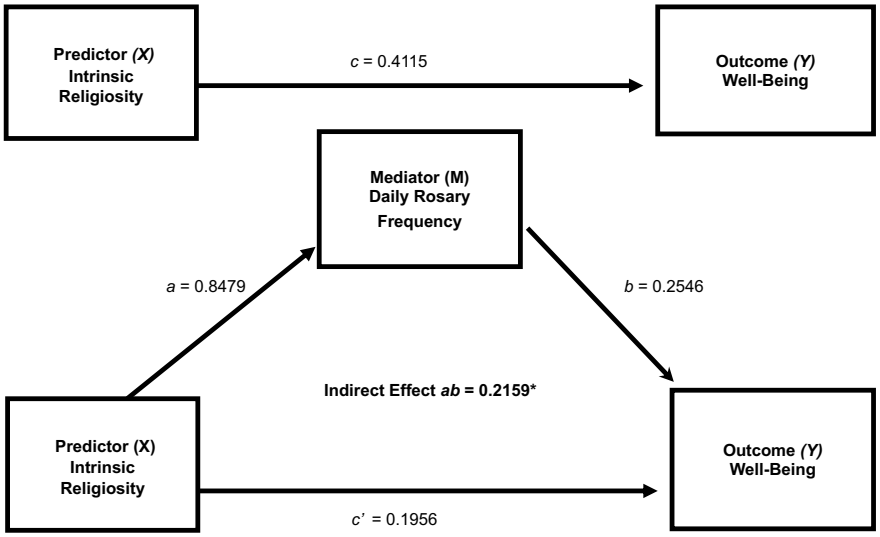
Next, the relationship between IR and well-being was assessed. As presented by Figure 21, Table 36, and Table 37, the strength of the direct effect of IR on well-being along path *c'* was 0.1956, p = .4607, indicating no statistically significant positive relationship. Finally, the 95% confidence interval for the indirect effect *ab* = 0. 2159 based on 50,000 bootstrap samples, using a custom seed of 153, was entirely above zero at 0.0440 to 0.4838, as shown in Table 37. Thus, a statistically significant positive indirect effect was indicated between IR and well-being when daily Rosary frequency

was treated as a mediator, since the 95% confidence interval was entirely above zero (Hayes, 2022). Therefore, the null hypothesis was rejected. The alternative hypothesis was accepted, as there was a statistically significant positive link between IR and well-being when daily Rosary frequency was treated as a mediator.

As illustrated by Figure 21, two adult Catholic students who differed by one scale point higher in *IR (X)* were estimated to be *.4115* scale points higher in well-being *(Y)* on average (Hayes, 2022). They differed by *.2159* scale points higher on average as a result of the indirect effect of *IR (X)* on daily Rosary frequency *(M)* which in turn affected well-being *(Y)* (Hayes, 2022). The remainder of the difference, the difference of *.1956* scale points higher, was the result of the direct effect of *IR (X)* on well-being *(Y)* independent of daily Rosary frequency *(M)* (Hayes, 2022).

Figure 21

Mediation Model: Indirect Effect of IR on Well-being via DRF



Note. N = 59. a = Effect of intrinsic religiosity (IR) on daily Rosary frequency. b = Effect of daily Rosary frequency (DRF) on well-being while controlling for IR. c = Total effect of IR on well-being including the indirect effect of daily Rosary frequency. c' = Direct effect of IR on well-being independent of the indirect effect of daily Rosary frequency. ab = Indirect effect of IR on well-being through daily Rosary frequency. * The indirect effect ab of 0.2159 was statistically significant based on 50,000 bootstrap samples with a custom seed of 153 because the 95% confidence interval was entirely above zero from .0440 to .4838.

Table 36

Mediation Model Coefficients for IR, DRF, and Well-Being

		Outcome						
		M (DRF)				*Y* (WELL-BEING)		
Predictor		Coeff.	*SE*	*P*		Coeff.	*SE*	*p*
X (IR)	*a*	0.8479	0.2749	0.0031	*c'*	0.1956	0.2633	0.4607
M (DRF)		---	---	---	*b*	0.2546	0.1175	0.0345
constant	i_M	-8.0924	3.6427	0.0303	i_Y	13.3302	3.3671	0.0002
		R^2 = 0.1431 F = 9.5155, df1 = 1 / df2 = 57, p = 0.0031				R^2 = 0.1188 F = 3.7740, df1 = 2 / df2 = 56, p = 0.0290		

Note. N =59.

Table 37

Total, Direct, and Indirect Effects of IR on Well-Being

Total effect of X (IR) on Y (Well-Being)						
c	Effect	se	T	p	LLCI	ULCI
	.4115	.2515	1.6358	.1074	-.0922	.9152
Direct effect of X on Y						
	Effect	se	T	p	LLCI	ULCI
c'	.1956	.2633	.7428	.4607	-.3319	.7231
Indirect effect of X on Y through M (daily Rosary frequency)						
	Effect	BootSE	BootLLCI	BootULCI		
ab	.2159	.1141	.0440	.4838		

Note. N = 59. Process Model: 4. Custom Seed: 153. Level of confidence for all confidence intervals: 95. Number of bootstrap samples for percentile bootstrap confidence intervals: 50,000. Generated using PROCESS procedure for SPSS Version 4.1 (Hayes, 2022).

Table 38

Power Analyses of Indirect Effects for RQ10, RQ11, RQ12, and RQ13

RQ	***a***	***b***	***c'***	***SD of X***	***SD of M***	***SD of Y***	**Power of *ab***
10	0.4943	0.2590	0.1472	4.33746	4.497	3.89788	**0.43**
11	0.4733	0.2713	0.1278	1.454	4.497	3.89788	**0.48**
12	0.4329	0.2771	0.1263	1.611	4.497	3.89788	**0.49**
13	0.3782	0.2937	0.1007	2.00598	4.497	3.89788	**0.48**

Note. N = 59. a = standardized coefficient value or strength of path a. b = standardized coefficient value or strength of path b. c' = standardized coefficient value or strength of path c'. ab = a*b = indirect effect of X on Y through M. SD = standard deviation. X = predictor variable. M = mediator variable. Y = outcome variable. Power of indirect effect (ab) results were obtained after inputting the above data into the Monte Carlo Power Analysis for Indirect Effects online calculator at https://schoemanna.shinyapps.io/mc_power_med/.

Summary

Results of this study showed that there was a statistically significant positive association between religiosity and well-being, and DRF and well-being, with a power >.80; however, with a much less power of .43, there was a statistically significant indirect effect of religiosity on well-being through DRF among Catholic adult students enrolled at colleges or universities, vocational schools or colleges, and institution of higher education in the U.S. during the pandemic in 2021. Likewise, there was a statistically significant link between each of the three other predictor variables ORA, NORA, and IR and the outcome variable well-being when DRF was treated as a mediator, yet, also with

much less power as shown in Table 38. Therefore, for the mediation analyses, future studies are recommended with larger population samples. No statistically significant association was found between ORA, NORA, and IR and well-being.

Next, in Chapter 5, I include discussions of findings for all research questions, plus recommendations for future research, implications for positive social change, and concluding remarks.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative survey study was to address associations between religiosity, daily Rosary frequency (DRF), and well-being, and if DRF mediated associations between religiosity and the well-being of Catholic adult students in institutions of higher education during the pandemic in 2021.

The Rosary is associated with reduced anxiety and possibly improved well-being (Anastasi & Newberg, 2008; Stöckigt et al., 2021), as well as reduced heart rate, blood pressure, and respiration (Bernardi et al., 2001). More broadly, research on religiosity has indicated favorable associations with well-being (see Bormann et al., 2013; Hollywell & Walker, 2009; Kirk & Lewis, 2013; Koenig et al., 2012; Oman & Bormann, 2015; Schnitker & Richardson, 2019; Wachholtz & Sambamoorthi, 2011; Zacher & Rudolph, 2021). However, during the pandemic, based on mental health screenings in the Healthy Minds Study of U.S. college students (N=95,860), 44% of the students experienced depression either severe or moderate and 37% experienced anxiety either severe or moderate; in addition, 15% reported suicidal ideation and 28% reported non-suicidal self-injury during the previous year (Healthy Minds Network, 2022). Therefore, this study was conducted to address the well-being of college students during the pandemic by examining anonymous survey results measuring the religiosity, daily Rosary frequency, and well-being of 59 Catholic adult students in the U.S. attending an institution of higher education.

A quantitative nonexperimental research design with simple linear regressions, Spearman correlations, and mediation analyses were used to analyze survey data to find associations between religiosity, daily Rosary frequency, and well-being. The sample for

this study was a convenience sample of 59 Catholic adult students who were baptized as Catholics, professed to be Catholic, were 18 or older, lived in the U.S. and attended a U.S. institution of higher education. Participants were recruited via the Walden University Participant Pool, one nationwide organization, snowball sampling from social media, direct email, group emails, and list servs. Five regression analyses, four Spearman correlation analyses, and four mediation analyses were used to examined data from three measures including the DUREL, DRF Questions, and the WHO-5. Via the DUREL, overall religiosity was measured as the total of three dimensions of religiosity: ORA, NORA, and IR. Results of this study showed that there was a statistically significant positive association between religiosity and well-being, religiosity and DRF, DRF and well-being, and the indirect effect of religiosity on well-being through DRF of Catholic adult students in 2021. However, ORA, NORA, and IR were not statistically significant in their associations with well-being for these participants.

Concerning mediation analysis, Baron and Kenny (1986) indicated the need for statistically significant associations between predictor and outcome variables before it could be inferred that a mediating variable mediates that association with statistical significance. However, a significant association between a predictor and outcome is not needed to statistically infer mediation or the indirect effect of a predictor on an outcome through a mediator, according to more recent mediation experts (Hayes, 2022; MacKinnon, 2008). Hayes (2022) recommended the statistical technique of using at least 5,000 or 10,000 bootstrap samples with a 95% confidence interval to test the statistical significance of a mediator. If the 95% confidence interval entirely excludes zero, then a statistically significant mediation or indirect effect of a predictor on an outcome through

a mediator can be indicated (Hayes, 2022). I used the bootstrap analysis approach for this study to examine mediation. In this chapter, I review the following: interpretations of findings, limitations of the study, recommendations, implications, and conclusions.

Interpretation of the Findings

This section includes my interpretations of results for research questions.

Religiosity and Well-Being

In this study concerning measurement of the association between religiosity and well-being, results were measured via simple linear regression, and I found significant positive associations between religiosity and well-being. Higher levels of religiosity have been positively associated with well-being, which was confirmed by the study (Bormann et al., 2013; Hollywell & Walker, 2009; Kirk & Lewis, 2013; Koenig et al., 2012; Oman & Bormann, 2015; Schnitker & Richardson, 2019; Wachholtz & Sambamoorthi, 2011; Zacher & Rudolph, 2021). Park et al. (2013) found that the highly religious were most likely to be happy and content with finances and least likely to be distressed. Kirk and Lewis (2013) found that during emerging adulthood, frequency of prayer and/or meditation significantly predicted life satisfaction.

The research of Diener et al. (2011) suggested that the positive influence of religion on well-being was dependent upon the culture of society; such that, if the culture of a society was religious, then there would likely be a positive influence of religion on well-being in that society; conversely, if the culture of a society was not religious, then there would not likely be a positive influence of religion on well-being in that society. In the United States, in the Pew Research Center's (2021, January 14) surveys in 2020, 72% of adults identified themselves with a religion, which was 2 percentage points higher than

in 2009; however, 28% described themselves as having no religious belief, also known as the “nones”, which was 11 points higher than in 2009. Nonetheless, the culture of the society of the United States is not Catholic, as it is pluralistic, even concerning religion, as the country was founded on the separation of church and state (Heinrich, 2015). Thus, no positive influence of the Catholic religion upon well-being was expected among Catholic college students, based upon Diener et al.’s research, since the culture of the society in the United States is not Catholic.

According to the Association of Religion Data Archives (ARDA, 2020), of the over 330 million people in the United States, about 22.33% or more than 73 million are Catholics, and of the other religions also categorized as Christian, there are: Protestants 16.32%, unaffiliated Christians 14.07%, Orthodox 2.16%, and Independents 19.27%; next, the remaining religions with 1.00% or more of the total are the Jews 1.69%, Muslims 1.38%, and Buddhists 1.30%; then, the non-religious are the Agnostics 16.77%, and Atheists 2.91%. So, more people profess to be Catholic than any other religion in the United States (ARDA, 2020). However, this country has increasingly tried to abide by the separation of church and state in its education, laws, and government, which has resulted in a more secular America culture (Heinrich, 2015).

Consequently, Catholic morality in American culture has become more limited; for example, the influence of Catholic morality on the entertainment industry has diminished since the 1950s with its increase in immoral content and themes (Gillis, 2020). Therefore, Catholic values and morals are not predominant in the culture of the United States, and many Catholics have been assimilated into American culture to such an extent that, “they face the danger of being American, but not Catholic” (Gillis, 2020;

p. 396). For example, Catholic population (self-identified, survey-based estimate) in the United States increased over 35% from 54.1 million in 1969 to 73.5 million in 2021 (Center for Applied Research in the Apostolate, 2023). However, the number of Catholic marriages per year decreased over 75% from 426,309 in 1969 to 98,354 in 2021, based on recent Center for Applied Research in the Apostolate (2023) data. Moreover, according to a Gallup poll, weekly church attendance of Catholics in the United States has dramatically decreased from 75% in 1955 to 39% in 2014-2017 (Saad, 2018). Nonetheless, the results of this current study did indicate a positive association between religiosity and well-being in adult Catholic students in the United States. Therefore, this study does not confirm the research of Diener et al., which suggested that the positive influence of religion on well-being was dependent on the culture of society.

In other research, Leondari and Gialamas (2009) found negative associations between religiosity and psychological well-being. One reason for this contrast may have been differences in the average age of participants, as people older in age are generally considered to be more mature and therefore, more likely to be more religious. Hence, future studies may explore more closely the associations between age and well-being, or whether age moderates any association between religiosity and well-being.

Study analyses found no statistically significant association between organizational religious activity and well-being, and non-organizational religious activity and well-being. The non-significant results contradict most of the research on the association between religiosity and well-being, which indicated a positive association (Bormann et al., 2013; Hollywell & Walker, 2009; Kirk & Lewis, 2013; Koenig et al., 2012; Oman & Bormann, 2015; Schnitker & Richardson, 2019; Wachholtz &

Sambamoorthi, 2011; Zacher & Rudolph, 2021). An explanation for the non-significant results for the association between organizational religious activity and well-being may be that organizational religious activities during the pandemic were diminished due to social distancing restrictions and churches that were either closed or less available; therefore, organizational religious activity probably decreased because it was either restricted, limited, or discouraged.

Another explanation for the non-significant results may be that this sample of adult Catholic students may have had some other confounding variables related to the pandemic, such as fear of getting sick (Tasso et al., 2021), which may have diminished organizational religious activity, such as attending church services, and its influence on well-being. In addition, an explanation for the non-significant results for the association between non-organizational religious activity and well-being, such as private prayer and meditation, may have been diminished to a point that it was not significant in its influence on well-being for this sample. For example, possibly one or more other confounding variables may have been related to the pandemic for adult Catholic students in college, such as increased levels of stress, anxiety, and depression (Son et al., 2020).

Similarly, no significant association between intrinsic religiosity and well-being was found in this study. These non-significant findings contradict published research literature. For example, Pérez and Smith (2015) found cancer patients' "active religious surrender" and "actively sharing control with God" were associated with increased well-being, and both may be considered forms of intrinsic religiosity. The findings from this study did not align with this research for a couple of reasons. One reason that the findings of this current study did not align with the research of Pérez and Smith may have been

that the age of the participants was 32, which was much less than age 54, the average age of the cancer patients. Younger ages tend to be less mature than older ages, and therefore, less religious in their approach to life. A second reason why the findings of this study contradicted the research of Pérez and Smith and other research may have been that there may have been one or more confounding variables related to the pandemic, as previously mentioned, such as higher levels of stress, anxiety, and depression (Son et al., 2020).

From the perspective of the biopsychosocial-spiritual framework and Choice Theory, the extent to which one chooses need satisfying thoughts and actions congruent with one's Quality World, such as living one's religious beliefs, the more likely that one will experience higher levels of well-being (Glasser, 1998; Gordon, 2008). Hence, the extent to which adult Catholic students chose thoughts and actions congruent with their Catholic faith, the more likely that they were to experience higher levels of well-being. Therefore, the results of this study indicating a positive association between religiosity and well-being of adult Catholic students may be explained by stating that, the greater the extent to which adult Catholic students practiced their Catholic faith, the more likely that they were to have higher levels of well-being.

Religiosity and Daily Rosary Frequency

In this study, religiosity, including organizational religious activity, non-organizational religious activity, and intrinsic religiosity, were statistically significant in their association with daily Rosary frequency. This significant association extended and supported previous research, such as Stöckigt et al.'s (2021) qualitative study that described the experiences of 10 German devout Catholic adults. For example, the participants in Stöckigt et al.'s (2021) study were all religious Catholics who prayed the

Rosary several times a week either in a group or alone, and they applied their Catholic faith to their daily lives. Therefore, the statistically significant results of this current study on the positive association between religiosity and daily Rosary frequency support the positive religiosity experiences, including the organizational religious activity, non-organizational religious activity, and intrinsic religiosity experiences of the devout Catholics, as reported by Stöckigt et al., along with their praying the Rosary a few times a week.

An explanation for the positive association between religiosity and daily Rosary frequency is because the daily Rosary is a form of religiosity. For example, the participants in Stöckigt et al.'s (2021) study most often attributed the Rosary benefits to "the prayer itself, trust and devotion, faith, God and their connection to God" (Stöckigt et al., 2021, p. 3895). These possible reasons for the Rosary benefits (Stöckigt et al., 2021) align with the research conclusions of Schnitker and Richardson (2019), mentioned earlier, who concluded in their study on gratitude that the mediators explaining the beneficial prayer effects were associated with the sacred and theistic aspects of prayer.

Daily Rosary Frequency and Well-Being

This current study found that daily Rosary frequency was statistically significant in its association with well-being. The statistically significant association between daily Rosary frequency and well-being supported the results of Stöckigt et al.'s (2021) qualitative study of a small group of devout Roman Catholic German adults who regularly prayed the Rosary and reported less stress, reduced anxiety, and less sadness. Further, the results also aligned with the statistically significant results of Anastasi and

Newberg (2008), which indicated that praying the Rosary reduced the acute anxiety of college students as compared to students who did not pray the Rosary.

An important part of praying the Rosary entails meditating upon the sacred mysteries of the Rosary (Meznar, 2005; Montfort, 2016); thus, the results of this current study may be seen as supporting the research literature, which has indicated meditation including mindfulness meditation and guided imagery or self-hypnosis to be positively associated with well-being (Appel & Kim-Appel, 2009; Bragard et al., 2017; Lenihan, 2015; Kaplan-Rakowski et al., 2021; Martin et al., 2022; Null & Pennesi, 2017; Oman & Bormann, 2015; Rosini et al., 2017). For example, the current results of this daily Rosary study, aligned with the results of Kaplan-Rakowski et al. (2021), which found virtual reality meditation with university students to be significantly more helpful than video meditation; yet the students reported either form of meditation helped to reduce pre-exam anxiety (Kaplan-Rakowski et al., 2021). In a randomized quantitative study, Rosini et al. (2017) found higher mindfulness levels were associated with improved lifestyle habits, lower stress levels, and decreased negative affect.

Moreover, as the daily Rosary is also a form of mindfulness meditation (Appel & Kim-Appel, 2009; Lenihan, 2015), this daily Rosary study supported the results of a study using mantra repetition, a mindfulness meditation, which showed mantra repetition to improve well-being or increased self-efficacy to veterans with posttraumatic stress disorder (PTSD) (Bormann et al., 2013; Oman & Bormann, 2015). Oman and Bormann (2015) in a randomized study found significant treatment effects on self-efficacy, mental health, spiritual well-being, satisfaction with physical health, depression, and self-reported and clinician-assessed PTSD symptoms. Oman and Bormann concluded that the

Mantram Repetition Program promotes self-efficacy to manage PTSD symptoms while positively influencing various aspects of well-being. The results of this current study on the significant positive association between daily Rosary frequency and well-being support the significant results of these studies indicating that mindfulness meditation significantly positively impacts or is positively associated with well-being.

The study of Null and Pennesi (2017) was an example of how mindfulness and de-stress techniques were used to improve aspects of well-being; however, if the participants were Catholics, the daily Rosary as a form of mindfulness might have been a good choice to produce similar or improved results in well-being. The participants in Null and Pennesi's (2017) study were encouraged to examine beliefs and attitudes for self-actualization; for example, they examined life purpose, core values, avoidance of self-limiting thinking, and potential for helping others (Null & Pennesi, 2017). With the group study of Null and Pennesi (2017) in mind, concerning the mindfulness and de-stress techniques used, the Rosary would have been a preferrable option for a Catholic because besides being a form of mindfulness, it is a form of prayer, meditation, and guided imagery. Further, the Rosary aids in the examination of beliefs and attitudes for self-actualization, as one's life purpose and values are affirmed in the Apostles' Creed and other prayers and meditations of the Rosary, which support one's religiosity and well-being. Hence, the daily Rosary prayed and meditated on for 20 minutes per day would have been an ideal choice for a Catholic in the group study of Null and Pennesi (2017).

Additionally, since the Rosary is a religious form of self-hypnosis, this current study aligned with the research of Bragard et al. (2017), as their results indicated that breast cancer patients experienced less distress, improved quality of life, better sleep, and

mental adjustment through mind-body interventions, such as self-hypnosis. Therefore, the positive association of the daily Rosary frequency and well-being may be explained by the fact that the daily Rosary is a self-hypnosis-like approach, yet augmented by its supernatural focus on Jesus Christ, Holy Mary, and the Catholic faith. In addition, from the psychosocial-spiritual framework and Choice Theory perspective, the extent to which one chooses need satisfying thoughts and actions congruent with one's Quality World, such as practicing one's religious beliefs, the more likely that one will experience higher levels of well-being (Glasser, 1998; Gordon, 2008). Therefore, the results of this study indicating a positive association between daily Rosary frequency and well-being of adult Catholic students may be explained by stating that, the greater the extent to which adult Catholic students prayed the Rosary on a consistent daily basis, the more likely that they were to have higher levels of well-being.

Daily Rosary Frequency as a Mediator for Religiosity and Well-Being

The results indicated a statistically significant positive indirect effect between religiosity and well-being when daily Rosary frequency was treated as a mediator, since the 95% confidence interval was entirely above zero (Hayes, 2022). Also, similar statistically significant results indicated a positive indirect effect between each religiosity dimension – organizational religious activity, non-organizational religious activity, and intrinsic religiosity -- and well-being when daily Rosary frequency was treated as a mediator, since each of the 95% confidence intervals were entirely above zero (Hayes, 2022).

In addition, the statistically significant results indicated that the positive indirect effects of religiosity, including each of three religiosity dimensions of organizational

religious activity, non-organizational religious activity, and intrinsic religiosity on well-being when daily Rosary frequency was treated as a mediator, do confirm the research literature, as religiosity has been shown to favor well-being (Koenig et al., 2012; Park et al., 2013; Schnitker & Richardson, 2019), and the Rosary has been indicated to have positive impacts upon well-being, including the reducing of stress and anxiety (Anastasi & Newberg, 2008; Stöckigt et al., 2021) plus improved blood pressure, and improved heart and breathing rates (Bernardi et al., 2001). Moreover, the significant results of the mediating effect of the daily Rosary frequency on religiosity align with the research conclusions of Schnitker and Richardson (2019), mentioned earlier, who concluded in their study on gratitude that the mediators explaining the beneficial prayer effects were associated with the sacred and theistic aspects of prayer.

Further, the statistically significant mediation analyses results also confirm the research literature showing that those who pray have improved well-being, or better psychological health and life satisfaction (Francis et al., 2008; Hollywell & Walker, 2009; Kirk & Lewis, 2013; Schnitker & Richardson, 2019; Wachholtz & Sambamoorthi, 2011). Moreover, the statistically significant results of this study on the positive indirect effect of religiosity including its three dimensions of organizational religious activity, non-organizational religious activity, and intrinsic religiosity on well-being, when the daily Rosary frequency was treated as a mediator, are a new addition to the research literature, which will hopefully spur further research in this area. However, since the statistical power of the mediation analysis results were .43, more research studies are encouraged with larger sample sizes, which may increase the statistical power of the results.

From the perspective of the biopsychosocial-spiritual framework and Choice Theory, the extent to which one chooses need satisfying thoughts and actions congruent with one's Quality World, such as living the Catholic faith, the more likely that one will experience higher levels of well-being (Glasser, 1998; Gordon, 2008). Hence, the extent to which adult Catholic students chose thoughts and actions congruent with their Catholic faith, such as praying the daily Rosary, the more likely that they were to experience higher levels of well-being. Therefore, the results of this study indicating a positive association between religiosity and well-being of adult Catholic students when daily Rosary frequency was treated as a mediator, may be explained by stating that, the greater the extent to which adult Catholic students practiced their Catholic faith by praying the Rosary on a consistent daily basis, the more likely that they were to have higher levels of well-being.

Limitations of the Study

This section describes the limitations to generalizability and/or trustworthiness, validity, and reliability that arose from execution of the study.

Limitation to Validity

A limitation to validity in this study was the definition of well-being, as the definition of well-being chosen to be measured for this study was from the WHO- 5 well-being assessment (Bech, 2012; Topp et al., 2015), which described and measured five factors of well-being that I identified as: happiness, tranquility, vitality, restedness, and interest. These five factors of well-being were used in this study as the sole measure of well-being, and therefore, excluded other factors of well-being that were not included in the WHO-5 well-being assessment. Resiliency, for example, is a factor or at least a

mediating factor of well-being that has been studied in the literature (Harms et al., 2018; Hossaini et al., 2017; Kelifa et al., 2021; Qi et al., 2021), which was not a factor analyzed in this study, and this will be discussed later in this section.

Limitations to Generalizability and Trustworthiness

First, the findings of this study were limited by the methodology of a convenience sample anonymous survey via the Internet using the help of one nationwide organization, the Walden participant pool, social media, e-mail, list serves, and snowballing. Second, the participants were limited in that they had to have been baptized Catholics and professed to be a Catholic. Third, a further limitation of this study was that it accepted that students that represented themselves as Catholic were indeed Catholic and no test or proof was required. The fourth limitation was the average age of participants, which was 32 after data collection, as the average age of college students in the United States was reportedly between 18 and 24, according to Vuleta (2021). Fifth, some geographical limitations were that the participants came from only 16 states and 33 institutions of higher education, with 29 (49.2%) of the 59 participants from Texas, four (6.8%) participants were from the Northeast, five (7.9%) from the West, and 14 (23.7%) from the Midwest, and 36 (61.0%) from the South (U.S. Census Bureau American Community Survey Office, 2020). A sixth limitation to the generalizability this study included the timing of this study from September to October 2021 during the Coronavirus pandemic; this limitation concerned the impact of the Coronavirus upon the sample of participants overall, as the statistical results for well-being may have been lower than usual because of the unprecedented fears and restrictions that came along with the increased awareness and exposure daily from the media to the number of illnesses and deaths attributed to the

Coronavirus. Thus, the findings were applicable to the time, people, and locations involved in the study, which limit the generalizability of the findings of this study.

Lastly, the four statistically significant regression mediation analyses had a low power, as shown in Table 38 at the end of Chapter 4. According to Fritz and MacKinnon (2007), a 0.80 statistical power for a mediation analysis with a sample size of 59 would have required a large effect size of 0.59 for path *a* of the mediation model and a medium effect size of 0.39 for path *b*. However, in this study, for the regression mediation analysis concerning whether there was a statistically significant link between religiosity and well-being when daily Rosary frequency was treated as a mediator, the standardized coefficient of path *a* was 0.4943 and the standardized coefficient of path *b* was 0.2590, which resulted in a 0.43 power for the statistically significant 0.1151 indirect effect of religiosity on well-being through daily Rosary frequency. Therefore, due to a low statistical power limitation, even though there was a statistically significant link between religiosity and well-being when daily Rosary frequency was treated as a mediator, there was only a 0.43 probability that there was an indirect effect of religiosity on well-being when the daily Rosary frequency was treated as a mediator.

Limitations to Reliability

Concerning reliability, an anticipated possible limitation mentioned in Chapter 1 was that a large majority of cases might have been members of a Catholic student association, organization, or ministry. However, the findings of this dissertation study proved to be unbiased towards those who were members, as 49% were members, and 51% were non-members. Therefore, about half the cases were members of a Catholic

student association, organization, or ministry, and about half were not, which was the first limitation to the reliability of this study.

The second limitation to reliability was that the participant responses were from self-report measures; and third, the self-report measures were part of an online anonymous survey. A fourth limitation to reliability was that no variables were manipulated or measured overtime, as in a randomly controlled clinical trial or experimental study, to attempt to prove causation (Hayes, 2022). This study only sought to discover associations between religiosity and well-being, religiosity and daily Rosary frequency, frequency, daily Rosary frequency and well-being, and whether daily Rosary frequency mediated an association between religiosity and well-being of adult Catholic students in institutions of higher education in the United States in September and October 2021 during the pandemic. In addition, according to the simple mediation model (Hayes, 2022), it was assumed that the posited causal direction of the path analyses went from religiosity to well-being through daily Rosary frequency, and from organizational religious activity to well-being through daily Rosary frequency, and from non-organizational religious activity to well-being through daily Rosary frequency, and intrinsic religiosity to well-being through daily Rosary frequency. I support this proposition based on the research literature conducted showing religiosity to favor well-being (Ellison & Fan, 2008; Koenig et al., 2012; Park et al., 2013).

The last reliability limitation was that there were four model-fit outlier cases that were excluded from the study. These four model-fit outlier cases may have occurred due to various possible reasons. Each of the model fit outlier cases may have had an adverse event or trauma occur, which they might have been struggling with mentally,

emotionally, and/or physically. For example, the participants, which these cases represent, may have had an acute or chronic illness which they or someone close to them might have been experiencing, or they might have experienced the recent death or loss of a family member or loved one due to the Coronavirus or some other illness or tragedy. Another possible explanation for the model fit outlier cases with higher-than-average religiosity and daily Rosary frequency scores along with lower-than-average well-being scores may be that they are examples of participants high in resiliency, which was not measured on the WHO-5 well-being scale. Resiliency has been defined as the ability of one to perform well under adverse circumstances or to recover quickly from a setback (Harms et al., 2018). Resiliency has also been associated with well-being (Harms et al., 2018; Hossaini et al., 2017; Kelifa et al., 2021; Qi et al., 2021), yet it was not assessed in this study. However, if it would have been assessed, it may have improved the well-being scores to a point where there might not have been any model-fit outlier cases.

Recommendations

Moving forward, researchers could again attempt to partner with more organizations to get a larger sample of data, which may increase the statistical power of the mediation findings to at least the recommended 0.80 power or probability that the alternative hypothesis findings are true (Fritz & MacKinnon, 2007). Moreover, I encourage more Catholic organizations, associations, and ministries to be more open to studies like this to improve the power of the mediation results, and to reach out to a larger variety of adult Catholic students. Further, researchers may want to include participants from more states and institutions of higher education to increase generalizability to a broader population of adult Catholic students in the United States.

In addition, researchers may seek to do random sampling in a longitudinal study with a control group of participants who did not pray the daily Rosary to attempt to determine if a causal relationship exists between daily Rosary frequency and well-being. Researchers should attempt this study again, even during a less volatile time in the life of the country, as when people are not dealing with the fears and social restrictions of a pandemic. Further, researchers will also do well to replicate this study during another volatile time, or at any time. Moreover, research has indicated that college students in general before the pandemic were already undergoing a mental health crisis (Lipson et al., 2019).

Concerning the choice of a brief well-being assessment in future research, in addition to the choice of the WHO-5 scale to replicate this study, I suggest choosing another brief assessment that includes a measurement of resiliency as part of the well-being scale score for use in the statistical analyses on the associations between religiosity, daily Rosary frequency, and well-being. This will offer the benefit of having a second assessment for comparison of the results, and to enhance the measurement of well-being to improve the accuracy of the results and may reduce or eliminate the model fit outlier cases.

Regarding whether praying the daily Rosary alone or with one or more persons in a group, further research will do well to study differences between these predictor variables and their influence on well-being. Research by Páez et al. (2018) found public, but not private religiosity to be associated with life satisfaction. Therefore, future research on the differences between praying the daily Rosary alone or in a group, and their influence on well-being will be a helpful addition to the research literature.

As a final recommendation, I would encourage researchers, mental health practitioners, educators and those who work with Catholic students who pray the Rosary, to ask them whether they meditated on or visualized the mysteries of the Rosary and prayed for the grace to better practice a virtue associated with each mystery (Montfort, 2016), as previous literature has indicated the benefit of petitionary prayer, self-hypnosis or guided imagery, meditation, and the Rosary to one's well-being (see Ai et al., 2008; Appel & Kim-Appel, 2009; Bragard et al., 2017; Kaplan-Rakowski et al., 2021; Stöckigt et al., 2021). The purpose in asking this would be to help students evaluate how they may be able to improve praying and meditating on the daily Rosary, which may improve their well-being, as research studies on meditation and mindfulness have shown positive associations with well-being (Appel & Kim-Appel, 2009; Kaplan-Rakowski et al., 2021). In doing this, the student will be using more of their cognitive abilities including visualization to reinforce these virtues or good habits through repetition and more deeply imprinting these virtues into their minds to reinforce these mental images and virtues. By effectively meditating on each sacred mystery, one may be more likely to adopt the virtues of each mystery into one's daily life for better overall well-being.

Implications

This study may foster a positive social change by increasing the awareness of Catholics students in college to the potential benefits of praying the Rosary daily due to the findings of this study showing the daily Rosary's statistically significant positive association with well-being with at least .80 power. Moreover, the statistically significant mediation of daily Rosary frequency between the religiosity and well-being of Catholic students in college is a key finding from this research, even at only .43 power. Therefore,

hopefully this daily Rosary study will prompt more research, such as quantitative, qualitative, or mixed method studies with adult Catholic students in institutions of higher education, which will extend this research on religiosity, daily Rosary frequency, and well-being for a positive social change.

Further, I hope the statistically significant results of this study, especially the results indicating the positive association between daily Rosary frequency and well-being will be known by many Catholic college students, parents, clergy, religious organizations, ministries, researchers, and health practitioners including psychologists, counselors, social workers, coaches, and educators for a positive social change. For example, during these challenging and unprecedented times, and in line with the biopsychosocial-spiritual framework of this study, psychotherapists can provide an extra benefit for their Catholic clients when they incorporate a spiritual and religious mindfulness-based approach, such as explaining the potential well-being benefits of praying the Rosary daily (Pargament & Exline, 2021; Plante, 2016, 2022a).

Conclusion

This anonymous online survey study indicated that the frequency of praying the Rosary was significantly associated with well-being in a population of 59 adult Catholic students in the United States during the pandemic crisis in 2021. Further, the findings of this study confirmed the abundance of research showing religiosity in general to favor well-being (Diener et al., 2011; Hollywell & Walker, 2009; Kirk & Lewis, 2013; Park et al., 2013; Reis & Menezes, 2017; Schnitker & Richardson, 2019; Stöckigt et al., 2021; Wachholtz & Sambamoorthi, 2011). In addition, there was a statistically significant link between religiosity including three of its dimensions -- organizational religious activity,

non-organizational religious activity, and intrinsic religiosity -- and well-being when daily Rosary frequency was treated as a mediator. However, since the statistical power was .43 to .49 (see Table 38) for these four mediation analyses, future studies with larger sample sizes are recommended, which may increase the statistical power.

In addition, some religiosity dimensions may not always favor well-being with statistical significance, which was confirmed by this study; however, there was a positive indirect effect between each of these religiosity dimensions and well-being when daily Rosary frequency was treated as a mediator. Nonetheless, the results of this dissertation study were encouraging, considering the adverse global context of the Coronavirus pandemic, especially since most of the Catholic student participants still displayed positive associations between religiosity, daily Rosary frequency, and well-being.

Further, in looking at the findings of this dissertation through the lenses of the biopsychosocial-spiritual framework and Choice Theory, these findings may account for the influence of the difficult social conditions of the pandemic upon the Catholic adult students' mind, body, and soul, and how only some Catholic students chose to respond to the pandemic or daily stressors with quality thoughts and actions, such as attention to the prayers and sacred mysteries of the daily Rosary with their related virtues for the promoting of well-being. For example, as shown in Table 8, only 8.5% of the participants prayed the Rosary every day, 23.8% prayed the Rosary every other day, and 54.2% prayed the Rosary at least one day during the previous two weeks. Thus, there is room for improvement, as 91.5% of the participants did not pray the Rosary every day, and 76.2% of the participants did not even pray the Rosary every other day. So, hopefully, when Catholic students, health professionals, educators and others learn of the statistically

significant results of this study, this may encourage more Catholics in college to pray the Rosary every day or at least every other day, which may help improve their well-being and create a positive social change in the well-being of Catholics students. Therefore, hopefully, more Catholic students will learn of the daily Rosary benefits for well-being and begin to pray the Rosary daily for a better well-being.

As a concluding positive note, the daily Rosary frequency was statistically significant, and positively associated with the well-being of Catholics in college, during the pandemic. Moreover, even with only a .43 power, religiosity was linked with well-being, when daily Rosary frequency was treated as a mediator, which was a key finding. Hence, hopefully more research with increased numbers of Catholic students will be completed on religiosity, well-being, and daily Rosary frequency, to confirm the results of this study. In addition, due to the abundance of research on the positive association between meditation and well-being (Ireland, 2012; Stöckigt et al., 2021), and mindfulness and well-being (Bormann et al., 2013; Gál et al., 2021; Martin et al., 2022; Null & Pennesi, 2017; Oman & Bormann, 2015; Rosini et al., 2017), I recommend further research on the association between daily Rosary frequency and well-being to include whether each sacred mystery was meditated upon during the Rosary. Indeed, meditating on the mysteries of the Rosary will likely help to improve their well-being (Appel & Kim-Appel, 2009; Lenihan, 2015; Kaplan-Rakowski et al., 2021; Martin et al., 2022; Rosini et al., 2017; Stöckigt et al., 2021). In closing, I pray that this study will aid health professionals to serve Catholic students in institutions of higher education more effectively and spur a positive social change through increased awareness of the daily Rosary potential benefits for improved well-being, even during times of crisis.

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Appendix A: Survey Recruitment Flyer

Catholic College Students Needed for Prayer and Well-Being Online Survey!

- For a limited time, adult Catholic students are **invited to help by answering a brief survey on their faith, prayer and well-being during this unprecedented time**.
- The study aims to discover and understand strategies that can be suggested to support Catholic college students during stressful times when help is most needed!

About the study:

- One 5-8 minutes or less online survey.
- To protect your privacy, no names will be collected.

Volunteers must meet these requirements:

- 18 years old or older.
- Currently live in the United States.
- Be a student of any U.S. institution of higher education, including vocational schools.
- Baptized Catholic.
- Profess to be a Catholic.

****Please forward this flyer onto family or friends who may be interested in participating to support this research.**

To confidentially volunteer, click the following link:

https://www.surveymonkey.com/r/catholicwellbeingstudy

This survey is part of the doctoral study of Michael Rios, a Ph.D. student at Walden University. (IRB Approval Number 08-27-21-0269227). Please reach out if you have any questions:

Appendix B: Screening Questions to Confirm Survey Eligibility

1) Do you currently live in the United States? Yes _____ No _____
2) Are you 18 years old or older? Yes _____ No _____
3) Are you enrolled as a student at a college or university, vocational school/college, or institution of higher education in the United States?

   Yes _____ No _____
4) Have you been baptized as a Catholic?

   Yes ____ No _____
5) Do you profess to be a Catholic?

   Yes _____ No _____
6) Did you answer "Yes" to all of the first five questions?

   Yes _____ No _____

[Next]

Appendix C: Formal Request for Access to Walden Participant Pool

Walden University Participant Pool will post a request for volunteer participants to participate in my dissertation study. The request will include the title of my dissertation, the purpose, the estimated time requirement, and the website link. For example:

Religiosity, Daily Rosary, and Well-Being

of Catholics in College during the Pandemic

Purpose: The purpose of this multiple linear regression study is to discover if there is an association between religiosity and well-being and if the frequency of praying the Rosary mediates the association between the religiosity and well-being of Catholic college students in the United States in 2021 **during the Coronavirus Pandemic.**

Volunteer Requirements: Baptized as a Catholic, professing to be Catholic, age 18 or older, living in the United States, and enrolled as a college or university student.

Time Commitment: 5-8 minutes

To volunteer: https://www.surveymonkey.com/example/religiosity/rosary/study

Appendix D: Procedures

This study involves the following steps:

First, in the recruitment step, the researcher will email the study invitation flyer to his contact person at each partner organization, and also the Walden Participant Pool, plus family, friends or others who may be interested. Each partner organization contact person will then forward the invitation via email to all in the organization who may be interested in the survey study. Invitations will also be distributed via social media, list servs or other organizational/group email lists. The invitation flyer encourages snowballing to pass invitation flyer to potential participants. The invitation flyer will have a link to access the survey, which begins with the screening questions to ensure eligibility. After potential participants confirm eligibility, they will click "next" and proceed to the survey instructions, which includes the consent step.

Second, in the consent step, the eligible participants will review the consent form. They will click "next" to indicate their consent to complete the survey.

Third, in the data collection step, the participants will proceed to complete the online survey.

Appendix E: Potential Participant Letter Sample Template

Dear potential participant,

You are invited to take part in a research study about well-being, religiosity, prayer and the daily Rosary prayer, even if you do not pray the daily Rosary. I am inviting Catholic students age 18 or older attending colleges or universities in the United States to be in the survey study. Please help this important research concerning well-being in the lives of Catholic students in college during the Coronavirus pandemic. Please review the attached flyer, and if you're interested in participating, please go to the secure and confidential link indicated in the flyer. May Almighty God bless you more abundantly…

Sincerely,

Michael Rios, M. S., M.Phil.

Walden University

Ph.D. Psychology Doctoral Student

Appendix F: Duke University Religion Index (DUREL) Permission to Use

From: Harold Koenig, M.D.
Sent: Monday, June 14, 2021 12:49 PM
To: Michael Rios
Cc: Alethea A. Baker; Megan E. Baril
Subject: RE: Permission Request to use the DUREL

Yes, you have permission to use the DUREL

From: Harold Koenig, M.D.
Sent: Monday, June 14, 2021 4:29 PM
To: Michael Rios
Cc: Alethea A. Baker; Megan E. Baril
Subject: RE: Permission Request to use the DUREL

Fine -- just indicate how you modified the DUREL from the original in the report of your work

Appendix G: WHO-5 Permission Letter

From: Bettina Boel
Sent: Friday, July 2, 2021 5:39 AM
To: Michael Rios
Subject: VS: Who-Five Well-being Index (WHO-5) permission to use

Dear Michael,

Thank you for your e-mail concerning use of the WHO-5.

This questionnaire is in the public domain and may freely be used without any charge with referencing to:

Bech P. Clinical Psychometrics. Oxford, Wiley-Blackwell 2012.

Topp CW, Østergaard SD, Søndergaard S, Bech P. The WHO-5 Well-being Index: A systematic review of the Literature. Psychotherapy & Psychosomatics 2015;84(3):167-76.

As for information about the WHO-5: we have in 2015 published a review describing its properties and use in different connections. I'm attaching this review together with its supplementary material.

Regarding cut-off value as an indicator of wellbeing, i.e. standardization is the attached paper (Bech P. et al. 2018). On Table 4 in this paper you will find this standardization for WHO-5.

On behalf of Professor Per Bech who passed away in May 2018.

Med venlig hilsen

Bettina Boel
Forsknings- og kursussekretær

Psykiatrisk Center Nordsjælland
Administrationen

Web: www.regionh.dk

Appendix H: Permission to Use the Choice Theory Chart

Permission to use the Choice Theory Chart

Carleen Glasser

To: Michael Rios

Sun 9/17/2023 8:39 PM

Dear Michael,

I am happy to give you permission to use the Choice Theory chart in Chart Talk. Just be sure to give credits where applicable.

Good luck with your dissertation!

Warmest regards,

Carleen Glasser