THE USE OF PRAYER AS A COPING STRATEGY IN DEALING WITH STATE-TRAIT ANXIETY

By

Tommy Hingmoon Chan

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ABSTRACT

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A study, with a 3 x 3 mixed factorial design, was conducted to investigate the state-anxiety reduction effects of prayer in comparison with two control conditions. This study (N = 101) also attempted to ascertain the correlational relationship between using prayer as a coping strategy and the degree of distress; the possible discrepancy between genders in using prayer in coping; the relationship between using prayer and other coping strategies, namely, cognitive and avoidance strategies; the relationship between viewing prayer intrinsically and trait-anxiety, and viewing prayer extrinsically and trait-anxiety. Results indicated that subjects who prayed about their current most anxiety provoking life events for 10 minutes in a controlled condition reported significantly more immediate state-anxiety reduction, as compared with a control group that wrote about the event to a best friend, and with another control group that read and wrote about inspirational stories. The degree of anxiety reduction was sustained, instead of contributing to additional anxiety reduction, after a one-week praying activity. No significant findings were found between the

degree of anxiety and the likelihood of using prayer as a coping strategy. Female (n = 74) and male (n = 27) subjects in this sample did not report significant differences in the frequency of using prayer to cope, or in the frequency of using prayer in general. Using prayer did not significantly correlate with using cognitive strategy in coping with anxiety. However, a significant inverse correlational relationship was found between using prayer and avoidance in coping. Subjects who expressed that they viewed prayer intrinsically tended to report less trait-anxiety, higher frequency and believability about prayer; whereas, such relationships were not clear for subjects who viewed prayer extrinsically. Directions in future research on prayer were recommended. A comprehensive literature review of empirical studies on prayer was also included.

DEDICATION

This work is dedicated to my wife Leanne, a woman of prayer.

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I would like to express my gratitude to the doctoral dissertation committee in assisting me in the completion of this research. Dr. Elaine Donelson, the chairperson, has given me valuable insights and support throughout this project. Other members of the committee, Drs. Norman Abeles, John Powell and John McKinney, have also given me constructive feedback.

I would also like to extend my appreciation to my wife Leanne for her help in editing this work.

Most of all, I want to thank my Lord, Jesus Christ, who gave me ever-present help from the beginning of this work, and told me the following words that inspired this research:

> "Do not be anxious about anything, but in everything, by prayer and petition, with thanksgiving, present your requests to God. And the peace of God, which transcends all understanding, will guard your hearts and your minds in Christ Jesus."
>
> (Philippians 4:6-7, Holy Bible)

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INTRODUCTION

Background: The History of the Psychology of Religion

The study of religious behaviors was one of the most common topics of study in the early history of psychology (Meadow and Kahoe, 1984). Eminent psychologists such as G. Stanley Hall, the first American Ph.D. psychologist, delivered a lecture series on religious behaviors from a psychological perspective in 1881, at Harvard University. Hall later founded the first professional psychological journal on religion, The Journal of Religious Psychology, and many of his students such as James Leuba and E. D. Starbuck soon followed in his footsteps. Researching and writing on the subject of religious behaviors flourished. Religious behaviors, for example, conversion, factors in worship and prayer, were popular subjects in psychological writings.

Another prominent pioneering psychologist, William James, published a momentous book in the area of psychology of religion, The Varieties of Religious Experience, in 1902. This book received much popularity at the time and is still regarded as one of the classics of psychological reading in modern times. The content of the book succinctly reflects

the immense interest of psychological study of religion at the turn of the century. James wrote, "to the psychologist the religious propensities of man must be at least as interesting as any other of the facts pertaining to his mental constitution. It would seem, therefore, that, as a psychologist, the natural thing for me would be to invite you to a descriptive survey of those religious propensities (p.4)."

The impetus of studying religious behaviors triggered a series of debates regarding the positive or negative impact of religious behaviors on mental health. Sigmund Freud published a series of papers stating that religious rituals were associated with neurotic obsessive behaviors. In his book, The Future of Illusion (Freud, 1927), he vehemently denounced the usefulness of religion, and asserted that God is merely the "exalted father figure" in our unconsciousness. The psychoanalytic interpretation of religious behaviors began to dominate the psychology of religion for the next few decades.

Other major writers in studying the relationship between religious behaviors and mental health include Jung (1933), Allport (1950), Mowrer (1961) and Rokeach (1968). More recently, Batson and Ventis (1982) tabulated 67 empirical studies attempting to decipher the relationship between religious behaviors and mental health. While the controversy

over whether religion is beneficial or harmful to one's mental health remains unresolved, the importance of the field of psychology of religion began to diminish. For example, Paul Johnson's The Psychology of Religion (1945) was the only textbook written in the field between 1920's and 1950's (Meadow and Kahoe, 1984). Nonetheless, there has always been a group of psychologists interested in studying religious issues. For instance, Division 36 (Psychology of Religion) of the American Psychological Association aims to encourage the development of research, theory and practice in the psychology of religion. Currently, more than 1,500 psychologists belong to this division.

In spite of the apathetic attitude toward studying religious behaviors in modern psychology, religion seems important to most people in modern times. A Gallup poll in the U.S. (1987) indicated that 91% of the respondents reported a religious preference, 69% had church or synagogue membership, 55% stated that religion was very important in their lives. Almost one third of the respondents agreed that their religious beliefs were the most important aspect of their lives (Gallup, 1981, 1987). In addition, Ross (1950) stated that 64% of women and 38% of men reported praying daily. A recent Gallup poll (1993) reported that, among 688 adults interviewed by telephone, 24% of the sample stated that they prayed 3 or more times a day; 51% once or twice a day; and 25% less than once a day. Furthermore, Batson and

Ventis (1983) cited studies asserting that increased education correlates positively with church membership and attendance. Although research indicated that college students were less likely to endorse orthodox religious beliefs than people who have not gone to college, other findings showed that their religious beliefs and attitudes tended to become more orthodox and conservative after they graduated and entered the adult society. Batson and Ventis (1983) concluded that "for many people college brings about only a temporary decline in religious orthodoxy (p.44)."

These statistics demonstrate that most people have some concern about religion, and a sizable percentage of respondents see religion as very important. It is the author's view that studying religious behaviors from a psychological viewpoint would generate fruitful findings in understanding human behaviors more holistically.

The Importance of Studying Prayer

One of the most central elements of religious behaviors is prayer, as this is the means by which the individual seeks to commune with God. It is assumed essential to investigate the psychological impact of prayer in order to understand the relationship between religion and mental health. Based on the author's observation and personal insight, personal

prayer in solitude, rather than outward religious activities, provides a more accurate assessment of the religiosity of a person. Outward religious activities, such as participating in religious ceremonies (e.g, baptism in Christianity), could always potentially be a reflection of the individual's effort to meet social and/or cultural demands (e.g., family expectations, cultural practice, or social necessities in a religious community, etc.). In contrast, personal prayer is more likely to reflect the authenticity of one's faith.

A number of authors have suggested that prayer could have a positive influence on one's psychological functioning. For instance, based on his observations of people who report a high frequency of prayer, Johnson (1956) asserted that there are ten positive psychological effects of prayer. They are: a) Awareness of needs and realities; b) Confession and sense of forgiveness; c) Trust and relaxation; d) Perspective and clarification; e) Decision and dedication; f) Renewal of emotional energy; g) Social responsiveness; h) Joy, gratitude, and reconciliation; i) Loyalty and perseverance; and j) Integration of personality. Although most of these ideas have not been empirically tested directly, they provide a hypothetical framework in suggesting that prayer has a positive influence on one's coping with anxiety. This present study adapted these ideas, and formulated a scale, the Johnson-Chan Prayer Effectiveness Scale, in order to systematically investigate the reported reasons for the

effectiveness of prayer (see Method section and Appendix O).

Despite the fact that prayer plays a central role in religions, and that there are numerous accounts of the positive effects of prayer reported by individuals who pray, there has been very scanty systematic research about the relationship between prayer and mental health in the psychological literature (Finney and Malony, 1985).

Thus, by investigating the different ways of viewing prayer (intrinsic vs. extrinsic) in dealing with anxiety, this study seeks to fill the gap in the lack of psychological knowledge about prayer in relation to mental health. This study also seeks to explore the relationship between the use of prayer and other coping strategies. A broad definition of prayer is used for the purpose of this study. Prayer can be defined as "every kind of inward communion or conversation with the power recognized as divine" (James, 1902, p.454). Obviously prayer has different theological meanings and takes on various forms in different religions. References to prayer in this study subscribe to the Christian world view.

Some researchers tend to distinguish between different ways of praying, such as verbal versus contemplative prayer, in their research. Heiler (1932, 1958) analyzed different types of prayer phenomenologically. He stated that there are in general two types of prayer, namely, mystical and

prophetic. Mystical prayer refers to the attempt to seek union with God and is characterized by silent attentiveness to God instead of using verbal expressions. Prophetic prayer, however, is a spontaneous expression of emotions, and usually words are used in prophetic prayer. Such a distinction generated a profuse amount of discussion (e.g., von Balthasar, 1981, 1982; Bouyer, 1963, Simpson, 1965, Tillich, 1967, and Tinsley, 1969). The current study focuses on the influence of verbal prayer. A comprehensive literature review on empirical studies about prayer and its association with coping strategies and anxiety will be presented in the following section before a delineation of the specific research questions and methodology of this study.

A Comprehensive Literature Review of Empirical Studies on Prayer

Approximately 130 publications alluding to prayer, written within the last twenty years, could be found in the psychological literature. Only a handful of them are empirical studies that deal with prayer and anxiety. Only one published study (Elkins, Anchor and Sandler, 1979) used an experimental approach in studying the relationship between prayer and anxiety. This study attempted to investigate experimentally whether prayer has an anxiety reduction effect. Nineteen men and twenty-three women were recruited from the Glendale Baptist Church in Nashville, Tennessee.

Participants were given training using two styles of prayer (i.e. reflective and intercessory prayer) and relaxation training within a 10-day period. At the end of the training period, different groups of subjects were requested, by audio tape instruction, to engage in a specific style of prayer or relaxation exercise for five minutes. A control group was included which went through the same procedure, except that they spent their 5-minute period engaged in no activity. Pre- and post-test measurements of physiological data (electromyogram) and subjective data (the Spielberger State-Trait Anxiety Inventory) were gathered.

Results showed that, as predicted, the prayer group reduced their tension level on both measures, although the differences failed to reach the conventional significance level ($p = 0.05$). The relaxation training group, however, had a significantly reduced level of muscle tensions and STAI scores compared to the control group. The researchers concluded that although neither style of prayer significantly reduced the level of objective muscle tensions and self-report anxiety, data indicated that prayer may tend to reduce anxiety especially for people who prayed more frequently and who perceived prayer as more effective and important. However, these findings are suggestive at best because of the methodological weakness in the design of the study. As stated by the authors, not only was the size of subject pool small, but also subjects were all recruited from one

particular church. Generalizations of findings are questionable. Nevertheless, it was a worthwhile pioneering attempt to investigate the influence of prayer in coping with anxiety.

The study of prayer in relation to anxiety has occurred with various populations. Compared to other age groups, the religious behaviors of the elderly has been studied the most mainly because this group is purportedly more religious. Koenig (1988) examined the role of the use of prayer and other religious activities in coping with death anxiety among the elderly. Seven hundred and eight elderly people, aged 60 or more, were recruited in a senior lunch program and were asked to complete a 26-item questionnaire regarding their religious beliefs and activities, feelings about death, stress and coping levels. Subjects were asked, for instance, "When you are facing a difficult situation, how likely are you to use prayer to help you deal with the situation." Possible responses to this item included "unlikely," "somewhat likely," and "very likely."

Results indicated that only a small percentage of participants had experienced fear of death. Participants who self-identified as being very likely to use religious beliefs and prayer during stressful situations were significantly more likely to score low or no fear about death than those who did not (24.3% vs. 10.3%). This tendency was stronger

among older subjects and among women. Lower death anxiety levels were also found among participants who had high levels of involvement in the religious community. The researchers concluded that "the use of prayer and religious beliefs when coping with stress was found to have a particularly strong inverse relationship with death anxiety." However, these findings were preliminary because of the lack of validity and reliability information among instruments used. In addition, the inflated 57% non-response rate may also confound these findings. Similar to the previous study reviewed, these findings are suggestive but not conclusive, due to methodological flaws.

Prayer among youth was the focus in another study. Janssen, Hart and Draak (1990) asked 192 Dutch high school students about their views on prayer. A computerized procedure (TexTable) was used to content analyze their answers. The sample represented three major denominations, that is, 60 Catholic, 34 Dutch Reformed, 37 Calvinist; and 61 self-reported as non-affiliated. The three open-ended questions about prayer were: a) "What is praying to you?"; b) "At what moments do you feel the need to pray?"; and c) "How do you pray?" Seven structural elements, namely, Need, Action, Direction, Time, Place, Method and Effect were identified by the authors. More importantly, results showed that respondents prayed when they were in trouble. Respondents reported that they usually prayed for help,

trust, and blessing instead of immediate cure while they were ill. Thus, researchers concluded that prayer was primarily described by youths as a coping strategy, mostly used to make things, such as death, acceptable as they were. Results also showed that subjects sometimes also viewed prayer as a motivational device or as an anticipatory action to change things according to one's wish.

Another study identified prayer as one of the coping strategies against anxiety among children. Mooney, Graziano, and Katz (1985) surveyed opinions from both 178 parents and their children, ranging in age from 8 to 13 regarding types of fear during the nighttime and various coping strategies used by both parents and children. Results from factor analysis showed that prayer was one of the coping responses reported by both the parent group and the children group. The factor, Prayer, accounted for 6.9% and 7.7% of total variance for children and parents' coping response respectively.

The investigation of how prayer served as a coping strategy of daily anxiety among an ethnic minority group was also studied. Neigbors, Jackson, Bowman and Gurin (1983) conducted a study of the pattern of coping with stress among African-American adults. A sample with a national representation across age (18 or older), geographic areas and socioeconomic levels was obtained. 2,107 African-Americans

were recruited and tested, representing a response rate of 70%. The concept of "stressful episode" was used in investigating various coping strategies in dealing with stress. Subjects were asked to recall one single incident they had experienced that had led to a significant amount of distress. Information pertaining to the nature of the problems and the severity of distress was collected. A series of questions designed to elicit various coping strategies in time of distress were asked. Subjects were asked if they engaged in the following coping behaviors: "make your problem easier to bear," "relaxation," "put it out of your mind," "pray," "drink liquor or get high," "take pills or medicine," "keep busy," or "face the problem and do something specific about it."

The most prevalent anxiety-inducing problems reported in rank order were: interpersonal problems, economic difficulties, physical health problems, emotional adjustment and death of loved ones. The use of prayer was the most commonly used and most important coping response reported, with 44% of the subjects with a problem responding that praying helped them the most. It is also noteworthy to mention the relationship among the use of prayer, subjects' motivation to face the problem, and the level of problem severity. Results indicated that the percentage of respondents indicating prayer as the most helpful coping response increased as the severity of problem increased. The

opposite relationship was found between facing the problem and the problem severity. Income level was also related to the perceived helpfulness of prayer. A significantly higher percentage of the lower income group (under $10,000) perceived prayer as most helpful than the higher income group (above $10,000) (50.3% vs. 34.9%). Gender was also reported to be a significant correlate of perceived helpfulness of prayer. More women saw prayer as more helpful than men (50.7% vs. 30.2%). In addition, there was a tendency for a higher percentage of the use of prayer in coping with distress as age increased (e.g. 32.2%, 46.6% and 64.3% of subjects between age 18-24, 35-54 and above 55 respectively identified prayer as the most helpful coping strategy). In summary, researchers concluded that "prayer gives blacks (particularly the poor, women and the elderly) a sense of strength with which to meet personal crisis, thereby indicating that religion and the church continue to be of significance in maintaining psychological well-being."

The findings that the higher the severity of problem, the more likely people would pray seems to be consistent with results of another study. Lindenthal, Myers, Pepper and Stern (1970) investigated the relationships between mental impairment and two aspects of religious behavior -- institutional attendance and prayer. This study of 938 adults included proportional representation of all ethnic, racial and socioeconomic groups in metropolitan New Haven.

Findings showed that in response to particular life crises, the greater the symptoms measured by a 20-item psychiatric symptom scale (Gurin, Veroff and Feld, 1960), the less likely subjects would participate in the institutional aspect of religious behaviors such as church attendance; whereas, the greater of the extent of psychological impairment, the more likely that subjects would pray in coping with the crisis. Consistent with findings in other studies, subjects were more likely to pray about events over which they perceived little personal control such as health and catastrophic events. On the contrary, subjects were less likely to pray about situations that they perceived as having greater degree of control such as relocation and interpersonal concerns.

Given these previous findings, this study investigates the relationship between the level of perceived distress and the likelihood of using prayer in coping with anxiety provoking events (see hypothesis 1).

In addition, the use of prayer was found to be one of the eight factors which resulted from a factor analysis of the coping strategies in marital situations. Burke and Weir (1979) investigated different coping strategies with daily tensions utilized by 85 husband-wife pairs. Subjects were asked to rate how likely they would use 38 different types of coping strategies during times of tension and strain on a 7-point Likert scale. Results showed that husbands and wives

used different coping mechanisms in dealing with daily tensions and anxieties. The difference in the use of various coping behaviors in general conformed to stereotypical notions of sex-role behaviors in that men tended to make greater use of problem solving and women tended to use methods such as prayer, withdrawal, and suppression of problems.

Consistent with these findings regarding gender differences in religious behaviors, Batson and Ventis (1982) summarized different studies that indicated that women are more religious than men. For instance, more women attend church, 55% to 45% (Gallup, 1972), report praying daily, 64% to 38% (Ross, 1950), report mystical experiences, 44% to 36% (Back and Bourque, 1970), tend to adhere more strongly to orthodox religious beliefs (Gallup, 1960, 1968), and have more favorable attitude toward the church (Jones, 1970). In view of these findings, this study seeks to provide further evidence to show that women tend to use prayer more often than men in coping with anxiety (see hypothesis 2).

Furthermore, several studies (Baldree et al., 1982; Murphy, 1982; Spilka, Spangler and Constance, 1983; Sutton and Murphy, 1989; Swanson, 1981) identified prayer as a commonly used coping strategies among patients who face distressing situations relating to physical illnesses. For instance, Sutton and Murphy (1989) investigated patterns of

coping among renal transplant patients. Forty patients with less than 4 years of postrenal transplant were asked to rate the severity of 35 potential stressors on a 5-point scale and to rate the extent to which they used any of the forty coping strategies on the Jalowiec Coping Scale (Jalowiec and Powers, 1981). Results showed that cost factors and fear of kidney rejection were being identified as the most stressful. More relevant to this study, patients, particularly those who had kidney transplants 2 to 4 years previously, reported that prayer and looking at the problem objectively were used most in coping with stress. Researchers also concluded that as the length of time since the transplant increased, patients tended to use more affective-oriented strategies such as "prayer" and less problem-oriented strategies such as "try to look at the problem more objectively." As patients' appraisal of the stressful situations as less amenable to change increased, they tended to shift from using problem-oriented strategies to affective-oriented strategies in dealing with their anxiety.

The use of prayer in coping with distress among cancer patients was also studied. Spilka, Spangler, and Constance (1983) evaluated the experiences of 45 parents (mean age, 37.2) of children with cancer and 101 cancer patients (mean age, 52.5) who were visited by home pastors and hospital chaplains. Researchers hypothesized that when death threatens, patients would experience greater satisfaction

with clergy who provide both spiritual and psychological support. Reviewing the content of interactions between patients and clergy, 22% to 47% patient contacts involved prayer; whereas 44% to 58% of the parent-pastor interactions relate to prayer. Prayer and talking about family matters were the activities most commonly noted by both patients and parents. Both groups also stated that praying with home pastors, but not with hospital chaplains, resulted in favorable feelings. Moreover, perceptions of sympathy or kindness shown by clergy were usually associated with prayer.

The use of prayer was also demonstrated to be a common coping strategy in crisis situations. Henderson and Bostock (1977) gave an account of the coping behaviors of seven men who survived a shipwreck near the S. E. coast of Tasmania, Australia, after being rescued at the end of 13 days. The primary coping behaviors recalled by the survivors were: attachment ideation, drive to survive, modeling, prayer and hope. Other coping behaviors reported by one or two of the men included: denial, humor, redirected activity for anxiety reduction, deliberate suppression, altruism for the others, fantasy about rescue, food and warmth. Although none of them were previously religious, six of the seven reported praying as a coping response. For example, one man recalled that he prayed, "Oh, God, get me out of this . . . I didn't know a prayer -- I sort of talked to Him in more or less as many words as I could remember out of a prayer and filled the rest

up with my own." Researchers contended that prayer "was essentially adaptive in that it reduced anxiety and allowed the retention of hope for some of the men."

Other publications in the psychological literature that briefly and/or indirectly allude to the use of prayer as a way of coping with anxiety encompass various contexts, topics, and populations. Since they are mostly brief in alluding to the use of prayer, and not particularly relevant to the current study, a detailed review of these studies and articles is not within the scope of this research. Nonetheless, they represent a growing interest in the psychological literature in investigating prayer and mental health and related issues. This group of literature includes: the relationship between prayer and physical symptoms (Bearson and Koenig, 1990); a case study of a woman's use of prayer during the death of four children (Boersma, 1989); using prayer as a prevention strategy of burnout by corporate executives in business settings (Nelson, Quick and Quick, 1989); AIDS patients (Flaskerud, Jacquelyn and Rush, 1989); grieving the death of spouses (Shuchter and Zisook, 1988); institutionalized elderly (Karr, 1985; Uhlman and Steinke, 1985); pastors' wives (Hsieh and Rugg, 1983); a case study of sexually abused woman (Barshinger and LaRowe, 1985); marital adjustment (Gallagher, 1985); dealing with the nuclear crisis (Nelson, 1984); psychic healing (Krippner, Solfvin, 1984); Orthodox

Christians (Gass, 1984); Mexican American elderly (Markides, 1983); relaxation practices (Benson, 1983); therapeutic aspects of prayer in a church setting (Griffith, 1982); a healing ministry (Griffith, 1983); role of sublimination in prayer as a coping behavior (Gay, 1978); lack of slowing of brain electrical activity during prayer (Surwillo and Hobson, 1978); disruptive behavior of a retarded child during dinner (Sajway, Hedges, 1973); reduction of psychosomatic symptoms and subjective emotional distress (Parker, 1957); and independent correlations with affect and frustration (Welford, 1947).

In summary, most of the studies reviewed suggest that people across age, gender and ethnic groups tend to use prayer in coping with anxiety in various contexts. Most data indicated that people reported that prayer was an effective means of coping with anxiety. In order to further elucidate the anxiety reduction effect of prayer, two main hypotheses of this study are formulated (see hypotheses 3a and 3b).

Literature Review on Coping and Anxiety

Coping refers to both overt and covert behaviors that aim to master, reduce or eliminate psychological stress or anxiety-provoking conditions. Before reviewing various studies on coping with anxiety, it is important to understand

the meaning of anxiety postulated by different theorists.

Major Theoretical Approaches in Understanding Anxiety

Anxiety is one of the most unpleasant emotions human beings experience. It may be defined as subjective feelings of tension, nervousness, apprehension and worry, triggered by a combination of cognitive, emotional, physiological and behavioral factors.

Major theorists have written about anxiety since the early history of psychology. One of the most prominent writers on the topic is Sigmund Freud (1936), who viewed anxiety as the specific, unpleasant state that originated from intrapsychic conflicts between a person's concept of self and an unacceptable impulse. According to Freud, anxiety is the consequence of an unconscious ego reaction to the danger of disrupting impulse. In addition, anxiety frequently becomes a central feature in neurosis.

While rejecting most of Freud's theory, existential theorists, such as May (1950), retained a fundamentally intrapsychic view of anxiety. May viewed anxiety as the consequence of the inner struggle of being. According to his theory, the human being, as the creator of meaning, is under the risk of nonmeaning either from despair or death.

Anxiety, being the necessary part of life, was viewed as the inner struggle of self-assertion and self-validation (Benner, 1985).

Interpersonal theorist Harry S. Sullivan defined anxiety from a different point of view. Instead of theorizing that anxiety derived from intrapsychic conflicts, he viewed anxiety as primarily an interpersonal phenomenon which arises from the childhood anticipation of disapproval from parenting figures in the environment (Sullivan, 1953). He postulated that if the intensity of anxiety became too severe, the individual would develop a predominant orientation in life to protect himself or herself from evidence of this disapproval so that the "self-dynamism" might be kept intact. According to Sullivan, the three main defenses against anxiety are: dissociation, parataxic distortion, and sublimation.

Similar to Sullivan's conceptualization that social forces, instead of biological forces, influence personality development, Horney (1937) defined anxiety ("basic anxiety") as "an insidiously increasing, all-pervading feeling of being lonely and helpless in a hostile world." "Basic anxiety" is one of the most central tenets in her theory of personality. She reasoned that "basic anxiety" is the foundation of neuroses. She believed that regardless of the type of anxiety, the manifestations of anxiety are quite similar. These include feelings of being "small, insignificant,

helpless, deserted, endangered, in a world that is out to abuse, cheat, attack, humiliate, betray . . . ." Horney theorized that individuals use techniques, such as "gaining affection," "being submissive," "attaining power," and "withdrawing" to self-protect against anxiety.

Another personality theorist, Raymond B. Cattell (1964, 1965, 1978) also viewed anxiety as an essential element of personality in his trait approach to personality, mainly because of the harmful consequence anxiety can exert on both psychological and biological functioning. Cattell theorized that anxiety can be manifested either as a state of being or as a trait of personality. State-anxiety refers to the varying degrees of anxiety as a result of stressful and threatening circumstances; whereas, trait-anxiety refers to the phenomenon that anxiety permeates the personality and that the individual is chronically anxious. In Cattell's factor analytic research of personality structure, anxiety was identified as a unitary entity that encompasses five factors.

Consistent with Cattell's theory, Charles D. Spielberger (1966) also conceptualized that anxiety exhibits two different forms (State vs. Trait anxiety). State-anxiety refers to an acute and intense discomfort, usually as a reaction to a perceived threat. This form of anxiety, in general, lasts only momentarily and can occasionally happen

in a person's life. On the other hand, trait-anxiety signifies the more chronic and ingrained response of a person who possess an anxious life style. Individuals with trait-anxiety tend to cope with stressful situations by worrying and anticipating a frightful future. Such a distinction is conceptually similar to the construct of exogenous vs. endogenous differentiation in the case of depression. Spielberger, Gorsuch, & Lushene (1970) developed a psychological test which distinguishes state and trait-anxiety. This present study subscribes to this theoretical understanding of anxiety. The Spielberger State-Trait Anxiety Scale (STAI) is used as the primary dependent variable.

Coping

Since the 1960's, the notion of coping with stress and anxiety begin to emerge from the cognitive-behavioral paradigm in the psychological literature (e.g., Lazarus, 1964). It has been widely conceptualized that different people use different coping strategies in dealing with anxiety-provoking situations. Folkman and Lazarus (1980) stated that there is also growing support that the ways people cope with anxiety and stress influence their psychological, physical, and social well being (for reviews, Antonovsky, 1979; Coelho et al., 1974; Cohen and Lazarus,

1979, Janis and Mann, 1977; and Moos, 1977). Coping strategies are commonly viewed as having a buffering function against daily stress and anxiety in an individual's psychological functioning.

Research on coping has focused primarily on three aspects: a) the development of typology of coping behaviors; b) the examination of the impact of coping on psychological distress; and c) the investigation of factors affecting the use of different coping behaviors (Fleishman, 1984). With respect to a typology of coping behaviors, there is no consensus among researchers in classifying different coping responses. Folkman and Lazarus (1984) and Suls and Fletcher (1985) proposed a dichotomous typology in which coping strategies are either problem-focused or emotion-focused. They postulated that coping efforts serve two functions: the management or modification of the person-environment relationship that is the genesis of stress (problem-focused coping) and the regulation of the stressful emotions of the person (emotion-focused coping). Problem-focused strategies emphasize resolving the problem and therefore overcoming the anxiety. These include the various ways of "defining the problem, generating alternative solutions, weighing the alternatives in terms of their costs and benefits, choosing among them, and acting." Emotion-focused strategies, on the other hand, aim to reduce the emotional distress. These include "avoidance, minimization, distancing, selective

attention, positive comparisons, and wresting positive value from negative events." This distinction was also recognized by George (1974), Kahn et al. (1964), Murphy and Moriarty (1976), Murphy (1974), White (1974), Mechanic (1962), Pearlin and Schooler (1978).

One study demonstrated empirically such a classification of coping strategies. In Folkman and Lazarus (1980), 100 men and women aged between 45 to 64 were asked how they coped with stressful events in the previous year. Interviews and a 68-item Way of Coping checklist were used. Results showed that for 1,332 stressful life events recalled by 98% of the subjects, coping efforts could be classified as either problem-focused strategy (e.g., "I made a plan of action and followed it") or emotion-focused strategy (e.g., "I tried to look on the bright side of things.")

Deriving their conceptualization from earlier research (Lazarus, 1966; Moos, 1977), Billing and Moos (1981) developed a related typology of coping methods. They stated that there are three approaches to cope with stressful life events, namely, active-cognitive (intrapsychic), active-behavioral, and avoidance strategies. Active-cognitive coping refers to attempts to manage one's perception of the stressful life event, such as "tried to see the positive side of the situation" and "drew on my past experiences in similar situations." Active-behavioral coping signifies overt

behavioral attempts to directly deal with the problem and its effects, for example, "tried to find out more about the situation" and "took some positive action." Avoidance strategy refers to actively avoiding confronting the problem, such as "avoided being with people in general," "kept my feelings to myself," or to directly reduce the anxiety by behaviors such as eating or smoking more, etc.

Using this typology of coping strategies, Holahan and Moos (1987) examined various predictor variables of the use of different coping behavior during distress among two samples. Four hundred subjects from a community sample, and a sample of over 400 persons entering psychiatric treatment for unipolar depression, were asked to choose the most important problem they faced during the previous year. They were then asked to indicate how often they used each of a variety of coping strategies to deal with their problems. Information was obtained regarding sociodemographic factors (e.g., education, income), personality disposition (i.e., self-confidence and easy-going manner), contextual factors (e.g., the extent of family support). Results indicated that all predictive factors included in the study made a significant incremental contribution to predicting active (cognitive or behavioral) and avoidance coping strategies among both community and patient groups. Active coping (both cognitive and behavioral) strategies were associated with more personal and contextual resources and avoidance coping

was associated with fewer. For instance, normal and depressed subjects of higher socioeconomic status were more likely to report utilizing active-behavioral strategies and less prone to depend on avoidance coping. However, predictive factors tended to have weaker relationships with active-cognitive coping than with active-behavioral and avoidance strategies. Results also indicated that more self-confident persons were more likely to report active-coping strategies and less likely to report avoidance coping. In addition, the extent of family support positively correlated with the use of both active coping strategies and inversely related to avoidance coping.

This current study adopts this typology of coping behavior because it is conceptually sound and statistically sophisticated in operationalizing constructs. Items used in each coping scale are empirically shown to be discriminative. For instance, Holahan and Moos (1987) reported that the coping strategy scale discriminated between recovered and relapsed alcoholics and matched community controls in a predictive manner (Moos, Finney, and Chan, 1981). The measures also have been shown to be related to psychological functioning among clinically depressed patients (Billings and Moos, 1984). It also predictably discriminated between remitted and nonremitted depressed patients and matched community controls (Billings and Moos, 1985). However, the current study will modify the existing scale (Billings and

Moos, 1981) by adding a prayer dimension (Appendix E), which will be further elaborated in the Method section.

McCrae and Costa (1986) reported that other studies that demonstrated different coping strategies tended to focus on particular kinds of problems: chronic illnesses (Felton and Revenson, 1984), job disruptions (Pearlin, Lieberman, Menaghan, & Mullan, 1981), marital problems (Mennaghan, 1982). Thus, it is difficult to generalize results of particular studies that investigate the coping pattern of specific problems to the coping patterns of other types of problems.

Different sets of coping mechanisms were also used in other studies, such as a lengthy list of coping by Haan (1977) and the 27 conceptually distinct coping mechanisms of McCrae, (1982a, 1984, and 1986).

It is important to note that the item "prayed for guidance or strength" was included in the Active Cognitive Sub-scale of the Coping Strategy Scale (Billings and Moos, 1981, Holahan and Moos, 1987). This suggests that researchers assumed that praying about one's problems provides a beneficial influence in the level of cognition in one's coping response. For example, people who pray about problems may tend to think more positively and to cognitively re-structure their problems in a more manageable and non-

threatening way during the process of praying. As a result, the mere process of praying about their problems may clarify one's cognitive understanding of problems, and thus lead to a positive effect in coping. In other words, the process of praying about one's problems would force oneself to face problems cognitively, instead of allowing oneself to avoid dealing with the problem. In short, it is the author's postulation that aside from religious interpretations of the effectiveness of prayer, the positive cognitive effects during the process of prayer enhance one's coping ability in times of distress. One would expect to find that people who tend to use prayer in coping with distress would be more likely to use Active Cognitive strategies in coping than using Avoidance strategies. Thus, this research attempts to investigate such relationships among the use of prayer and other coping mechanisms (see hypotheses 4a and 4b).

Effects of Coping

Reviewing various studies on coping, Holahan and Moos (1987) concluded that active (both cognitive and behavioral) and problem-oriented coping strategies have been found to moderate the adverse effects of negative life events on psychological functioning. Menaghan (1982) stated that coping strategies, such as negotiation and optimistic comparisons, were associated with a reduction in concurrent

stress and a decrease in future role problems. Mitchell, Cronkite, & Moos (1981) also found that the proportion of problem-focused coping relative to total coping responses also has been associated with reduced depression. In one study, ex-smokers who used some type of coping strategies in dealing with anxiety as a result of quitting smoking were found to be four times as likely to succeed at quitting smoking than ones who failed to utilize coping techniques (Shiffman, 1985).

The use of avoidance coping strategy was also found to be related to health consequence. Billings and Moos (1981) showed that avoidance coping positively correlated with psychological distress. Consistent with this finding, Kobasa (1982) demonstrated that lawyers who used more avoidance coping tended to exhibit more psychological and physical symptoms related to stress. Pearlin and Schooler (1978) also found that selective ignoring (one type of avoidance coping) may exacerbate stress in marriage and parenting. One study also found that individuals who exhibit less physical and psychological symptoms in responding to stress were less inclined to depend on avoidance coping than were people who have psychological dysfunction under stress (Holahan and Moos, 1986).

Allport's Intrinsic versus Extrinsic Religious Orientation

The controversy of whether being religious is beneficial or detrimental to mental health dominated the early psychology of religion (for review, Batson and Ventis, 1982). However, a more recent approach has been focusing on a more fruitful and credible research question, namely, what kinds of religiosity would have a positive or negative impact on what specific psychological functioning.

Different conceptualizations have been made to describe various religious orientations. The ideas of various theorists, including bipolar conceptualizations (i.e., "good" versus "bad" kind of religiosity) and multidimensional models, were reviewed by Meadow and Kahoe (1984). Table 1 and 2 summarize their results.

Table 1: Bipolar Approaches to Measuring Religiousness

Theorist	Positive religiosity	Negative religiosity
Allport (1959)	Intrinsic (for religious motives)	Extrinsic (for "fringe benefits")
Lenski (1961)	Associational (life-permeating commitment)	Communal (social-group focus)
Allen (1965)	Committed (internalized religious values)	Consensual (conformity to religious patterns)
Nock (1961)	Conversion (self-chosen commitment)	Adhesion ("inherited" social religion)
Dewey (1934)	Being religious (submission to a pervasive ideal)	Observing a religion (following the forms of a religion)
Clark (1958)	Primary religion (harmonizing life with one's vision)	Tertiary religion (habitual, conditioned religion)

Source: Meadow and Kahoe (1984)

Table 2: Some Theoretical Multidimensional Models

Glock (1959, 1962)	Whiteman (1962)	Thouless (1961, 1971)
Ideological	Belief	Intellectual
Ritualistic	Participation	Traditional
Experiential	Feeling	Experiential
Intellectual		Intellectual
Consequential	Commitment	
		Personal need

Source: Meadow and Kahoe (1984)

While reviewing different theoretical discussions of religious orientation is not within the scope of this study, special attention should be devoted to one particular orientation that is relevant to the current study -- Allport's intrinsic vs. extrinsic religious orientation. This theoretical dimension has been known as one of the most commonly researched topics in the psychology of religion (Meadow and Kahoe, 1984). The present study adopted this construct in deriving a prayer scale (see Method section) that measures different ways of praying.

The terms intrinsic versus extrinsic religious orientation were coined by Gordon Allport (1959), following research of intrinsic versus extrinsic motivations in job settings. In several major papers, Allport provided formal definition of intrinsic and extrinsic religious orientation in the context of research regarding racial prejudice (Allport, 1960, 1966; Allport & Ross, 1967). Allport stated that:

"Intrinsic religion marks the life that has interiorized the total creed of [one's] faith without reservation, including the commandment to love one's neighbor. A person of this sort is more intent on serving . . . religion than on making it serve him [her]."

"Extrinsic religion is a self-serving, utilitarian, self-protective form of religious outlook, which provides the believer with comfort and salvation at the expense of outgroups" (1960).

"People with this [intrinsic] orientation find their master motive in religion. Other needs, strong as they may be, are regarded as of less ultimate significance, and they

are, in so far as possible, brought into harmony with the religious beliefs and prescriptions. Having embraced a creed the individual endeavors to internalize it and follow it fully."

"Persons with this [extrinsic] orientation are disposed to use religion for their own ends . . . Extrinsic values are always instrumental and utilitarian. Persons with this orientation may find religion useful in a variety of ways -- to provide embraced creed is lightly held or else selectively shaped to fit more primary needs. In theological terms the extrinsic type turns to God, but without turning away from self" (1967).

Allport viewed these orientations as polar opposites. He claimed that all religious people fall on a continuum between the two orientations. Given such assertion, one would anticipate that the correlation coefficient between the two sub-scales should approximate -1.00. However, an empirical study reviewed by Hunt and King (1971) indicates that correlations between the two factors ranged from .37 to -.54.

A number of correlational studies demonstrated the relationship between this religious orientation construct with other variables. Table 3 summarizes more than a decade of empirical findings.

Table 3: Intrinsic/Extrinsic Religious Orientation and Other Variables

	Religious Orientation	
Correlated variables	Intrinsic	Extrinsic
Authoritarianism	.03	.33*
Dogmatism scale	.04	.30*
Internal locus of control	.24*	-.25*
Responsibility	.29*	-.40*
Intrinsic motivation	.45*	-.25*
Extrinsic job motivation	-.01	.15*
Extrinsic personal motivation	-.04	.05
American College Test	.10	-.19*
Freshman grade point average	.25*	-.23*

*p < .01

Source: Kahoe (1974a)

These data further confirmed the concept that the role of religion in mental health generally should not be considered as a single, unified variable. The intrinsic-extrinsic concept illustrates that there are different implications of religion, depending on one's religious motives.

Despite some data which indicates that intrinsic vs. extrinsic religious orientations are not polar opposites, as originally construed, this construct does conceptually provide an insightful dimension of orientation in religiosity. An intrinsic orientation has a reference outside the experiencing person; whereas, someone with an extrinsic orientation would primarily serve the self or ego. Researchers have postulated that people with an intrinsic religious orientation, in general, reflect a "healthier" way of being religious, as opposed to having an extrinsic religious orientation. For instance, Meadow and Kahoe (1984) stated that "in evaluative terms, psychologists have considered the self-orientation to reflect a degree of maladjustment, whereas the outward-looking orientations have been related to positive mental health."

The Role of Social Desirability

Batson and Ventis (1982) raised a potential confound that may have biased the predictive validity of the Intrinsic-Extrinsic scale in relating to other variables such as racial prejudice. They suggested that in order to score high on the extrinsic orientation a person must indicate that he or she uses religion basically for self-serving ends. This information does not put the person in a good light in the society. On the contrary, for respondents to score high on the intrinsic orientation a person must indicate himself or herself as being a devout believer who takes religion very seriously and agrees with such statements as "Nothing is as important to me as serving God as best I know how." This may potentially earn him or her social praise and admiration. They concluded that "the more a person is concerned to appear socially desirable, the more that person is likely to show or at least report devout, intrinsic involvement in religion (p.273)."

In view of this concern, Batson, Ventis, and Pate (1978) studied the relationship between religious orientation and racial prejudice when social desirability factors were controlled. Results showed that, as predicted, scores on the extrinsic orientation correlated positively with scores on the prejudice questionnaire, while scores on the intrinsic orientation correlated negatively. However, when social

desirability was controlled, the relationship between intrinsic orientation and scores on the prejudice questionnaire also became positive. In addition, they found that intrinsic orientation correlated positively with scores on the Social Desirability scale (Crowne and Marlowe, 1964) ($p < 0.01$), while the extrinsic orientation did not. They concluded that "intrinsic orientation is related to only the appearance of low prejudice (p.281)."

Other researchers supported the idea that one needs to control for social desirability in religious orientation research. Hoge (1972) suggested that the tendency for respondents to score more intrinsically is because the perception that extrinsic items represent idolatrous way of thinking, and imply that one subordinates God to family, fame, and success. Some may view these values as less socially acceptable.

Nevertheless, other empirical studies (Hunsberger and Ennis, 1982; Waalkes, 1987) also indicate that social desirability is not as salient as previously postulated. The role of social desirability in influencing the way people respond to the Religious Orientation Scale is still unclear and inconclusive.

Four-fold Typology of Religious Orientation

Some empirical evidence indicated that subjects who scored high on the Extrinsic scale do not necessarily score low on the Intrinsic scale. It did not support the postulation that the intrinsic vs. extrinsic concept represents a bipolar continuum. As a result, Allport and Ross (1967) proposed a four-fold typology of religious orientations. In addition to Intrinsic and Extrinsic categories (high on one, low on the other), Allport categorized subjects who tended to answer affirmatively to all questions dealing with religion (high on both intrinsic and extrinsic dimensions) as Indiscriminately Pro-religious. They were described as seeing all religion as all good. In contrast, some respondents may regard all religions as undesirable. Allport and Ross referred to this group as Indiscriminately Anti-(or Non) religious, although they had no such respondents in their sample of church goers. Later empirical research on the four-fold typology of religious orientation indicates its usefulness.

Despite criticism that the four-fold typology is psychometrically unsound (Kahoe, 1976), Hood (1978) supported the validity of this typology. He provided evidence that people who were Indiscriminately Pro and Anti-Religious were different from each other and from people who were purely intrinsic and extrinsic-oriented in the areas of mystical

experience, stress, and repression-sensitization in a predictable manner. He concluded that the four-fold typology of religious orientation increases the predictive validity of the scale.

Intrinsic and Extrinsic Religious Orientation and Prayer

Particularly relevant to the current study, the intrinsic versus extrinsic religious orientation is thought to have a significant influence on various religious practices, such as the focus of this research -- prayer. It is this researcher's view that people who exhibit an intrinsic religious orientation would view prayer as an intrinsically worthwhile act of serving God. Such individuals would pray consistently and persistently, and use prayer to serve as a means of remaining close to God. Consequently, it is conceivable that intrinsically religious people are healthier and more adaptive in the way they pray in dealing with anxiety. On the other hand, people who are extrinsically oriented instead see prayer as a "self-serving technique for manipulating some practical result . . . In essence, God is treated as a cosmic Santa Claus" (Myers, 1978). As a result, their use of prayer may not be as adaptive as the prayer of intrinsically-oriented individuals in coping with anxiety.

Such a distinction in the different ways people pray is somewhat similar to Pratt's (1920) theoretical discussion of objective vs. subjective prayer. Objective prayer tends to focus on the object of one's religious devotion, God. Subjective prayer tends to be constantly preoccupied with the needs and concerns of the person. Citing Pratt (1920), Clark (1958) contended that each of the two forms of prayer "intermingle" and "interact" within the inner experience of the person. According to Clark, examples of subjective prayer are intercessory and didactic prayer. Pratt further illustrated two prominent forms of objective prayer being adoration/praise and thanksgiving. Consequently, Clark believed that different ways of praying would have different influences on mental health. In his words, Clark asserted that, "once the distinction between the two is pointed out, their psychological significance becomes apparent, for there is a world of difference between the attitude that sees the benefits of religion accruing to man and that which thinks of "God" as their recipient." Consistent with these theoretical ideas, the current study seeks empirical evidence of how different ways of viewing prayer (intrinsic vs. extrinsic) is associated with the coping effectiveness of anxiety (see hypotheses 5a and 5b). This study also investigates the relationship between frequency and believability about prayer and different ways (intrinsic vs. extrinsic) of praying (see hypotheses 6a and 6b).

Purpose of this study

In light of the initial reviewed studies indicating some positive psychological effects of prayer in coping with anxiety, this study is designed to further elucidate the relationship between prayer and coping with anxiety.

Specifically, this study first aims to investigate the relationship between the use of prayer and the reported degree of distress (see hypothesis 1).

Second, this study attempts to investigate the relationship between gender and the use of prayer in coping with anxiety (see hypothesis 2).

Third, by measuring subjective reports of the level of anxiety before and after praying about an current anxiety-provoking incident, an experimental design is used in this study to ascertain the short-term (immediately after prayer in the initial session) and the long-term (after one-week prayer training) state-anxiety reduction effects of prayer (see hypotheses 3a and 3b).

Fourth, this study investigates the relationships between the use of prayer as a coping strategy and other coping strategies, such as active-cognitive, active-behavioral and avoidance strategies. The author expects that

this study will provide empirical evidence to elucidate whether praying for one's problems would predict a tendency to use cognitive strategies in coping with the distress (see hypothesis 4a). It also investigates whether it has an inverse relationship with the likelihood of using avoidance coping strategies (see hypothesis 4b).

Fifth, the current study seeks to understand if different ways of viewing prayer (intrinsic vs. extrinsic) would influence differently the effectiveness of coping with trait-anxiety (see hypotheses 5a and 5b) and its relationship to the frequency and believability of prayer (6a and 6b).

Hypotheses

The following hypotheses are proposed:

1) The reported likelihood of the use of prayer as a coping strategy will correlate positively with the degree of reported distress.

2) Women will tend to use prayer as a coping strategy with anxiety more often than men.

3) There will be a significant reduction of the reported level of state-anxiety after praying about one's anxiety provoking problems compared to other cognitive activities (Please refer to the methodology section for the designated treatment condition of each experimental groups):

   a) Subjects instructed to pray about their problems (Group I) will report significantly more state-anxiety reduction than those instructed to write a letter to a best friend about the problem (Group II) and those instructed to read and write about an inspirational story (Group III).

   b) Subjects instructed to write a letter to a best friend about their problems (Group II) will report

significantly more state-anxiety reduction than those instructed to read and write about an inspirational story (Group III).

4) The use of prayer will correlate significantly with various coping strategies:

   a) The reported likelihood of the use of prayer as a coping strategy will correlate positively with the use of cognitive coping strategies.

   b) The reported likelihood of the use of prayer as a coping strategy will correlate negatively with the use of avoidance coping strategies.

5) Different ways of viewing prayer will correlate significantly with the reported level of trait-anxiety:

   a) The reported likelihood of viewing prayer intrinsically will correlate negatively with the level of trait-anxiety reported.

   b) The reported likelihood of viewing prayer extrinsically will correlate positively with the level of trait-anxiety reported.

6) Different ways of viewing prayer will correlate

significantly with the frequency and believability about prayer:

a) The reported likelihood of viewing prayer intrinsically will correlate positively with the frequency of personal prayer and the level of believability about prayer.

b) The reported likelihood of viewing prayer extrinsically will correlate negatively with the frequency of personal prayer and the level of believability about prayer.

Operational Hypotheses

1) The ratings of using prayer as a coping strategy reported in the Coping Strategy Scale will correlate positively with the degree of distress regarding the most anxiety provoking incident in the last 12 months reported.

2) The ratings reported by women in the Prayer Subscale of the Coping Strategy Scale will be significantly higher than those of men.

3a) The level of anxiety reduction demonstrated by the ratings of the S-STAI (State Scale) of subjects in Group

I between Time 1 (before treatment) and Time 2 (after treatment during the initial session), and Time 1 and Time 3 (after one-week treatment during the follow-up session) will be significantly higher than those in Group II and Group III (see the Procedure section for further descriptions of Time 1, Time 2, and Time 3 measurements).

3b) The level of anxiety reduction demonstrated by the ratings of the S-STAI (State Scale) of subjects in Group II between Time 1 and Time 2, and Time 1 and Time 3 will be significantly higher than those in Group III.

4a) The reported ratings of using prayer as a coping strategy will correlate positively with ratings of the use of cognitive coping strategies in the Coping Strategy Scale.

4b) The reported ratings of using prayer as a coping strategy will correlate negatively with ratings of the use of avoidance coping strategies in the Coping Strategy Scale.

5a) The ratings of viewing prayer intrinsically reported in the Feagin-Chan Intrinsic-Extrinsic Prayer Inventory will correlate negatively with the ratings of anxiety reported in the T-STAI (Trait Scale).

5b) The ratings of viewing prayer extrinsically reported in

the Feagin-Chan Intrinsic-Extrinsic Prayer Inventory will correlate positively with the ratings of anxiety reported in the STAI (Trait Scale).

6a) The ratings of viewing prayer intrinsically reported in the Feagin-Chan Intrinsic-Extrinsic Prayer Inventory will correlate positively with the frequency of prayer; and the level of believability about prayer reported in the Demographic Inventory and in the Johnson-Chan Prayer Effectiveness Scale.

6b) The ratings of viewing prayer extrinsically reported in the Feagin-Chan Intrinsic-Extrinsic Prayer Inventory will correlate negatively with the frequency of prayer; and the level of believability about prayer reported in the Demographic Inventory and in the Johnson-Chan Prayer Effectiveness Scale.

METHOD

Characteristics of Research Participants

A total of 101 research subjects were recruited to participate in this study, entitled "Verbal Communication and Anxiety," in Spring, 1992. The two criteria for admitting subjects to the study were that they should have: 1) no strong feelings against religion; and 2) previous experience in personal prayer.

The research participants included 74 female subjects (73.27%) and 27 male subjects (26.73%) (total N = 101). Sixty-five participants were recruited through the Psychology Subject Pool, by complying with the subject recruitment procedures of the university. Another thirty-six participants were recruited through eleven college religious fellowship groups and ministries in the East Lansing, MI area, in order to ensure that there were sufficient participants who maintained active praying practices. These groups included the: United Methodist Student Center/Wesley Foundation, University Christian Outreach, InterVarsity Christian Fellowship (for undergraduates), Graduate InterVarsity Christian Fellowship, St. John's Catholic Student Church, St. Andrew's Orthodox Catholic Church, MSU Bible Study, Campus Crusade, Christians in Action, University Reformed Church College Fellowship and University Lutheran

Church College Fellowship (n = 11). The principal investigator briefly introduced the study to potential participants during their regular scheduled group meetings. A statement that described the nature of the participation and a sign-up sheet were then circulated to solicit participants. Subjects were informed that their participation was completely voluntary, confidential, and that they were permitted to withdraw their participation, without penalty, at any time during the course of the study.

Self-report demographic information was obtained at different stages of the experiment. They are presented in the following Table 4. Of note, one subject left responses to demographic questions blank, for unknown reasons, during the first session. Thus, 100 sets of demographic responses were collected (n = 100). Information regarding "religious preference" was collected during the second session. Since a total of 14 subjects did not return for the follow-up session (return rate: 86.14%), a total of 87 subjects responded to the questions about their general religious preference (n = 87).

Table 4: Demographic Data

Age (n = 100):

Mean:	20.96
Standard Deviation:	5.44
Range:	18 - 48

Marital Status (n = 100):

Single	94
Married	6

Ethnicity (n = 100):

Caucasian:	85
African-American:	7
Asian:	4
Hispanic:	0
American Indian:	1
Mixed heritage:	3

Year in School (n = 100):

Freshman:	25
Sophomore:	28
Junior:	26
Senior:	12
Graduate School	7
Not Apply:	2

Religious Preference (n = 87):

Protestant:	54 (62.07%)
Catholic:	25 (28.74%)
None:	4 (4.60%)
Other:	3 (3.45%)
Jewish:	1 (1.15%)

In addition to the above information, subjects who identified themselves as "Protestant" were asked during the end of the follow-up session about their denominational affiliation/background. A total of 41 "Protestant" subjects responded to this question, and the following Table 5, rank-ordered by frequency, indicates the distribution and diverse representation of eleven Protestant religious denominations.

Table 5: Denominational Affiliations	N
Baptist:	13
United Methodist/ Methodist:	6
Lutheran:	5
Episcopal:	3
Presbyterian:	3
Charismatic/Pentecostal	3
Christian Reformed/Reformed	2
Evangelical:	2
Inter-denominational	2
Wesleyan:	1
Fundamental Bible Church	1

The three subjects who identified their denominational affiliation as "other" included two participants as "Non-denominational Christian" and one participant as "Orthodox/Catholic." No other religious affiliations were reported, although the subject recruitment process did not restrict subjects with a non-Judeo-Christian background from participating in the study.

An 86.14% return rate was represented after 14 participants did not return for the follow-up session. Among subjects recruited from the Psychology Subject Pool, the return rate was 92.31%, compared with a lower 75% return rate among subjects recruited from the religious groups. A total of 5 subjects from the Psychology Subject Pool and 9 subjects from the religious groups did not return. This difference may be explained by the fact that subjects recruited from the Psychology Subject Pool were more eager to return to the follow-up session in order to receive extra credit for their psychology courses; such incentive to return did not exist among subjects recruited from other groups. However, it is important to note that results from t-test analyses indicated that there were no significant differences in the degree of seriousness in participation between subjects recruited from the psychology subject pool and those recruited from other groups at different stages of the experiment. Two-tailed t-tests were conducted on the level of seriousness during the first testing session, the one-week

activity, and the follow-up session. The t values were: 0.78 (df = 1, 98, p > 0.01); 0.10 (df = 1, 84, p > 0.01) and 1.77 (df = 1, 83, p > 0.01), respectively.

All participants were randomly assigned to each of the three experimental conditions (see the Procedure section). There were 33 subjects assigned to Group I (praying), 33 to Group II (letter-writing), and 34 to Group III (reading and writing about inspirational stories) (total N = 101). Results further indicated that there was no significant difference in the drop-out rate among subjects who were assigned to the three experimental groups. Four subjects from Group I, four from Group II and six from Group III failed to return for the follow-up session. Thus, the distribution of subjects who successfully completed the study included 30 in Group I, 29 in Group II, and 28 in Group III (n = 87). The distribution of subjects recruited from the religious fellowship groups were reasonably even among the three experimental groups.

In addition, results from the Analysis of Variance (ANOVA) indicated that there were no significant differences on "Degree of Pre-treatment Anxiety Level," "Believability about Prayer," "Importance of Prayer," and Frequency of Prayer" among the three experimental groups (F values = 0.82, p > 0.05; 2.92, p > 0.05; 1.76, p > 0.05; and 2.38, p > 0.05). This confirmed the effectiveness of the

randomization process in group assignment of subjects, so that between-group errors were minimized. Thus, it is reasonable to view all recruited subjects as one subject group, despite differences in the method of subject recruitment.

Only results from subjects who completed all stages of the study (i.e., providing results from all three measures of State-Anxiety at different times) were used in the analysis of anxiety reduction. However, data from the initial session, provided by all 101 subjects, were used in other analyses.

Further examination of the raw data revealed that one Group I subject identified no current anxiety-inducing life event, and reported only a very minimal degree of pre-treatment anxiety level (S-STAI = 21 with the lowest possible score = 20), and a "none" rating to the question: "Compared to other troublesome experiences, how would you rate the level of anxiety regarding this [anxiety-provoking event] experience"). Due to the failure to meet the criterion of possessing any current anxiety-provoking life experience, this subject was discarded in the analysis of anxiety reduction. Another subject from Group I was dropped because of failure to comply with instructions. This subject not only "prayed" for only 4 days, instead of six consecutive days, as requested, but also provided prayers in writing that

were less than half a page per day, substantially shorter than those of other participants. Data from one other subject from Group II were discarded due to poor degree of seriousness in participation. This subject identified himself/herself as exceptionally low in the level of seriousness in participation when compared with other participants. Thus, the number of subjects that were included in the analyses of anxiety reduction were: 28 from each experimental group (n = 84).

Results of the types of the most anxiety-inducing life events in the last 12 months, and at the present time, that subjects identified are tabulated and rank-ordered according to frequency in Table 6 and Table 7:

Table 6: Types of the Most Troublesome Life Event That Caused Anxiety in the Last 12 Months

Types	N	%
Interpersonal Concerns	26	25.74
a)Romantic Relationships (n = 16; 15.84%)		
b)Friends/Roommates (n = 8; 7.92%)		
c)Family relationships (n = 2; 1.98%)		
Illness/Deaths in Family and Friends	20	19.80
School-related	17	16.83
Worrying about the Future	13	12.87
Finances	8	7.92
Personal Physical Illnesses	3	2.97
Engagement/Marriage-related	2	1.98
Parents' Divorce	2	1.98
Job-related	2	1.98
Concerns for the Well-being of Others	2	1.98
Car Accidents	2	1.98
Fraternities/Sororities/Extra-curricular Activities	2	1.98
Gang-related	1	0.99
Property Loss	1	0.99
Total N:	101	

Table 7: Types of the Most Troublesome Life Event That Caused Anxiety at the Present Time

Types	N	%
School-related	38	37.62
Interpersonal Concerns	28	27.72
a)Romantic Relationships (n = 25; 24.75%)		
b)Friends/Roommates (n = 1; 0.99%)		
c)Family Relationships (n = 2; 1.98%)		
Worrying about the Future	8	7.92
Illnesses and Deaths in Family and Friends	5	4.95
Finances	3	2.97
Engagement/Marriage-related	3	2.97
Job-related	3	2.97
Concerns for the Well-being of Others	2	1.98
Personal Physical Illnesses	1	0.99
Accidents	1	0.99
Fraternities/Sororities/Extra-curricular Activities	1	0.99
Time Pressure	1	0.99
Parking-related	1	0.99
Weight-related	1	0.99
New Responsibilities	1	0.99
Spiritual Concerns	1	0.99
Sexual Frustration	1	0.99
Legal Matters	1	0.99
None	1	0.99
	Total N: 101	

Materials

The following forms and instruments were used in the study. They are arranged below, in the order in which they were compiled in research packets presented to subjects (except Appendix T).

a) the Consent Form for participation (Appendix A),
b) the self-explanatory Instruction Sheet (Appendix B),
c) the Social Functioning and Resources Scale (Appendix C),
d) the Demographic Inventory and the Description of the Most Distressing Event in the last 12 months (Appendix D),
e) the modified version of the Coping Strategy Scale (Billings and Moos, 1981; Holahan and Moos, 1987) (Appendix E),
f) the Feagin-Chan Intrinsic-Extrinsic Prayer Inventory (Appendix F),
g) the Description of the Current Most Distressing Event (Appendix G),
h) the Spielberger State-Trait Anxiety Inventory (STAI) (Appendix H),
i) the Group Instruction Sheet (Appendix I),
j) the Inspirational Stories (Appendix J),
k) the One-item Manipulation Check (Appendix K),
l) the Instruction for the Next 6 Days (Appendix L),
m) the Follow-up Session Instruction Sheet (Appendix M),

n) the Spielberger State-Trait Anxiety Inventory (State Scale) (S-STAI) for the follow-up session (Appendix N),

o) the Johnson-Chan Prayer Effectiveness Scale (Appendix O),

p) the Religious Opinion Survey (Appendix P),

q) the Religious Behavior Survey (Appendix Q),

r) the Final Manipulation Check (Appendix R),

s) the Feedback Sheet (Appendix S),

t) the Research Participants Recruitment Advertisement (Appendix T).

The availability of social resources has been found to be an important mediating factor in coping with anxiety. In order to elucidate the relationship between prayer and coping with anxiety, it was important to take into account the influence of factors such as social resources in the process of coping among subjects, so that potential biases would be minimized. Thus, information about social resources was obtained. The Social Functioning and Resources Scale in this study was adopted from Moos, Cronkite, and Finney's (1990) Health and Daily Living Form. There are four sections in this scale. First, a 12-yes/no-item subscale assessed the number of social activities with friends in the last twelve months by having subjects identify from a list of 12 activities (Cronbach alpha: 0.73). Second, a 5-item subscale ascertained the number of social network contacts of subjects (Cronbach alpha: 0.48). Third, a two-item subscale asked about the number of close relationships subjects

maintained. Fourth, a 6-item subscale measured the quality of significant relationship by having respondents rate on 5-point scales ranging from zero (never) to four (often) (Cronbach alpha: 0.72).

The Demographic Inventory, constructed by this author, assessed information from subjects, such as age, gender, ethnicity, level of education and marital status.

The Coping Strategy Scale, a modified version of Billings and Moos (1981) and Holahan and Moos (1987) was used to ascertain the pattern of coping strategies utilized by subjects during the most distressing life event in the last twelve months. This 24-item scale consisted of four methods of coping. It included a 6-item active-cognitive strategy subscale, a 6-item active-behavioral strategy subscale, and a 6-item avoidance strategy subscale. A 6-item prayer strategy subscale devised by this author was included. Subjects were asked whether or not they used each strategy in coping on "yes-no" items. The score of this instrument is the sum of "yes" items from each subscale.

Billings and Moos (1981) reported that the categorization of coping strategies was formulated according to cluster analyses, the ratings of several judges and previous research (Sidle et al., 1969; Moos, 1976, 1977). Research on the psychometric properties indicated

satisfactory results. The internal consistencies (Cronbach alpha corrected for number of items) of the different coping strategies were: 0.72 for active-cognitive coping strategy; 0.80 for active-behavioral coping strategy; and 0.44 for avoidance coping strategy. These coefficients indicated that both the sub-categories and the entire item set (alpha = 0.62) showed moderate internal homogeneity. The intercorrelations among the first three coping strategies (mean correlation = 0.21) were relatively low, representing that sub-categories measured independent constructs. However, researchers cautioned that "an upper limit may be placed on internal consistency coefficients by the fact that the use of one coping response may be sufficient to reduce stress and thus lessen the need to use other responses from either the same or other categories of coping."

Of note, since the internal coefficient of the avoidance scale of Billing and Moos' (1981) coping scale was moderate (Cronbach alpha: 0.44), it was replaced by 6 items of the avoidance scale (Cronbach alpha: 0.60) as reported by Holahan and Moos (1987). For the purpose of the current study, only the cognitive coping strategy subscale by Billing and Moos (1981) was used.

Since the prayer coping scale was newly formulated by this author, previous information regarding its internal consistency is not available. Using the "Kuder-Richardson

formula 20," developed by Kuder and Richardson (1937), results in this study showed that the reliability coefficient of this prayer coping scale is relatively high: 0.82. In order to augment the construct validity, the prayer coping scale was formulated in such a way that it encompassed commonly reported elements of prayer during times of distress, namely, praise, thanksgiving, confession, and petition.

The Feagin-Chan Intrinsic-Extrinsic Prayer Inventory is a modification, by this author for the purpose of this study, of a scale published by Feagin (1964). The Feagin (1964) scale is a version of the Allport and Ross's Religious Orientation Scale (1967) that measured intrinsic vs. extrinsic religious orientation. Results from factor analyses of Feagin's scale generated two separated factors, intrinsic and extrinsic, and each consisted of six items. Although most of the research on intrinsic and extrinsic religious orientation has used a derivation of the Feagin scale, a number of researchers have recognized that the Feagin scale is more refined in its psychometric properties. Meadow and Kahoe (1984) stated that "these [Feagin's] factorial scales are probably the most succinct and psychometrically the best measures of the two religious orientations -- though unfortunately not the most frequently used." This study modified the Feagin scale by changing the wording of each item to specify the religious behavior as

being prayer. For example, the original item "I try hard to carry my religion over into all my other dealings in life" was modified to "I try hard to pray about all areas of my life."

It is also important to note that the current research is an unprecedented attempt to apply the concept of intrinsic vs. extrinsic religious orientation to the context of prayer. Preliminary results indicated that the newly formed, Feagin-Chan Intrinsic-Extrinsic Prayer Inventory significantly and positively correlated with their respective religious orientation, formulated by Allport (1950). The concurrent validity was demonstrated to be relatively high for both intrinsic and extrinsic prayer scales ($r = 0.85$, 0.70, respectively $p < 0.01$). This was expected, as the Feagin-Chan's scale was adapted from the original intrinsic vs. extrinsic religious orientation scale. The test-retest reliability (one week apart) was also shown to be reasonably high for both the intrinsic prayer subscale and the extrinsic prayer subscale (i.e., 0.90 and 0.68, respectively, $p < 0.01$).

The Spielberger State-Trait Anxiety Inventory (STAI) (Y-form) was used in ascertaining the reported level of anxiety in this study. The STAI has been adapted in more than 40 languages for cross-cultural research and clinical practice, and is the most widely used self-report measure of

anxiety since its introduction more than 15 years ago (Spielberger and Gorsuch, 1966). Over 2,000 publications using the STAI to measure anxiety were reported. Although most studies using the STAI were psychological and medical research, the STAI was used research in other disciplines including: counseling and guidance, criminal justice, education, nursing, physical education, and speech and hearing (Spielberger, 1983). The test-retest reliability for the Trait-Anxiety scale was reasonably high for the college students, ranging from .73 to .86. The alpha coefficients for the State-Anxiety scale were above .90 for the samples of working adults, students, and military recruits, with a median coefficient of .93. This data demonstrated high internal consistency in the State-Anxiety scale. The STAI has also been shown to have reasonably high validity compared with other anxiety measures (Spielberger et al., 1983).

The Johnson-Chan Prayer Effectiveness Scale was adapted from Johnson (1956), by this author. The 10-item scale asks subjects to rate, on a 7-point Likert scale, each of the ten psychological effects of prayer postulated by Johnson (1956). Since this is a newly adapted scale, an alpha coefficient was not available.

Procedure

The entire research procedure involved a one-week testing period. It included an initial group session, an assigned daily activity for the following six days, and a follow-up group session. A total of eight periods of participation (including all three components) were scheduled at different times, in order to maximize the number of subjects who could participate. The experimental sessions were conducted in different classrooms, with very similar physical conditions, in the same building. A typical experimental procedure is described more specifically as follows:

Part I

The initial experimental session took place in a large, well-lit and quiet room in a group setting. Efforts were made to ensure that the seating arrangement allowed each subject to have plenty of space away from other participants. Upon arrival at the experimental site, each subject was given a research packet, instructed to take a seat and not to open the packet until they were told to do so. Research packets had been stacked according to the order: group number I, II and III. Thus, when subjects were being handed a research packet, they were randomly assigned to each of the three experimental groups. This process also ensured that, as much

as possible, an equal number of subjects were present in each experimental group. Upon the arrival of all scheduled subjects, participants were instructed to open up the research packet and read the Consent Form for their voluntary, confidential and anonymous participation and a self-explanatory instruction sheet placed on the top two pages (see Appendix A and B).

After completing the 3-page Social Functioning and Resources Scale (Appendix C) and providing some personal demographic information, subjects were instructed to recall and identify the most anxiety-provoking life event that had happened to them in the last 12 months (Appendix D). A list of potential anxiety-provoking events were presented, in order to help subjects identify such an incident. They were then requested to rate the level of distress on a 7-point Likert scale item: "Compared to other troublesome life events in the past, how would you rate the level of anxiety regarding this event?"

Then, they were asked to complete the Coping Strategies Scale (Appendix E), which assessed ways of coping with that event, and the Feagin-Chan Intrinsic-Extrinsic Prayer Inventory (Appendix F). Subjects were further instructed to identify, in writing, the current most anxiety-provoking incident that was troubling them (Appendix G). Subjects were also requested to describe the worst possible scenario about

that particular experience, and to rate their level of distress on a 7-point Likert scale. Since it is possible that the current anxiety-provoking incident qualified as the most distressing experience in the last twelve months, subjects were informed that it was permissible to identify the same incident they had reported previously. Immediately following their descriptions, subjects were asked to complete the Spielberger State-Trait Anxiety Inventory (Appendix H) as a pre-treatment measure of the level of anxiety (the State-Anxiety scores constituted the Time 1 measure of state-anxiety).

Subjects were then instructed to engage in one of the three different tasks based on the pre-arranged randomization process (see Appendix I). They were asked to individually read specific instructions for one of the three treatment conditions as follows:

Group I: Subjects in this group served as the experimental group. They were given a brief written instruction to pray about the event, the way they usually would in the past. They were instructed to continuously pray about the problem for 10 minutes, while simultaneously writing down their prayers on sheets of 8 1/2" X 11" paper for 10 minutes.

Group II: Subjects in this group served as the first

control group. They were informed to write a personal letter to their best friend about their problem. Similar to Group I, subjects were asked to write, without interruptions, through a 10-minute period.

Group III: Subjects in this group served as another control group. For 10 minutes, they were asked to read an inspirational story about a famous psychologist (Appendix J), and to write their reflections on it.

Immediately following the completion of the assigned task, subjects were asked to complete only the State scale of the Spielberger State-Trait Anxiety Inventory (S-STAI) (Time 2 measure of state-anxiety), and the One-item Manipulation Check (Appendix K), which ascertained the level of seriousness during their participation.

Subjects were then asked to engage in similar activities daily, at about the same time each day, regarding the same incident, throughout the following week (Appendix L). They were told that it was essential to complete the assignment on the sheets of paper provided, as instructed, and to return results to the experimenter during the follow-up session one week later. Subjects in Group I and Group II were informed that in the event that the distressing incident they originally identified no longer posed feelings of anxiety, they should continue to write about the same incident in a

different way. For example, Group I subjects may thank God for feeling better; and Group II subjects may thank their friends for listening, etc.

The entire procedure for the initial session took approximately one hour.

Part II

Upon returning to the follow-up experimental session after one week, subjects were requested to return the written materials they had completed. The experimenter then distributed follow-up research packets to subjects which contained the self-explanatory Follow-up Session Instruction Sheet (Appendix M) Spielberger State-Trait Anxiety Inventory (State Scale) (S-STAI) (Time 3 measure of state-anxiety) (Appendix N), the Feagin-Chan Intrinsic-Extrinsic Prayer Inventory (Appendix F), the Johnson-Chan Prayer Effectiveness Scale (Appendix O), the Religious Opinion Survey (Appendix P), the 5-item Religious Behavior Survey (Appendix Q) and the Final Manipulation Check Questionnaire (Appendix R), which ascertained the level of seriousness in fulfilling the assignment during the week and during the follow-up session. Of note, subjects were reminded to rate their current feelings regarding the specific distressing incident they had originally identified during the initial session on the S-

STAI.

Subjects were asked to complete each of the scales in the order presented in the research packet. The whole procedure of the second part of the experiment took approximately 30 minutes.

Upon finishing all inventories, subjects were debriefed by receiving a Feedback Sheet (Appendix S) and thanked for participation. Subjects who were recruited through the department of psychology's subject pool were given 6 research credit points for the total of about three hours of research participation, which could be redeemed toward their class grades.

RESULTS

Correlational analyses, t-tests and Analysis of Variance, were used in ascertaining the relationships between different variables.

The data regarding levels of anxiety collected was analyzed according to appropriate statistics for the pretest-posttest control group design (Campbell and Stanley, 1963) of this study. The experimental design can be represented in the following Figure 1:

	Time 1	Time 2	Time 3
Group I (Pray)	S_1 : X_1 ⋮ ⋮ S_{28} : X_{28}	X_1 ⋮ X_{28}	X_1 ⋮ X_{28}
Group II: Control (Letter)	S_{29} : X_{29} ⋮ ⋮ S_{56} : X_{56}	X_{29} ⋮ X_{56}	X_{29} ⋮ X_{56}
Group III: Control (Inspirational Stories)	S_{57} : X_{57} ⋮ ⋮ S_{84} : X_{84}	X_{58} ⋮ X_{84}	X_{58} ⋮ X_{84}

S_n : subjects
X_n : dependent variables - scores of the State scale of the Spielberger State-Trait Anxiety Inventory (S-STAI) of subject n at Time 1, Time 2 and Time 3.
Time 1: Pre-treatment measure of anxiety (S-STAI) during the initial session.
Time 2: Post-treatment measure of anxiety (S-STAI) during the initial session.
Time 3: Post-treatment measure of anxiety (S-STAI) after the one-week training.

Figure 1: Experimental Design: Pre-test Post-test Control Group Design

This experimental design has been recognized as one of the most popular research designs employed by applied researchers because of its several advantages. It controls internal validity, including effects of history, maturation, instrumentation, testing, regression, mortality, selection, and any interactions among these effects. It also offers a high degree of versatility. Instead of comparing only two groups (an experimental group and a control group, or two experimental group with two treatment conditions), this design accommodates additional comparison groups (Gilmore, 1984; Huck and McLean, 1975).

The SPSS computer software statistical program (version 5.0), operated on a Macintosh personal computer, was used in computing most of the data presented in the following section.

First Hypothesis:

The first hypothesis stated that using prayer as a coping strategy would correlate positively with the degree of reported distress regarding the most anxiety provoking incident in the last 12 months.

Using the Pearson product-moment correlation, results did not confirm this hypothesis ($r = 0.12$, $p > 0.05$). No significant linear correlational relationship between the degree of distress about the most anxiety provoking life event in the last 12 months identified, and the score of the 6-item prayer coping subscale that signified using prayer as a coping strategy, was found in this sample (this and other relevant correlational results are summarized in a correlation matrix in Figure 5 of Appendix U.)

Second Hypothesis

The second hypothesis proposed that women will use prayer as a coping strategy significantly more than men.

A two-tailed t-test was conducted on the scores of the prayer coping subscale of the Coping Strategy Scale between female ($n = 74$) and male subjects ($n = 27$) (t value = 0.09, $p > 0.05$, $df = 1,99$). There was no significant difference

between men and women in the number of items endorsed that represent using prayer as a coping strategy. The second hypothesis was not confirmed.

Third Hypothesis

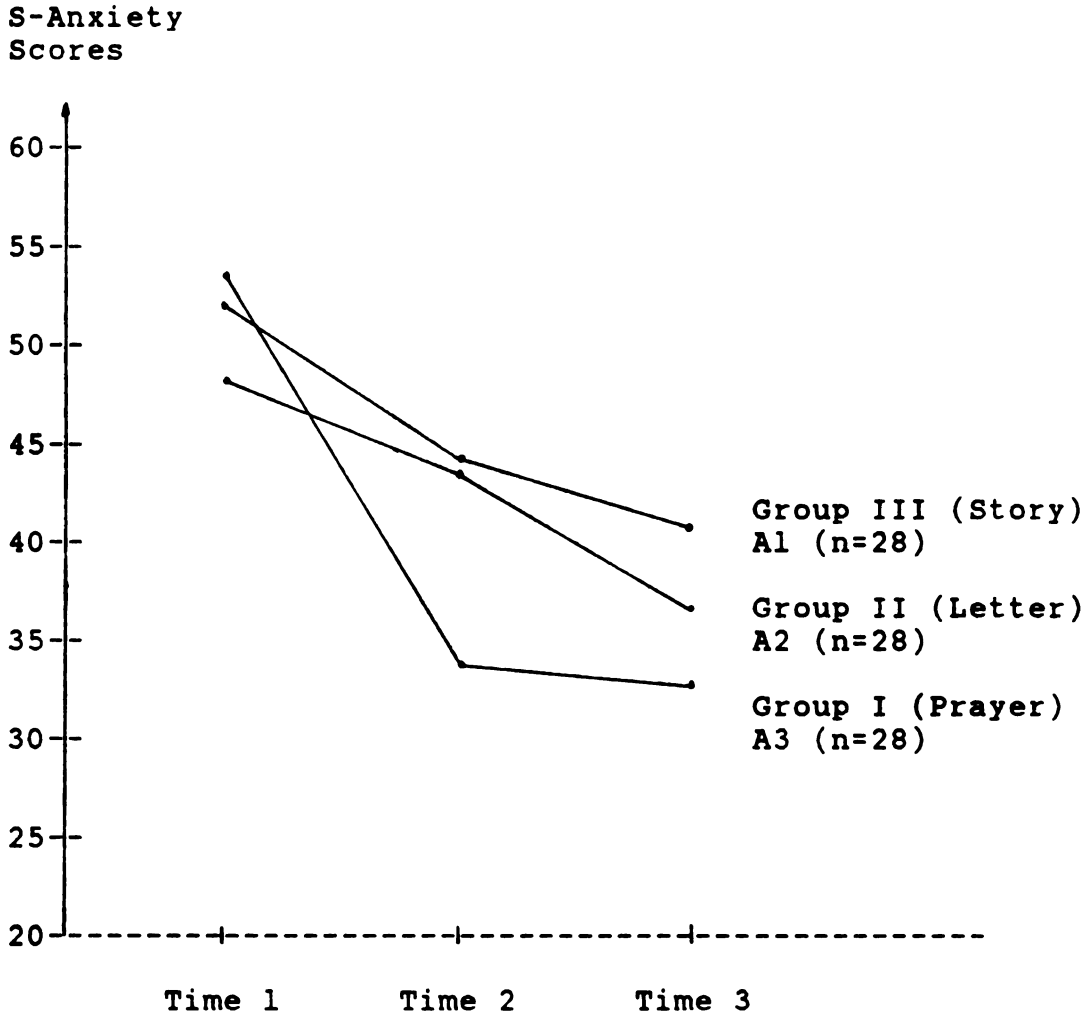
Part I:

The first part of the third hypothesis asserted that the degree of anxiety (state-anxiety) reduction among subjects in Group I (praying) between Time 1 (pre-treatment measure) and Time 2 (immediate post-treatment measure), and Time 1 and Time 3 (after the one-week treatment period during the follow-up session) would be significantly higher than those in Group II (letter-writing) and Group III (reading and writing about inspirational stories). Results supported the first part of hypothesis 3.

The mean and standard deviation of the dependent variable, state-anxiety scores at different stages of the study are in Table 8 and depicted in Figure 2:

Table 8: S-Anxiety Scores: Mean (Standard Deviation)

	Time 1	Time 2	Time 3
Group I	53.86(11.93)	34.68(10.20)	33.36(10.49)
Group II	48.50(11.71)	43.96(15.62)	37.00(10.90)
Group III	52.07(14.71)	44.50(16.35)	41.54(15.85)



Time 1: Pre-treatment measure of state-anxiety (S-STAI) during the initial session.
Time 2: Post-treatment measure of state-anxiety (S-STAI) during the initial session.
Time 3: Post-treatment measure of state-anxiety (S-STAI) after the one-week training.

Figure 2: State-Anxiety Scores of All Subjects (Group X Time)

The ANOVA of this data with the dependent variable, State-Anxiety, and the independent variable, Group, was conducted. The results of the omnibus F-test are provided in Table 9. The analysis represented a 3 X 3 Mixed Two-Factor Design with A as the non-repeated factor (Group), and B as the repeated factor (Time). There were 28 subjects in each cell.

Table 9: F Summary Table of Time by Group (3 X 3)

Source of Variation	SS	df	MS	F
A	1228.67	2	614.33	1.63
S/A	30523.44	81	376.83	
B	480968.68	2	4533.89	59.14***
A X B	1835.90	4	458.98	5.99***
B X S/A	12420.31	162	76.67	
Total	55076.11	251		

N = 84, *** $p < 0.001$

Geisser-Greenhouse Correction: MS_B and MS_{AXB} were evaluated with df (1, 81) and (2, 81) instead, respectively. Both B and A X B F ratios were found to be significant at 0.01 and 0.05 levels, respectively, after correction. This statistical correction was used in order to correct the possible bias due to violations of the homogenity assumptions in view of the current repeated-measure design.

In light of a significant interaction effect, the analysis of simple effects of factor A and B were conducted (Maxewell and Delany, 1989). Results indicated that significant simple effects were present at B2 and B3, but not at B1 (F_A at B1, B2, B3 = 1.26 ($p > 0.05$), 4.16 ($p < 0.05$), 2.94 ($p < 0.10$), respectively, df = 2, 81). A summary of results of simple comparisons of group mean of the non-repeated factor A at B2 and B3 is tabulated in Table 10:

Table: 10
F Values of Simple Comparisons of Group at Time 2 and Time 3

B2 (Time 2)

	A1	A2	A3
A1		5.86**	6.58**
A2			0.02

B3 (Time 3)

	A1	A2	A3
A1		1.16	5.86*
A2			1.80

* $p < 0.05$, ** $p < 0.01$, df = (1, 81).

Results also showed that significant simple effects of B (Time) at A1, A2 and A3 (Group I, II, III) were found (F_B at A1, A2, A3 = 97.17, 10.54 and 8.04, respectively, $p < 0.01$, df = 2, 54). A summary of results of simple comparisons of group mean of the repeated factor B is tabulated in the following Table 11:

Table: 11
F Values of Simple Comparisons of Time at Group I, II and III

A1 (Group I)

	B1	B2	B3
B1		135.74**	155.10**
B2			0.65

A2 (Group II)

	B1	B2	B3
B1		3.23	20.74**
B2			7.61**

A3 (Group III)

	B1	B2	B3
B1		7.81**	15.12**
B2			1.20

* $p < 0.05$, ** $p < 0.01$, df = (1, 54).

More importantly, since the third hypothesis was essentially concerned with differences in the degree of anxiety reduction among the three treatment groups, the Gain Score Analysis was used as the main approach in analyzing these data. This statistical approach was reported to be one of the most appropriate methods in analysing the current data. This method was also most suitable in addressing the current research question, which investigated the possible differences in the degree of anxiety reduction among the three treatment groups between Time 1 and Time 2, and Time 1 and Time 3. For instance, Maxewell and Delany (1989) stated that "the unique advantage of analysing gain scores is that it allow one to ask the question, was there significant change from pre-treatment to post-treatment? . . . For example, if a variety of clinical treatment groups are being compared for their effectiveness in helping a group of clients, one is almost certain to be interested in whether there was significant evidence for improvement overall (p.392)."

Thus, the analyses of variance (ANOVA) of Gain scores were conducted. Gain Score 1 was computed by subtracting Time 1's state-anxiety scores from Time 2's state-anxiety scores, and Gain score 2 was computed by subtracting Time 1 scores from Time 3 scores. The ANOVA was conducted among the three treatment groups, in which the Gain scores served as the dependent variable and the treatment conditions as the

independent variable.

Although the state-anxiety levels at Time 1 among all three experimental groups were not statistically significant, as stated, a small degree of variability of Time 1's state-anxiety scores may have inadvertently influenced the distribution of Gain scores. Therefore, Time 1 scores were included as a covariate in the ANOVA, in order to address the question: If the pre-treatment level of state-anxiety was the same among the three groups, would there be significant differences in the degree of anxiety reduction between Time 1 and Time 2; and Time 1 and Time 3?

It is also noteworthy, that although the results from the Social Functioning and Resources Scale was predicted to be correlated with the anxiety reduction at the beginning of the study, results from correlational analyses indicated that they are not significant. Minimal relationships between the scores in the Social Functioning and Resources Scale, and Gain score 1 and 2, and state-anxiety scores at Time 1, 2 and 3 were found ($r = 0.03, 0.19, -0.16, -0.16, 0.03$, respectively, $p > 0.05$). Since the main criterion for a covariate is a reasonably high degree of linear correlation with the dependent variable (Keppel, 1982), data from the Social Functioning and Resources Scale was not included as a covariate.

The mean and standard deviation of Gain Score 1 of each group, and the ANOVA of Gain Scores 1 by Group, with Time 1 scores serving as a covariate are presented in Table 12 and Table 13:

Table 12: Mean and Standard Deviation of Gain Score 1

Gain Score 1	Mean	(Standard Deviation)
Group I:	-19.18	(9.55)
Group II:	-4.54	(12.42)
Group III:	-7.57	(11.52)

Table 13: Summary of the Analysis (Gain Score 1 by Group with Time 1)

Source of Variation	SS	df	MS	F	Sign. of F
Covariates					
Time 1	1477.42	1	1477.42	12.71	.001
Main Effects					
Group	2776.52	2	1388.26	11.95	.000**
Explained	4253.94	3	1417.98	12.20	.000
Residual	9296.63	80	116.21		
Total	13550.57	83	163.26		

N = 84, ** p < 0.01

A significant result was found in the main effect, Group on Gain score 1 (Time 2 minus Time 1) ($F = 11.95$, $p < 0.01$, $df = 2, 80$). Simple comparisons of Gain score 1's group mean were then conducted to elucidate the pattern of Gain score 1 differences among the three groups. Computational procedures to correct unequal variances between groups were used. That is, the error terms of the analysis were computed by averaging the variances of groups under comparison (Keppel, 1982). Results showed that a significant difference between Group I and Group II was found ($F_{comp\ 1\ \&\ 2} = 24.47$, $p < 0.001$, $df = 1, 54$). The mean of Gain score 1 in Group I was significantly higher than that in Group II.

Significant results were also recorded when comparing the group mean of Gain score 1 between Group I and Group III ($F_{comp\ 1\ \&\ 3} = 16.86$, $p < 0.001$, $df = 1, 54$). The mean of Gain score 1 in Group I was significantly higher than that in Group III.

Similar procedures were conducted to compute the gain score differences between Time 1 and Time 3 among the three experimental groups. Gain Score 2 was formulated by subtracting Time 1 scores from Time 3 scores of all subjects. Time 1 scores were used as a covariate.

The mean and standard deviation of Gain score 2 of each group, and the ANOVA of Gain Score 2 by Group, with Time 1 scores serving as a covariate, are presented in Table 14 and Table 15:

Table 14: Mean and Standard Deviation of Gain score 2

Gain Score 2	Mean	(Standard Deviation)
Group I:	-20.5	(9.25)
Group II:	-11.5	(11.55)
Group III:	-10.54	(14.88)

Table 15: Summary of the Analysis (Gain Score 2 by Group with Time 1)

Source of Variation	SS	df	MS	F	Sign. of F
Covariates					
Time 1	3133.94	1	3133.94	27.71	.000
Main Effects					
Group	1137.82	2	568.91	5.03	.009**
Explained	4271.75	3	1423.92	12.59	.000
Residual	9048.95	80	113.11		
Total	13320.70	83	160.49		

N = 84, ** p < 0.01

Significant F was found on the the main effect, Group on Gain score 2 (Time 3 minus Time 1) ($F = 5.78$, $p < 0.01$, $df = 2, 81$). Simple comparisons of Gain score 2's group mean were then conducted. Results showed that there was a significant difference on Gain Score 2 between Group I and Group II ($F_{comp.\ 1\ \&\ 2} = 10.37$, $p < 0.01$, $df = 1, 81$). This demonstrated that the mean of Gain Score 2 in Group I was significantly higher than those in Group II.

Furthermore, there was a significant difference on the Gain score 2's group mean between Group I and III ($F_{comp.\ 1\ \&\ 3} = 9.06$, $p < 0.01$, $df = 1, 54$). A Significantly higher mean of Gain score 2 was found in Group I than Group III. This showed that the degree of anxiety reduction between Time 1 and Time 3 (Gain score 2) was significantly more in Group I than those in Group III.

In view of these findings, the first part of hypothesis 3 was confirmed. The levels of anxiety reduction in Group I between Time 1 and Time 2, and Time 1 and Time 3 were significantly higher than those in Group II and Group III, as predicted.

Part II:

The second part of hypothesis 3 stated that the level of anxiety reduction in Group II between Time 1 and Time 2, and

Time 1 and Time 3 would be significantly higher than those in Group III.

In light of significant F ratios on Gain score 1 and 2, as reported above, similar simple comparisons of the mean of Gain scores of Group II and III were conducted. Results showed that there was no significant difference on Gain score 1 between Group II and Group III ($F_{comp\ 2\ \&\ 3} = 0.90$, $p > 0.05$, $df = 1, 54$).

Similarly, no significant result was found when comparing the Gain Score 2's group mean between Group II and Group III ($F_{comp\ 2\ \&\ 3} = 0.07$, $p > 0.05$, $df = 1, 54$). The degree of anxiety reduction between the two groups between Time 1 and Time 2, and Time 1 and Time 3 was not significantly different. Thus, the second part of hypothesis 3 was not confirmed.

The above findings are summarized in Table 16 as follows:

Table 16: F Values of Gain Scores by Group and F Values of the Associated Simple Comparisons Between Groups

	F values (with 3 groups)	Simple Comparisons of Gain Scores Between Groups		
		I & II	I & III	II & III
Gain score 1 (Time 2 minus Time 1)	11.95**	23.82**	16.86**	0.90
Gain score 2 (Time 3 minus Time 1)	5.03**	10.37**	9.06**	0.07

** $p < 0.01$, df = (2, 80) for the Gain scores; df = (1, 54) for simple comparisons.

Fourth Hypothesis:

The first part of hypothesis 4 stated that the ratings of using prayer as a coping strategy would significantly correlate with the ratings of using cognitive coping strategies in the positive direction.

Results from the Pearson product-moment correlation did not substantiate this hypothesis. There was no significant correlational relationship between these two variables ($r = 0.14$, $p > 0.05$).

The second part of hypothesis 4 predicted that the ratings of using prayer as a coping strategy would significantly correlate with the ratings of using avoidance strategies in the negative direction.

Results demonstrated that this hypothesis was supported. A significant negative correlation coefficient was found between the two variables ($r = -0.24^{*}$, $p < 0.05$).

Fifth Hypothesis:

The first part of hypothesis 5 stated that the likelihood of viewing prayer intrinsically would significantly correlate with the ratings of trait-anxiety in

the negative direction.

Results from the Pearson product-moment correlation showed that this hypothesis was confirmed. A significant negative correlation coefficient was found between the two variables, as predicted ($r = -0.25^{*}$, $p < 0.05$).

The second part of hypothesis 5 predicted that the likelihood of viewing prayer extrinsically would significantly correlate with the ratings of trait-anxiety in the positive direction.

Results did not support this hypothesis. The correlation coefficient between the two variables was found to be not significant ($r = 0.16$, $p > 0.05$).

Sixth Hypothesis:

The first part of hypothesis 6 stated that the reported likelihood of viewing prayer intrinsically would significantly correlate with the frequency of prayer, the level of believability about prayer, and the ratings of the Johnson-Chan Prayer Effectiveness Scale in the positive direction.

Results from the Pearson product-moment correlation

indicated that this hypothesis was confirmed. Significant positive correlation coefficients were found between these variables ($r = 0.77$, 0.67, and 0.66, respectively, $p < 0.01$).

The second part of hypothesis 6 predicted that the reported likelihood of viewing prayer extrinsically would significantly correlate with the frequency of prayer, the level of believability about prayer, and the ratings of the Johnson-Chan Prayer Effectiveness Scale in the negative direction.

Results did not support this hypothesis. The correlation coefficients of these variables were found to be not significant ($r = 0.20$, 0.18 and 0.39, respectively, $p > 0.05$).

Post-hoc Analysis:

It is noteworthy that gender may play an important role in influencing the degree of anxiety reduction of different treatment conditions. Thus, in order to ascertain whether or not the above findings of anxiety reduction could be generalized to both female and male subjects, separate analyses for each gender group were conducted. Similar procedures in analysing anxiety reduction data by mainly using Gain Score Analysis were conducted, as the above

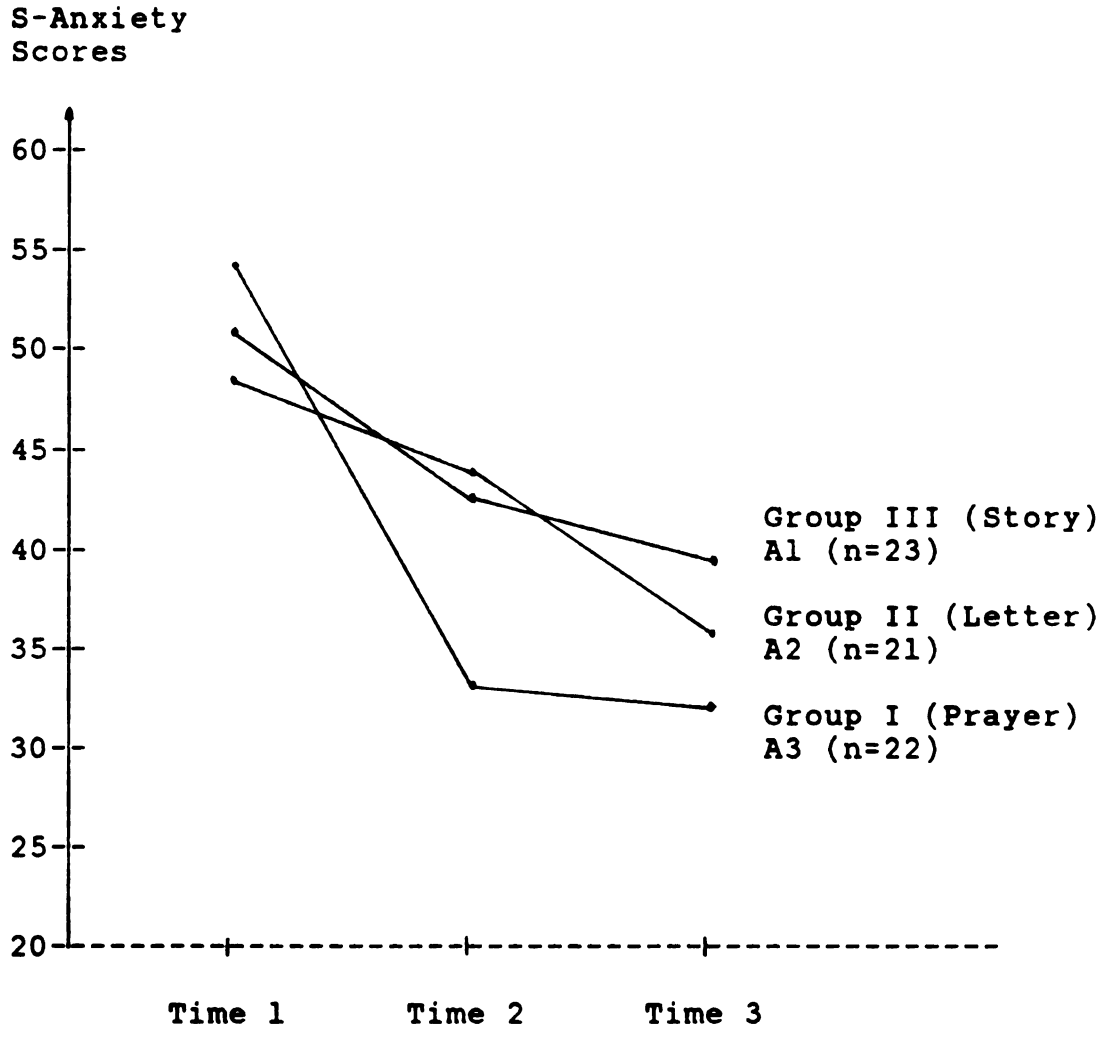
overall data, for each gender group.

Female Subjects:

The mean and standard deviation of state-anxiety scores for female subjects at different stages of the experiment are reported in Table 17 and depicted in Figure 3:

Table 17: Female Subjects' S-Anxiety Scores: Mean (Standard Deviation)

	Time 1	Time 2	Time 3
Group I (n = 22)	54.82 (11.75)	33.77 (9.35)	32.86 (10.59)
Group II (n = 21)	48.52 (12.28)	44.76 (16.72)	36.67 (11.76)
Group III (n = 23)	51.09 (14.54)	43.61 (15.72)	39.65 (14.33)



Time 1: Pre-treatment measure of state-anxiety (S-STAI) during the initial session.
Time 2: Post-treatment measure of state-anxiety (S-STAI) during the initial session.
Time 3: Post-treatment measure of state-anxiety (S-STAI) after the one-week training.

Figure 3: State-Anxiety Scores of Female Subjects Only (Group X Time)

The ANOVA of the dependent variable, State-Anxiety was conducted, and the results of the omnibus F-test for female subjects is provided in Table 18. The analysis represented a 3 X 3 Mixed Two-Factor Design with A as the non-repeated factor (Group), and B as the repeated factor (Time). Due to the unequal number of subjects in each cell, the Unweighted-means Analysis was utilized in computation.

Table 18: Summary of Analysis with Female Subjects' S-Anxiety Scores (Group X Time)

Source of Variation	SS	df	MS	F
A	636.49	2	318.25	0.87
S/A	23155.83	63	367.55	
B	7967.05	2	3983.53	50.49***
A X B	1918.60	4	479.65	6.08**
B X S/A	407636	162	78.90	

N = 66, ** p < 0.01, *** p < 0.001

Geisser-Greenhouse Correction: MS_B and MS_{AXB} are evaluated with df (1, 63) and df (2, 63) instead, respectively. Both B and A X B F ratios are found to be significant at 0.001 and 0.01 levels, respectively, after correction.

Similar to the previous analysis with the overall subject group, the Gain Score Analysis was used to ascertain possible differences in anxiety reduction among the three treatment groups.

A summary of the mean and standard deviation of Gain Score 1 for the three groups is presented in Table 19, and a summary of the ANOVA of Gain score 1 for female subjects only, with Time 1 serving as a covariate, are presented in Table 20 as follows:

Table 19: Mean and Standard Deviation of Female Subjects' Gain Score 1

Female Gain Score 1	Mean	(Standard Deviation)
Group I (n = 22):	-21.05	(6.90)
Group II (n = 21):	-3.76	(13.85)
Group III (n = 23):	-7.48	(11.52)

Table 20: Summary of the Analysis (Gain Score 1 by Group with Time 1) for Female Subjects Only

Source of Variation	SS	df	MS	F	Sign. of F
Covariates					
Time 1	1420.63	1	1420.63	12.49	.001
Main Effects					
Group	2889.88	2	1444.94	12.71	.000**
Explained	4310.51	3	1436.84	12.63	.000
Residual	7051.31	62	113.73		
Total	11361.82	65	174.80		

N = 66, ** $p < 0.001$

Results showed that a statistical significance for the main effect, Group, was found. Simple comparisons were then conducted among the mean of Gain score 1 among the three experimental groups. The method of Unweighted-means analysis was used in view of the unequal cell sizes. Statistical adjustments in computation were also made due to unequal variances among the three groups (Keppel, 1982).

When comparing the mean of Gain score 1 between Group I and Group II, a significant F ratio was found ($F_{comp\ 1\ \&\ 2}$ = 27.93, $p < 0.001$, df = 2, 63). The Gain score 1 was significantly higher in Group I than in Group II. Female subjects in Group I reported significantly more anxiety reduction between Time 1 and Time 2 than those in Group II.

Significant results were also recorded when comparing the group mean of Gain score 1 between Group I and Group III ($F_{comp\ 1\ \&\ 3}$ = 22.25, $p < 0.001$, df = 1, 43). The Gain score 1 in Group I was significantly higher than that in Group III. This demonstrated that the degree of anxiety reduction in Group I was significantly higher than that in Group III.

However, no significant finding was recorded when comparing the group mean of Gain score 1 between Group II and Group III among female subjects ($F_{comp\ 2\ \&\ 3}$ = 0.95, $p > 0.05$, df = 1, 42). The degree of difference in Gain score 1 between Group II and III among female subjects was not

significant. The extent of anxiety reduction between Time 1 and Time 2 for female subjects in Group II and III was not significant.

A similar analysis was conducted on female subjects' Gain Score 2 (Time 3 minus Time 1). A summary of the female subjects' Gain Score 2 for the three groups is presented in Table 21, and a summary of the F table for the ANOVA of Gain score 2 (Time 3 minus Time 1), with Time 1 serving as a covariate, for female subjects only is presented in Table 22 as follows:

Table 21: Mean and Standard Deviation of Female Subjects' Gain Score 2

Female Gain Score 2	Mean	(Standard Deviation)
Group I (n = 22):	-21.96	(8.68)
Group II (n = 21):	-11.86	(12.04)
Group III (n = 23):	-11.44	(14.24)

Table 22: Summary of the Analysis (Gain Score 2 by Group with Time 1) for Female Subjects Only

Source of Variation	SS	df	MS	F	Sign. of F
Covariates					
Time 1	2758.46	1	2758.46	25.70	.000
Main Effects					
Group	853.90	2	426.95	3.98	.024*
Explained	3612.36	3	1204.12	11.22	.000
Residual	6654.26	62	107.33		
Total	10266.62	65	157.95		

N = 66, * $p < 0.05$

Results showed that F ratio was significant for the main effect, Group. Simple comparisons of different group mean, as used in the above analyses were conducted. When comparing the group mean between Group I and Group II, a significant difference was found ($F_{comp\ 1\ \&\ 2} = 10.29$, $p < 0.05$, df 1, 41). This indicated that female subjects in Group I reported the level of anxiety reduction as significantly higher than those among female subjects in Group II.

Significant results were also found when comparing the group mean of Gain score 2 between Group I and III ($F_{comp\ 1\ \&\ 3} = 8.69$, $p < 0.01$, df = 1, 43). This revealed that female subjects in Group I reported significantly more anxiety reduction than female subjects in Group III.

No significant result was found when comparing the group mean of Gain score 2 between Group II and III ($F_{comp\ 2\ \&\ 3} = 0.01$, $p > 0.05$, df = 1, 42). Female subjects in Group II did not report significantly different levels of anxiety reduction, as compared with female subjects in Group III.

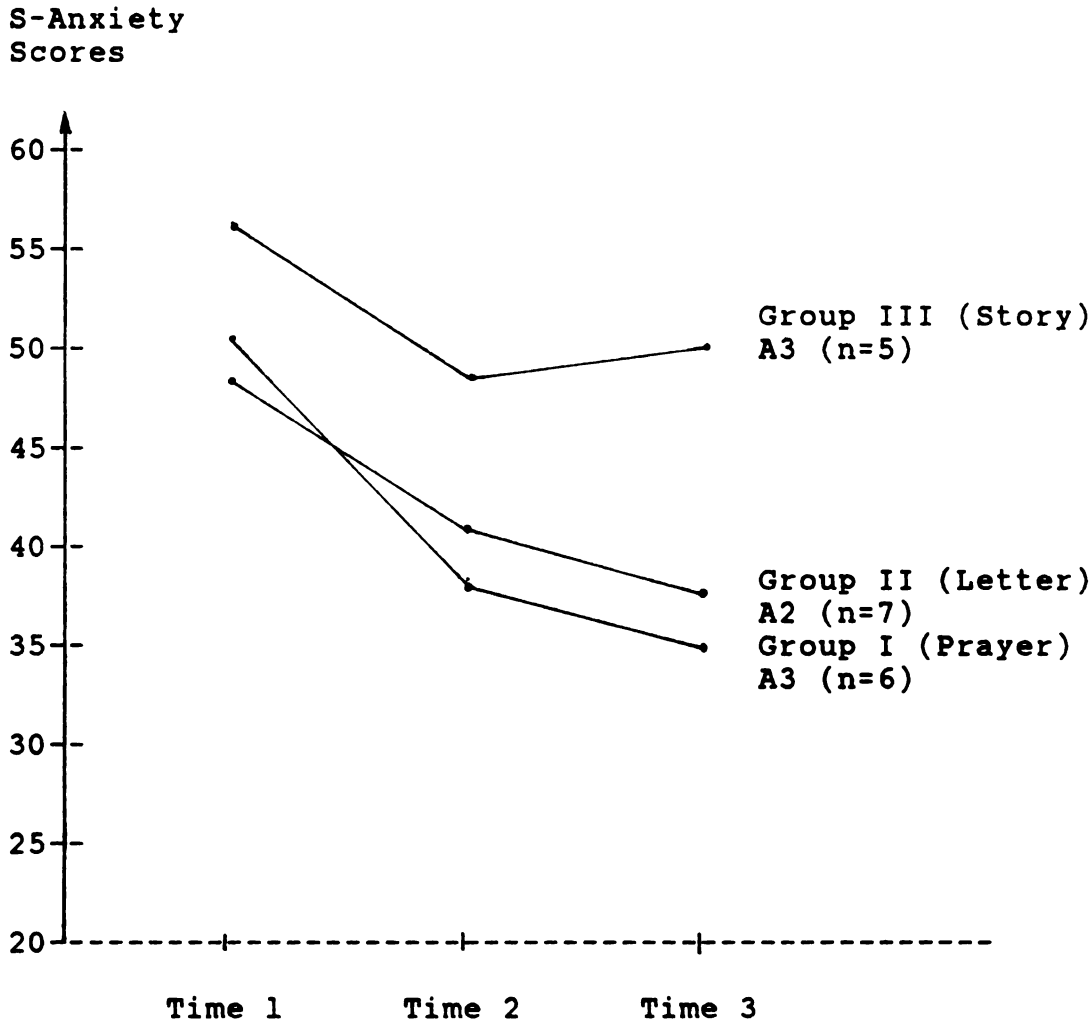
In summary, it is important to note that the pattern of significant differences on Gain Score 1 (Time 2 minus Time 1) and Gain Score 2 (Time 3 minus Time 1) among female subjects of the three experimental groups was identical to those found in the entire subject group (n = 84), as reported previously.

Male Subjects:

Similar analyses were conducted for male subjects only. The mean and standard deviation of state-anxiety scores for male subjects at different stages of the experiment are reported in Table 23 and depicted in Figure 4:

Table 23: Male Subjects' S-Anxiety Scores: Mean (Standard Deviation)

	Time 1	Time 2	Time 3
Group I (n = 6)	50.33 (13.00)	38.00 (13.31)	35.17 (10.83)
Group II (n = 7)	48.43 (10.69)	41.57 (12.58)	38.00 (8.49)
Group III (n = 5)	56.60 (16.29)	48.60 (20.47)	50.20 (21.23)



Time 1: Pre-treatment measure of state-anxiety (S-STAI) during the initial session.
Time 2: Post-treatment measure of state-anxiety (S-STAI) during the initial session.
Time 3: Post-treatment measure of state-anxiety (S-STAI) after the one-week training.

Figure 4: State-Anxiety Scores of Male Subjects Only (Group X Time)

The ANOVA of the dependent variable, State-Anxiety was conducted, and the results of the omnibus F-test for male subjects was provided in Table 24. The analysis represented a 3 X 3 Mixed Two-Factor Design with A as the non-repeated factor (Group), and B as the repeated factor (Time). Due to the unequal number of subjects in each cell, the Unweighted-means Analysis was used in computation.

Table 24: Summary of Analysis of Male Subjects' S-Anxiety Scores (Group X Time)

Source of Variation	SS	df	MS	F
A	1122.56	2	561.28	1.23
S/A	6843.43	15	456.23	
B	1120.99	2	560.50	7.77**
A X B	152.29	4	38.07	0.53
B X S/A	2164.16	30	72.14	

N = 18, ** $p < 0.01$

Geisser-Greenhouse Correction: MS_B was evaluated with df (1, 15) instead, and the F ratio of B was found to be significant at $p < 0.05$ level, after correction.

A significant main effect, the repeated factor, B (Time) was found. In view of the fact that this study investigated the possible differences in anxiety reduction among the three experimental groups, the Gain Score Analysis was performed.

A summary of the mean and standard deviation of the Gain Score 1 (Time 2 minus Time 1) is reported in Table 25, and a summary of the results of ANOVA of Gain score 1, with Time 1 serving as a covariate, for male subjects is presented in Table 26 as follows:

Table 25: Mean and Standard Deviation of Male Subjects' Gain Score 1

Male Gain Score 1	Mean	(Standard Deviation)
Group I (n = 6):	-12.33	(14.84)
Group II (n = 7):	-6.86	(6.79)
Group III (n = 5):	-8.00	(12.85)

Table 26: Summary of the Analysis (Gain Score 1 by Group with Time 1) for Male Subjects Only

Source of Variation	SS	df	MS	F	Sign. of F
Covariates					
Time 1	101.99	1	101.99	0.74	0.40
Main Effects					
Group	110.33	2	55.16	0.40	0.68
Explained	212.32	3	70.77	0.51	0.68
Residual	1929.68	14	137.83		
Total	2142.00	17	126.00		

N = 18

No significant F ratios were found. Male subjects in the three experimental group did not significantly differ in the level of anxiety reduction ($F = 0.40$, $p > 0.05$). No further simple comparisons were conducted.

Similar procedures were used in analysing the Gain score 2 (Time 3 minus Time 1) of male subjects. A summary of the mean and standard deviation of each group is presented in Table 27, and a summary of the ANOVA of Gain score 2, with Time 1 serving as a covariate, for male subjects only, is presented in Table 28 as follows:

Table 27: Mean and Standard Deviation of Male Subjects' Gain Score 2

Male Gain Score 2	Mean	(Standard Deviation)
Group I (n = 6):	-15.17	(10.09)
Group II (n = 7):	-10.43	(10.71)
Group III (n = 5):	-6.40	(18.81)

Table 28: Summary of the Analysis (Gain Score 1 by Group with Time 1) for Male Subjects Only

Source of Variation	SS	df	MS	F	Sign. of F
Covariates					
Time 1	428.14	1	428.14	2.92	0.11
Main Effects					
Group	345.21	2	172.61	1.18	0.34
Explained	773.35	3	257.78	1.76	0.20
Residual	2050.43	14	146.46		
Total	2823.78	17	166.11		

N = 18

Similar to findings in the analysis of Gain score 1 for male subjects, no significant F ratios were found in the above analysis. This indicated that male subjects in the three treatment conditions did not significantly differ with each other in the degree of anxiety reduction in Gain score 2 (Time 3 minus Time 1) ($F = 1.18$, $p > 0.05$). No further simple comparisons were conducted.

In short, the existing data with male subjects only did not reflect the same pattern of differences among treatment groups, as shown by the overall results presented above. Specifically, male subjects in the three treatment groups did not differ from each other on Gain Score 1 and 2. The degrees of anxiety reduction among the three groups of male subjects were not significantly different from each other.

Johnson-Chan Prayer Effectiveness Scale

This study also gathered preliminary data regarding the possible effects of prayer in the Johnson-Chan Prayer Effectiveness Scale. Results from the 10-item scale were rank-ordered, according to item, based on the size of their mean (the results were scored reversely, 1 = strong disagreement; 5 = strong agreement). They are summarized below (see Appendix O for definitions of each item):

Table 29: Rank, Mean and Standard Deviation of Items in Johnson-Chan Prayer Effectiveness Scale

Rank	Item	Mean	Std. Deviation
1	Trust and relaxation	4.20	0.98
2	Confession and sense of forgiveness	4.03	0.99
3	Loyalty and Perseverance	3.97	1.18
4	Joy, gratitude, and reconciliation	3.95	1.08
5/6	Perspective and Clarification	3.93	1.08
5/6	Awareness of needs and realities	3.93	1.04
7	Social responsiveness	3.76	1.17
8	Integration of personality	3.68	1.13
9	Decision and dedication	3.62	1.12
10	Renewal of emotional energy	3.44	1.18

DISCUSSION

To reiterate, this study primarily investigates the state-anxiety reduction effects of prayer in comparison with two control groups. In addition to studying the possible discrepancy between genders in using prayer as a means of coping, it also attempts to ascertain the correlational relationship between using prayer as a coping strategy and the degree of distress; and other coping strategies. Other main topics of interest include investigating the relationship between viewing prayer intrinsically versus extrinsically and trait-anxiety. The following section elaborates on the meanings of the current findings. Their implications for future psychological research on prayer will also be discussed.

The Degree of Anxiety and Prayer

The current findings did not replicate previous results of similar studies (Lindenthal, Myer, Pepper and Stern, 1970; Gurin, Veroff and Feld, 1960), which suggested that the greater the degree of anxiety, the more likely subjects would use prayer in coping with the anxiety provoking life events. Although the correlation coefficient between the two variables (namely, the level of anxiety regarding the most anxiety provoking life event in the last 12 months and the

likelihood of using prayer as a coping strategy) indicated a positive relationship, as predicted, it did not reach the conventional level of statistical significance. Nevertheless, it is interesting to note that the magnitude of the relationship between these two variables (r = 0.12) was slightly higher than the correlational relationship between the degree of anxiety and using other coping strategies, such as the cognitive strategy (r = -0.11) and the avoidance strategy (r = 0.06).

One could speculate on different reasons for this lack of a significant correlational relationship. It is important to acknowledge that the prayer subscale of the Coping Strategy Scale was an exploratory one by nature. Subjects' scores on this scale composed of items that reflected different ways of praying such as petition, worship, thanksgiving and claiming God's promises, etc. At the beginning of the study, this researcher assumed that subjects may use all of these methods of praying in dealing with an anxiety provoking situation. However, a closer examination of the prayer materials from Group I's subjects revealed that they did not appear to do this. The content of prayers offered regarding their current most anxiety provoking life event were essentially petitionary by nature. Thus, it is possible that the present finding would have been significant should all of the prayer subscale's items tapped into only the frequency of petitionary prayer, instead of encompassing

other types of prayers.

The insignificant correlational relationship found may also have resulted from the restriction of range. It is noteworthy that only subjects who had had previous experience in prayer were recruited to this study. It is conceivable that the strength of the correlational relationship was substantially reduced because only a highly selected group (i.e. people who prayed regularly) were recruited to the study. That is, the correlational relationship was non-significant, perhaps due to the fact that the variability of one of the two factors in the correlational analysis was curtailed. In essence, the correlational relationship was possibly lowered by the fact that subjects who prayed regularly would maintain a relatively similar level of praying activity, regardless of the level of anxiety over their immediate distressing life event.

Male - Female Differences in Frequency of Prayer

The present findings did not substantiate the second hypothesis, which predicted that female subjects would tend to use prayer as a coping strategy with an anxiety producing life event more frequently than male subjects. The non-significant t-test result does not replicate previous findings, which indicated that women generally engaged in

praying activities more often than men (Ross, 1950). Results of this study showed that female subjects did report using prayer as a way of coping slightly more than male subjects, however, the difference was not significant (4.51 vs. 4.44).

Further t-test analysis also revealed that female and male subjects in this study did not significantly differ in their self-report "Frequency of Prayer," on average (t value = 0.49, $p > 0.05$, df = 1, 85). Although the mean frequency of prayer by female subjects was slightly higher than those by the male subjects (means = 8.03 vs. 7.75), the difference was not significant.

It is possible that the lack of significant results in the frequency of using prayer as a coping strategy between male and female subjects may have been biased due to the discrepancy between the number of female (n = 74) and the number of male subjects (n = 27) recruited in this study.

In addition to this, the differences in using prayer may have been minimized by the fact that only subjects, in both sexes, with a reasonable level of frequency in practicing prayer were recruited in this study. As a result, the gender differences in using prayer may have been "washed out" because of such criteria. The frequency of using prayer as a coping strategy and the frequency of praying in general may have been significantly higher for female than male subjects

in a less restricted sample.

The approximately 7:3 ratio for female and male participation in this study may reflect that male college students are less interested in the subject of prayer, and are less likely to have previous experience of praying, as required by this study.

Previous findings regarding gender differences in the frequency of praying are derived from responses of subjects representing the characteristics of the general population in 1950's, instead of the college students in 1990's. Substantial changes in how each gender views and practices prayer may have occurred. Further research, that is specifically designed to investigate this possible difference, and its implications to future research in gender differences and religious behavior, would prove fruitful.

Anxiety Reduction and Prayer

The first half of the third hypothesis concerned the central and most significant portion of this study. It predicted that subjects instructed to pray about their current most distressing life event (Group I) will report significantly more state-anxiety reduction than those instructed to write a letter to a best friend about the

distressing event (Group II) and those instructed to read and write about an inspirational story (Group III). Results stated above indicated that the first part of hypothesis three was confirmed. The degree of state-anxiety reduction in Group I was significantly more than that in Group II and Group III between Time 1 and Time 2, and Time 1 and Time 3. Subjects who prayed about their most anxiety provoking life event reported significantly more reduction in state-anxiety than ones who wrote letters to their best friend, and than ones who read and wrote their thoughts about some inspirational stories. This reinforced the general pattern of the cited research reviewed, which suggests that the use of prayer is an effective way of coping with state-anxiety. These results also serve as one of first empirical data in recent years that document that the use of prayer is helpful in coping with psychological distress, as widely believed and practiced by the religious community.

These findings are meaningful as one examines the experimental design of the present study, especially, the treatment conditions of Group I and Group II. Since Group I subjects were instructed to write down their prayers simultaneously as they prayed, they were engaged in a very similar activity to Group II subjects, who were asked to write to a best friend about the problem. This experimental manipulation, in combination with other factors, such as the randomization of subjects in group assignment and the

uniformity of experimental conditions except the independent variables, allow the researcher to conclude that the differences in the degree of subjective state-anxiety reduction between the two groups were indeed due to the particular effectiveness of prayer in coping with state-anxiety.

It is noteworthy that there were no pre-existing significant differences among the three groups in several relevant variables, as stated, such as "Seriousness in Participation," "Pre-treatment Anxiety Level," "Believability about Prayer," and "Importance of Prayer." Further examination of the written materials provided by Group I and Group II also reveal that they are reasonably similar in length, involvement and complexity. These conditions reinforce the validity of the current findings.

Written materials provided by Group III, were generally shorter than the other two groups, as expected, because of the extra amount of time involved in the reading of inspirational stories within the 10-minute treatment intervals. Reviewing the written materials provided by these subjects show that the content tend to focus on reflections about the stories, and relatively less on current personal distress, as compared with other groups. One may speculate that the shorter and less personal entries account for the least degree of overall anxiety reduction reported by

subjects in Group III, as compared with subjects in Group I and Group II (-10.54 vs. -20.50 and -11.50, respectively). These results indicate that reading and writing about inspirational biographical stories is a significantly less effective means than using prayer in coping with anxiety.

The pre-existing level of self-report state-anxiety is rather high in this sample, compared with the norm for college students provided in the the manual of the Spielberger State-Trait Anxiety Inventory (i.e. 51.48 vs. 37.62) (Spielberger, Gorsuch, Lushene, & Jacobs, 1983). This could be attributed to the timing during which this study was conducted. The research was carried out immediately preceding the final examination time. Types of distressing events categorized demonstrated that subjects were most concerned about examinations and grades (37.62%). This artificial and unexpected elevation of state-anxiety provided the researcher with an appropriate subject group in investigating the state-anxiety reduction effects of prayer.

Research findings from this study also provided some preliminary data that elucidate the specific reasons why prayer is effective in coping with anxiety. The ten possible psychological effects of prayer, postulated by Johnson (1956) were investigated and rank-ordered. Results in this study seemed to be in agreement with Johnson's ideas about the psychological effects of prayer. For example, half of the

items on the 10-item Johnson-Chan Prayer Effectivenss Scale received a score of over 3.9 on the 1 to 5 Likert scale (1 = strongly disagree; 5 = strongly agree). Consistent with the state-anxiety reduction effect of prayer as shown, it is also interesting to note that one of the Johnson's ten possible effects, "Trust and Relaxation," was endorsed by subjects in this sample as the most likely effect of prayer among the 10 possible effects (mean = 4.20).

Besides the religious interpretations of why prayer offers significant anxiety reduction, theoretical ideas reviewed by Finney and Malony (1985) are worth investigating. For example, they summarized that prayer uniquely offers: a) a deautomatization of perception and cognition; b) a conditioning of a lower level of arousal through induction of a relaxation state; c) desensitization; and d) hypnotic suggestion, etc.

Examining the written materials provided by subjects in the present study offers additional insights about the anxiety reduction property of prayer. It is this author's view that the content of prayers appeared to be, not only "cathartic" in nature, but they also tended to focus more on hopefulness and joy in resolving the anxiety-provoking situations, as compared with the content of letters written to best friends. This qualitative difference may explain the elevated anxiety reduction experienced by subjects who

prayed.

Since it is beyond the scope of this study to investigate the specific psychological processes involved in contributing to state-anxiety reduction through prayer, further research to clarify the psychological processes would be beneficial to the existing prayer and coping research.

It is also noteworthy that compared with subjects in both control groups, Group I subjects' extent of anxiety reduction was most prominent between Time 1 and Time 2, that is, before and immediately after the treatment condition. However, Group I subjects' degree of state-anxiety reduction was minimal between Time 2 and Time 3, that is, before and after one-week administration of the treatment. After Time 2, the level of state-anxiety reduction was maintained, without substantial decrease at Time 3. This state-anxiety reduction pattern could be described as the demonstration of a basal effect, in that the state-anxiety reduction property of prayer was maximized immediately after the initial praying activity. Any additional praying activity, such as praying about the same event for the following 6 days, merely sustained the already relatively low state-anxiety level following prayer, instead of contributing to additional degrees of state-anxiety reduction.

Although the actual praying activity was evaluated and

ensured based on writings provided by subjects, it is unclear whether other factors, such as other ways of coping, or unexpected changes in life circumstances during the one-week interval (between Time 2 and Time 3) could have caused the state-anxiety reduction between Time 2 and Time 3. Caution is needed in interpreting the validity of state-anxiety results from Time 3.

Results did not confirm the second part of hypothesis 3, which stated that the level of anxiety reduction among subjects in Group II (letter-writing) between Time 1 and Time 2, and Time 1 and Time 3 would be significantly higher than those in Group III (reading and writing about inspirational stories). No significant difference was found in the degree of state-anxiety reduction between the two control groups, Group II and Group III between Time 1 and Time 2, and Time 1 and Time 3. These two control groups did not differ in the extent of state-anxiety reduction, as predicted. There is no significant difference between writing to a friend about ones' problem and being exposed to an external stimuli (inspirational stories) and writing about them in coping. Both strategies were shown to have less state-anxiety reduction, when compared with Group I.

Post-hoc findings also revealed that the significant state-anxiety reduction effects of prayer appeared to apply only to female subjects, but not to male subjects. Although

results from female subjects reflected basically the same pattern of reduction for all three treatment groups as the entire subject group, male subjects in Group I did not seem to self-report significantly more state-anxiety reduction than the control groups. The degrees of state-anxiety reduction were not significantly different from each other among male subjects in the three experimental groups. It appears that the use of prayer did not lead to more state-anxiety reduction than other means of coping for male subjects. However, this finding is suggestive and preliminary at best, due to the small sample size of male subjects (n = 18), when compared with female subjects (n = 74). In light of current findings that indicate a state-anxiety reduction effect of prayer, future research in comparing such effects between genders would be pertinent and meaningful.

Cognitive, Avoidance Strategies and the Use of Prayer in Coping

Results did not support the first half of hypothesis four. Subjects who tended to pray about their anxiety producing life event did not necessarily utilize cognitive coping strategies as well. Although the correlation coefficient between using prayer and using cognitive strategies were positive in direction, it did not reach the conventional statistical significant level. Results

generated by this sample did not provide evidence to support previous studies' (e.g., Billings and Moos, 1981; Holahan and Moos, 1987) and this researcher's assumption that the mere process of praying is associated with the tendency to clarify one's cognitive understanding of problems in coping.

However, as predicted, current results demonstrated a significant inverse correlational relationship between praying about one's problems and using avoidance strategies in coping. Although some may view that using prayer is passive, inactive, and thus an avoiding behavior in coping, the current data indicate that using prayer to cope is not associated with one's tendency to avoid dealing with the anxiety producing event. On the contrary, there is less likelihood for one to avoid, when he or she prays about the specific problem. This may be explained by the fact that prayer provides a structure in which to encounter the specific problem. It takes personal effort and internal motivation, instead of avoidance, for one to pray about one's concerns. This result reinforces the notion that prayer is one of the active means of coping with anxiety.

Intrinsic vs. Extrinsic Style of Viewing Prayer and Anxiety

Results of this study indicated that subjects who viewed prayer intrinsically tended to self-report less subjective

trait-anxiety ($r = -0.25$, $p < 0.05$), as predicted; whereas with subjects who viewed prayer extrinsically, no such significant correlational relationship with self-report trait-anxiety was found ($r = 0.16$). These results provide the first empirical evidence to demonstrate that viewing prayer intrinsically is a more adaptable and effective means in coping with anxiety than viewing prayer extrinsically, as postulated. The current findings show that having an internalized, well-integrated, high-believability, other-oriented view about prayer and viewing prayer as a foundation of one's religious life, instead of predominantly being self-preoccupied with one's own needs in prayer, is associated with less subjective trait-anxiety. It is possible that being concerned less with one's own needs, and being more interested in serving others and God, would relieve one from self-worry, and thus would experience less trait-anxiety. This conjecture is worth investigating in the future.

Findings also revealed that an intrinsic style of viewing prayer is significantly associated with a high frequency of prayer and a high believability about prayer. These findings further reinforced the notion that people who view prayer as a central component of one's life, and seek to integrate different areas of life in prayer would pray more frequently. Naturally, one would also expect them to believe in the effectiveness of prayer more, as shown by the data.

This study further illustrates the stance that it is constructive and informative to study the association of specific religious behaviors and their unique influence on specific areas of mental health. In the context of the current research on prayer, present findings show that people who carry an attitude that prayer is a way of serving others and God, a central part of one's life and motive, and an internalized activity, tend to express less trait-anxiety. "Intrinsic prayer" appears to be a "healthier" means to cope with anxiety. Findings showed that people self-reported less trait-anxiety when they fully integrated different facets of their life through prayer, or saw prayer as one of the central parts of life. These findings are commensurate with previous results, which showed that high intrinsic religious orientation was regarded as "healthier."

However, such a pattern was not demonstrated to be as clear in relation to viewing prayer extrinsically in the current sample. Although a positive correlational relationship was found between viewing prayer extrinsically and trait-anxiety, the coefficient did not reach the statistical significance level. Viewing prayer extrinsically also did not significantly correlate with low frequency of prayer ($r = 0.20$) and believability about prayer ($r = 0.18$).

Several implications can be drawn in light of the lack of a significant relationship with the extrinsic factor.

First, these results may simply show that viewing prayer as a way of solely serving the self, or personal gain, instead of caring for others or serving God does not necessarily associate with high self-report trait-anxiety. Results suggest that the extrinsic factor is irrelevant in predicting the level of trait anxiety, frequency and believability about prayer. Second, intrinsic and extrinsic styles of prayer do not represent polar opposites, as demonstrated by research in religious orientation reviewed above. One does not necessarily score high on one factor and low on the other factor. These two styles may simply describe different, rather than opposite ways of viewing prayer. Thus, they would not have an opposite correlational relationship with anxiety between each other. Third, it is also possible that the current results were biased by the social desirability factor. That is, since scoring high on the extrinsic prayer subscale involved endorsing items that imply using prayer basically for self-serving ends, this does not put the person in a positive light. Thus, the correlational relationship was under-estimated due to the fact that subjects were less likely to endorse extrinsic prayer items. The impact of social desirability in religious orientation and related research is still unclear, as reviewed. Further study in this area is recommended. In addition, the lack of significant findings with the extrinsic factors, in conjunction with obscure findings previously reported about the extrinsic religious orientation, raises doubts about the

construct validity of this factor.

In short, the current study represents the first empirical research that investigates the theoretical construct: intrinsic vs. extrinsic view of prayer, their association with frequency and believability about prayer, and trait-anxiety. The intrinsic factor is associated with several variables about prayer. However, refinement of the extrinsic factor is needed.

It is this researcher's opinion that other factors relating to prayer, such as the form (e.g. verbal vs. nonverbal; spontaneous vs. liturgical, etc.), length, consistency, and setting of prayer (e.g. individual vs. group prayer); and the population (e.g., college student vs. non-college population, and subjects from different age groups), etc. need to be further examined in order to elucidate their relationship with anxiety reduction and with other mental health variables.

This study only included self-report data of the self-perceived level of anxiety as the dependent variable. Measurements were subjective as to the degree of anxiety, or anxiety reduction. It would be of interest for future research to investigate if current findings could be generalized to objectively measure variables of anxiety, for example, muscular tension level used in Elkins, Anchor, and

Sandler's (1979) study.

In conclusion, the debate over whether religious behavior is beneficial or harmful to one's psychological health has lasted for over a century. It is the researcher's view that it is inaccurate to regard all religious behaviors as antithetical to one's psychological health. Neither is it valid to assume that all religious behaviors are helpful in promoting psychological health. The most appropriate question to address is: What types of religious behaviors are beneficial to what aspects of psychological health? This would provide more fruitful findings, and prevent one from over-generalizing results, consequently misinforming the public. The underpinnings of the current study illustrate this pre-supposition. In essence, it provides empirical findings in demonstrating whether one particular religious behavior, prayer, is helpful or not in coping with a mental health variable, state-anxiety. Results indicated that using the religious behaviors of prayer is a more effective means of reducing subjective state-anxiety, as compared with other means used in control groups. Further empirical research on the relationship between human psychology and religious behaviors would help to decipher the myriad impacts of religion on human behaviors, an area that has been largely misunderstood and neglected in the field of psychological science in recent years.

APPENDICES

Appendix A

Consent Form

1. I have freely consented to take part in a scientific study regarding verbal communication and anxiety conducted by Tommy Chan, M.A. under the supervision of Dr. Elaine Donelson, Professor of Psychology.

2. Participation in this research will involve three components:
   a) Today's session: this part of the study will require that I recall some troublesome life events, engage in a 10-minute communication-related activity (some of the subjects will be involved in prayer), and to answer some questionnaires measuring the way I feel and other personal variables. This session will take about one hour.
   b) Daily activity: I will be instructed to engage in a similar 10-minute communication-related activity daily for the following six consecutive days.
   c) Follow-up session: I will be required to answer some questionnaires regarding the way I feel and other personal variables. This session will take about 1/2 hour. The total time of participation will be about three hours.

3. This study has been explained to me and I understand the explanation that has been given and what my participation will involve.

4. I understand that I am free to discontinue my participation in the study at any time without penalty.

5. I understand that I (for psychology students) will receive research credits for my participation only when I complete all three components of this research as instructed. No partial credits will be given.

6. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of this study will be made available to me at my request.

7. I understand that my participation in the study does not guarantee any beneficial results to me.

8. I understand that, at my request, I can receive additional explanations of the study after my participation is complete.

9. I indicate my voluntary and anonymous agreement to participate by completing and returning all testing materials as instructed.

Appendix B

Instruction Sheet

The following pages include different sets of questions asking for some information about you, your family and your friends. Please answer different sets of questions according to the order presented. You will also be asked to engage in some type of communication-related activity. Please read different instructions carefully before you begin.

You should write your answers on the pages from p.3 to p.6, and p.9. However, beginning from p.7 (items 1 to 97), you should record your answers by blackening the appropriate circles on the inserted computer data sheet.

Please be sure to record your answers corresponding to the number of the items on the computer data sheet.

Since the study is strictly confidential and anonymous, please answer each question as honestly as possible. Please also remain quiet, and do not talk with other research participants while the session is in progress.

For now, please begin with p.3, and stop at the end of p.11 (item 76) before you are requested to continue.

Appendix C

(Social Functioning and Resources Scale)

SOME QUESTIONS ABOUT YOUR FAMILY AND FRIENDS

About how many friends do you have, people you know more than just casually? ..... ____ friends

How many close friends do you have, people you feel at ease with and can talk to about personal problems? ..... ____ friends

How many people do you know from whom you can expect real help in times of trouble? ..... ____ people

How many clubs and organizations (e.g., church group, union, PTA, bowling team) do you belong to ..... ____ clubs

Do you belong to a close circle of friends, a group of people who keep in touch with each other ..... __yes __no

How often do you attend religious services?

___ never
___ once or twice a year
___ several times a year
___ once or twice a month
___ every week
___ more than once a week

DURING THE LAST MONTH, have you done or attend, any of these activities?

	Together with another family member		Together with one or more friends	
	Yes	No	Yes	No
a. Athletic event	___	___	___	___
b. Board games (chess, checkers, Scrabble) ..	___	___	___	___
c. Card game	___	___	___	___
d. Concert, opera, or museums	___	___	___	___
e. Had a long talk	___	___	___	___
f. Helped out on some project	___	___	___	___
g. Hike or long walk	___	___	___	___

h. Hunting or fishing ...	___	___	___	___
i. Meeting of a club or organization	___	___	___	___
j. Party	___	___	___	___
k. Picnic	___	___	___	___
l. Swimming or tennis ...	___	___	___	___

YOUR FAMILY AND FRIENDS

DURING THE LAST MONTH, how often did you get together with one or more friends?

Friends visited at your home ___times

Got together with friends outside your home ___times

DURING THE LAST MONTH, how often did you visit with relatives?

Relatives visited at your home ___times

Visited with relatives outside your home ___times

Different people do their household tasks in different ways. DURING THE LAST MONTH, how have the following tasks been done in your household?

key: 1= you only
2= you mostly
3= you plus someone else equally
4= someone else mostly
5= someone else only
6= does not apply

Shops for groceries ..... ___
Plans and cooks meals ..... ___
Takes out garbage ..... ___
Cleans the house ..... ___
Does heavy housework ..... ___
Makes minor household repairs ..... ___
Tends the yard ..... ___
Handles the bill ..... ___
Decides how the money should be spent ..... ___
Brings car in for repairs ..... ___
Drives to family outings ..... ___
Helps children with homework ..... ___
Disciplines children ..... ___

If you indicate "someone else" helped with some of the above household tasks, was that person generally you spouse, child, or another person?

___spouse ___child ___another person

Family Activities

Do any of the following topics often cause disagreements in your family?

yes	no		yes	no	
___	___	Friends	___	___	Helping with chores
___	___	Relatives	___	___	Sex
___	___	Driving habits	___	___	Drugs
___	___	Politics	___	___	Alcohol
___	___	Money	___	___	Cigarette smoking
___	___	Use of the car	___	___	Discipline
___	___	Watching TV	___	___	Major purchases

Think of a person who is important to you. Indicate their relationship to you.

Relationship: ___spouse ___child ___parent ___other

How often do the two of you:	never	seldom	some-times	fairly often	often
Calmly discuss something together?	_____	_____	_____	_____	_____
Have a stimulating exchange of ideas?	_____	_____	_____	_____	_____
Disagree about something important?	_____	_____	_____	_____	_____
Become critical and disapproving?	_____	_____	_____	_____	_____
Have a good time together ...	_____	_____	_____	_____	_____
Become angry?	_____	_____	_____	_____	_____

Appendix D

(Demographic Inventory)

Some Facts About You
(Please put your answers on this sheet).

Date of Birth: _____ Age: _____ Sex: Female___ Male____

Marital status: (check)
single____ married____ divorce____ widowed____

Ethnic group: (check)
American Indian ____ Asian-Pacific ____
African-American ____ Hispanic ____
Caucasian ____ Others: (specify) ____

What year are you in school? (check)

Freshman____ Sophomore____ Junior____ Senior____
Graduate School____

(Description of the Most Distressing Event in the Last 12 Months)

The following are examples of troublesome life events that could cause subjective feelings of anxiety, worry, apprehension, and nervousness.

a) Worrying about the future
b) Death of a close friend
c) Trouble with friends, roommates, or neighbors
d) Argument with boyfriend or girlfriend
e) Breaking up with boyfriend or girlfriend
f) Death of a family member
g) Worrying about the performance of a class
h) Writing a research paper
i) Preparing for an upcoming examination
j) Worrying about finances
k) Legal problems
l) Assaulted or robbed, etc.

Please identify the most troublesome life event, in one or two statements, that happened to you during the last 12 months, which caused feelings of anxiety, worry, apprehension, tension, and/or nervousness.

_____

_____

Comparing to other troublesome life events in the past, how would you rate the level of anxiety regarding this event? (Please circle the appropriate number on this page).

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

None Very much

Level of anxiety

Appendix E

Coping Strategy Scale

Instructions: The following is a list of coping strategies people used in dealing with troublesome life events that cause anxiety, worries, apprehension, and nervousness. In coping with the most troublesome event in the last 12 months that you just identified, please indicate whether you have used each of the following strategy (1= yes; 2= no).

Please begin to put your answers by blackening the appropriate circles on the computer data sheet provided.

Key:
1= yes
2= no

1. Tried to see positive side
2. Tried to find out more about the situation
3. Took it out on other people when I felt angry or depressed
4. Tried to focus on God through prayer and worship
5. Tried to step back from the situation and be more objective
6. Talked with professional person (e.g. doctor, clergy, lawyer) about the situation
7. Kept my feelings to myself
8. Prayed for God's will about the situation
9. Prayed for guidance or strength
10. Took some positive action
11. Avoided being with people in general
12. Tried to be thankful to God in prayer because I may learn something good through the difficulty
13. Took things one step at a time
14. Talked with spouse or other relative about the problem
15. Refused to believe that it happened
16. Tried to be reminded of God's promises through prayer
17. Considered several alternatives for handling the problem
18. Talked with friend(s) about the situation
19. Tried to reduce the tension by drinking more
20. Prayed for God's help, direction, and peace
21. Drew on my past experience I was in a similar situation before
22. Exercise more
23. Tried to reduce the tension by eating more
24. Prayed for the resolution of the problem

Appendix F

(Feagin-Chan Intrinsic-Extrinsic Prayer Inventory)

Prayer Assessment Inventory

Instructions: The following is a list that describes how people see prayer. Please identify each statement with the response that best applies to you (1= strong agreement to 5= strong disagreement).

For items 33 and 34, please use choices below the statement. Please record your answers on the computer data sheet.

Key:

1	2	3	4	5
Strong Agreement				Strong Disagreement

25. What prayer offers me most is comfort when sorrow and misfortune strike.
26. I try hard to pray for all areas of my life.
27. Prayer helps to keep my life balanced and steady in exactly the same way as my other refreshing activities.
28. One reason for me to pray at church is because it would help me to be acceptable by the religious community.
29. The purpose of prayer is to secure a happy and peaceful life.
30. My prayer life really serves as a foundation of my religious life.
31. The prayers I say when I am alone carry as much meaning and personal emotion as those said by me during group situations.
32. Participating in prayer groups, or related activities is most important as a way of formulating good social relationships.
33. If not prevented by unavoidable circumstances, I attend prayer meeting, or I pray with other people about:
    1= more than once a week
    2= once a week
    3= two or three times a month
    4= once every month or two
    5= rarely
34. I read literature about prayer:
    1= frequently
    2= somewhat frequently
    3= occasionally
    4= rarely

5= never

35. It is important to me to spend periods of time in private prayer and meditation.
36. The primary purpose of prayer is to gain relief and protection.

Appendix G

(Description of the Current Most Distressing Event)

Similar to the previous question that asked you to identify the most troublesome life event in the last 12 months, please identify the most troublesome life event in one or two statements that is troubling you now, at this moment. That is, an event that is causing you feelings of anxiety, worry, apprehension, tension and/or nervousness now.

(If the current event qualifies as the most troublesome life event in the last 12 months, it is permissible to identify the same event reported earlier).

_____

_____

In the space below, please briefly describe how is it influencing you now? Also, what would be the worst possible scenario?

_____

_____

_____

_____

_____

Compared to other troublesome experiences, how would you rate the level of anxiety regarding this experience? (Please circle the appropriate number on this page).

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

None Very much

Level of anxiety

Appendix H

(Spielberger State-Trait Anxiety Inventory)
(State version)
Self Evaluation Questionnaire
Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs
STAI Form Y-1

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken the appropriate circle on the computer data sheet to indicate how you feel right now, at this moment, regarding the above identified most troublesome life event that is troubling you now.

There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

Remember: rate how you feel regarding the current most troublesome life event.

1: Not At All
2: Somewhat
3: Moderately So
4. Very Much So

37. I feel calm	1	2	3	4
38. I feel secure	1	2	3	4
39. I am tense	1	2	3	4
40. I feel strained	1	2	3	4
41. I feel at ease	1	2	3	4
42. I feel upset	1	2	3	4
43. I am presently worrying over possible misfortunes	1	2	3	4
44. I feel satisfied	1	2	3	4
45. I feel frightened	1	2	3	4
46. I feel uncomfortable	1	2	3	4
47. I feel self-confident	1	2	3	4
48. I feel nervous	1	2	3	4
49. I am jittery	1	2	3	4
50. I am indecisive	1	2	3	4
51. I am relaxed	1	2	3	4
52. I am content	1	2	3	4
53. I am worried	1	2	3	4
54. I feel confused	1	2	3	4
55. I feel steady	1	2	3	4
56. I feel pleasant	1	2	3	4

(Spielberger State-Trait Anxiety Inventory)
(Trait version)

Self-Evaluation Questionnaire
STAI Form Y-2

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and blacken the appropriate circles on the computer data sheet to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

Remember: rate how you generally feel.

1: Almost Never
2: Sometimes
3: Often
4. Almost Always

57.	I feel pleasant	1	2	3	4
58.	I feel nervous and restless	1	2	3	4
59.	I feel satisfied with myself	1	2	3	4
60.	I wish I could be as happy as others seems to be	1	2	3	4
61.	I feel like a failure	1	2	3	4
62.	I feel rested	1	2	3	4
63.	I am "calm, cool, and collected"	1	2	3	4
64.	I feel that difficulties are piling up so that I cannot overcome them	1	2	3	4
65.	I worry too much over something that really doesn't matter	1	2	3	4
66.	I am happy	1	2	3	4
67.	I have disturbing thoughts	1	2	3	4
68.	I lack self-confidence	1	2	3	4
69.	I feel secure	1	2	3	4
70.	I make decision easily	1	2	3	4
71.	I feel inadequate	1	2	3	4
72.	I am content	1	2	3	4
73.	Some unimportant thoughts runs through my mind	1	2	3	4
74.	I take disappointments so keenly that I can't put them out of my mind	1	2	3	4
75.	I am a steady person	1	2	3	4
76.	I get in a state of tension or turmoil as I think over my recent concerns and interests	1	2	3	4

Please stop here, and do not turn to the next page. The next segment of this session requires every one to begin at the same time. Please wait until you are told to proceed.

Appendix I

(Group Instruction Sheet)

(Group I)

Instruction

It is not uncommon for people who face anxiety in life to pray to God about the problem. Please pray about your current most troublesome life event that you just identified (i.e., the event that is causing you anxiety now).

Please pray as you usually would in the past.

You should simultaneously put your prayer in writing on the sheets of paper provided. In other words, please record your prayer in writing as you pray.

Please pray/write continuously without making any changes.

Write legibly, and use the single-spaced, one-sided format for about 10 minutes.

Please continue praying/writing until you are signaled to stop.

Please begin now.

(Group Instruction Sheet)

(Group II)

Instruction

It is not uncommon for people who face anxiety in life to write letters to a best friend about the problem. Please write a letter about your current most troublesome life event that you just identified (i.e., the event that is causing you anxiety now).

Please write as you usually would in the past.

Please write continuously without making any changes.

You should put your writing on the sheets of paper provided.

Write legibly, and use the single-spaced, one-sided format for about 10 minutes.

Please continue writing until you are signaled to stop.

Please begin now.

(Group Instruction Sheet)

(Group III)

Instruction

It is not uncommon for people who face anxiety in life to read biographical stories. Please read the story on the next page. Then, write your thoughts, reflections, and/or opinions about the story.

You should write any thoughts about the story as it relates to the current most troublesome life event that you just identified (i.e., the event that is causing you anxiety now).

Please write continuously without making any changes.

Write legibly, and use the single-spaced, one-sided format for about 10 minutes.

Please <u>continue</u> writing until you are signaled to stop.

Please begin now.

Appendix J

(Inspirational Stories)

(Inspirational Story 1):

Rollo Reese May was born in Ada, Ohio in 1909. Neither of his parents was well educated and May's early intellectual climate was virtually nonexistent. In fact, when his older sister had a psychotic breakdown some years later, May's father attributed it to too much education.

He spent most of his childhood in Michigan. May's parents had frequent arguments and eventually they separated. As a child May was not particularly close to either parent. His father moved frequently during May's youth, and his mother was a "bitch-kitty on wheels." He attributed his own two failed marriages to her unpredictable behavior and to his older sister's psychotic episode. May found solitude and relief from family strife by playing on the shores of the St. Clair River. He attended college at Michigan State where he majored in English. However, he was asked to leave school soon after he became editor of a radical student magazine. After receiving his bachelor from another college, May travelled throughout eastern and southern Europe. After returning to the U.S. he enrolled at Union Theological Seminary in New York. May did not enter the seminary in order to become a minister, but rather to ask the ultimate questions concerning the nature of human beings. He also studied psychoanalysis and worked as a counselor.

Prior to receiving his doctorate, May underwent the most profound experience of his life. While still in his early thirties, he contracted tuberculosis and spent three years at the Saranac Sanitarium in upstate New York. At that time there was no medication for the disease, and for a year and a half May did not know whether he would live or die. He felt hopeless.

He began to develop some insight into the nature of his illness. He realized that the disease was taking advantage of his helpless and passive attitude. He saw that the patients around him who accepted their illness were the very one who tended to die, while those who fought against their condition tended to survive. As May learned to listen to his body he discovered that healing is an active, not a passive process. The person who is sick must be an active participant in the therapeutic process. May realized this truth for himself as he recovered from tuberculosis, but it was only later that he was able to see that his psychotherapy patients also had to fight against their disturbance in order

to get better.

During his illness, May was writing a book on anxiety. After he recovered from his illness he wrote his dissertation on the subject of anxiety and the next year published it under the title The Meaning of Anxiety. He received his Ph.D in psychology in 1949. May has been a visiting professor at both Harvard and Princeton and has lectured at such institutions as Yale, Dartmouth and Columbia. He has also been the chairman for the Council for the Association of Existential Psychology and Psychiatry, president of the New York Psychological Society, and a member of the Board of Trustees of the American Foundation for Mental Health. Through his writings May has become the best known American spokesperson for the existential movement.

(Inspirational Story 2):

Erik H. Erikson was born in 1902 in Frankfurt, Germany, to Danish parents. His father left before the child was born, and the young Erikson moved with his mother to Karsruhe, where three years later, his mother married his pediatrician, Dr. Theodore Homburger. Erikson was given his stepfather's last name. He was not told for some years that Homburger was not really his father. Erikson later called this an act of "loving deceit." Thus, he was unsure not only his psychological identity, but also of his actual identity in a fundamental sense -- his name. He kept the name Homburger until he was 37 and changed it to Erikson in 1939, when he became an American citizen.

Another crisis of identity began when he was old enough for school. He considered himself a German, despite his Danish parentage, but his German classmates rejected him because he was Jewish. At the same time, his Jewish peers rejected him because of his tall, blond, Aryan appearance. At the synagogue, he was called "the goy." He later converted to Christianity.

He became a dropout from society for a while and wandered throughout Germany and Italy, reading, recording his thoughts in a notebook, and observing life around him. He described himself during that time as being morbidly sensitive and hovering on the vague borderline between psychosis and neurosis. He studied for brief periods at two art schools and had an exhibition in Munich, but each time he left formal training to resume his wandering, still searching for his own identity. This experience posed an significant impact of his personality theory on identity.

In 1927, at the age of 25, he was invited to come to Vienna to teach at a small school, established for the children of Sigmund Freud's patients and friends. During the next years, he received his training in psychoanalysis. He married a Canadian woman, and they emigrated to the U.S. in 1933 because of the Nazi. They settled in Boston, where Erikson set up a private practice specializing in the treatment of children.

He began to study for a Ph.D. in psychology at Harvard but quit after a few months because of disaffection with a formal program of academic study. In 1936, he was invited to the Institute of Human Relations at Yale, where he continued his work with both normal and troubled children and also taught at the medical school.

In 1943, Erikson also investigated the life of two American Indian tribes. He began to notice symptoms revolved around a sense of uprootness from one's cultural traditions and resulted in the lack of a clear self-image or identity, a

phenomenon he called identity confusion or more commonly known as identity crisis.

His strong interest in the role of history as it affects youth has resulted in a number of psychosocial studies, on such figures as Adolf Hitler, Maxim Gorky, Martin Luther and Mahatma Gandhi. Although Erikson received no university degrees, he remains extremely productive. His primary activity now is continued psychohistorical analyses to demonstrate the role of identity confusion in the lives of influential people.

(Inspirational Story 3):

Karen Horney was born in a small village not far from Hamburg, in northern Germany. Her father was a ship captain of Norwegian background, and her mother was Dutch. While the father was a devout Bible reader, domineering, imperious, morose, and silent, the mother was attractive, vivacious, and a freethinker. The father was away at sea for long periods, and when he was home, the opposing natures of the parents often led to arguments.

We can see the roots of Horney's theory of personality in her own childhood experiences. Her biographer, Jack Rubins, noted: "Her work comes through as a product of her personality and of her external milieu . . . filtered through her personality." For most of her childhood and adolescence, she doubted that her parents, particularly her father, wanted her.

The young Horney admired her father and desired his love and attention, but she was intimidated by him. She long remembered "his frightening blue eyes" and his stern, demanding manner. Throughout her early years she felt rejected by him. He made frequent disparaging comments about her appearance and intelligence. She felt belittled and unattractive, despite the fact that she was pretty.

She was close to her mother and became the "adoring daughter," as a way of getting affection. Until the age of 8 she was a model child, clinging and compliant, "like a little lamb," she wrote. In spite of these efforts, she still did not believe that she had the love and security she needed. Self-sacrifice and good behavior were not working, so she changed her tactics.

At age 9, she became ambitious and rebellious. She decided that if she could not have love and security, she would take revenge for her feelings of unattractiveness and inadequacy. Years later she wrote, "If I couldn't be beautiful, I decided I would be smart." She vowed always to be the first in her class. As an adult she came to realize how much hostility she had developed as a child. Horney's personality theory describes how a lack of love in childhood helps to foster basic anxiety and hostility.

At the age of 12, she decided to seek a medical career. In spite of spirited opposition from her father and her strong feelings of worthlessness and despair, Horney worked hard in high school to prepare herself for medical school. So strongly did her father resist the idea that, when she began her studies at the University of Freiburg, her mother left him and moved nearby.

At the age of 24, in 1909, she married Oscar Horney, a

Berlin lawyer, and in due course had three children and entered into psychoanalysis training.

In 1926, she and her husband separated, and six years later she emigrated to the United States, working first in Chicago, and then settling permanently in New York. During these years she developed most of her theory. Toward the end of her life, she became interested in Zen Buddhism, and she visited a number of Zen monasteries in Japan the year before she died.

(Inspirational Story 4):

The second of six children, Alfred Adler was born on February 7, 1870 and raised in a suburb of Vienna. Adler only knew a few Jewish children and so was influenced more by Viennese than by his Jewish culture.

Adler's early childhood was not a happy one. It was marked by sickness, an awareness of death, unhappiness, and jealousy of his older brother. He suffered from rickets, which kept him from running and playing with other children. At the age of 3, he witnessed the death of a younger brother in the next bed; at 4, Adler himself was close to death from pneumonia. It was then when he heard the doctor tell his father "Your boy is lost" that he decided to become a doctor himself.

A sickly child during the first two years of his life, he was pampered at first by his mother, only to be dethroned by the arrival of a a new brother. There is some suggestion of rejection on the part of his mother, but Adler was clearly his father's favorite.

As he grew older and his health improved a bit, he began to spend more time outdoors, primarily because he was not happy at home. In spite of his clumsiness and unattractiveness, he worked hard to become popular with his playmates and found a sense of acceptance and self-esteem that he had not found at home. In his personality theory, he emphasized the importance of a child's relations with his or her peer group. He saw the role of other children, both siblings and outsiders, as much more important to personality development than Freud did.

In school he was unhappy and was only a mediocre student. In fact, one of his teachers advised his father to apprentice him to a shoemaker; the teacher felt that the young Adler was unfit for anything else. He was particularly bad in mathematics, but through persistence and hard work he rose from a failing student to the best in his class.

In many ways, his childhood reads like a tragedy, it also reads like a textbook example of Adler's later theory of overcoming childhood weaknesses and inferiorities and shaping one's destiny instead of being shaped by it. The man who would give the world the notion of inferiority feelings certainly spoke from the depths of his own early experiences.

He later studied medicine at the University of Vienna. He entered private practice as an ophthalmologist but shifted after a few years to general medicine.

By 1910, although Adler was president of what was then called the Vienna Psychoanalytic Society and co-editor of its

new journal, he was also an increasingly vocal critic of Freudian theory. In 1911, Adler severed all connection with psychoanalysis and went on to develop his own system. In 1912, Adler founded the Society for Individual Psychology.

After serving in the Austrian army during World War I, Adler was asked to organize government-sponsored child-counseling clinics in Vienna. These clinics soon grew rapidly in number and popularity. In 1926, Adler made the first of an increasingly frequent series of visits to the U.S., where he taught and made highly successful lecture tours.

(Inspirational Story 5):

Harry Stack Sullivan spend his childhood on his parents' farm in Norwich, New York. His boyhood years were spend largely in isolation from others of his own age. He was the only child of his parents to survive and was one of very few Catholics in a small, predominantly Protestant community. His later phenomenal insight into the loneliness of schizophrenia may have stemmed from his own solitary years as a child. It is fascinating that Sullivan, who later stressed the importance of interpersonal relations, had such enormous difficulties dealing with people himself, especially during his childhood and adolescence. Sullivan's early life provides an obvious parallel with his personality theory.

His childhood was spent isolation not only from other children but also, in an emotional sense, from his parents. His father was taciturn and withdrawn. The young Sullivan never felt close to him. His mother was an embittered semi-invalid, constantly complaining to her only child about the former glories of her family and how degraded she felt by her husband's failure to be anything more than a factory laborer.

At school, Sullivan was always a misfit, accepted by no one, a shy, moody, reclusive, socially inept boy whose only esteem came from doing well in his classes. When he was 8 years old, he established his first close relationship, and it had a disastrous effect on his life. Longing for friendship and acceptance, he became friends with a 13-year-old boy who exploited Sullivan in a homosexual liaison. The nature of their relationship became known in the community, and this further ensured Sullivan's status as an outsider. Sullivan's biographer, A. H. Chapman reported that neither boy became heterosexual or married. Both eventually became psychiatrists.

After graduating from high school at the top of his class, Sullivan entered Cornell University but dropped out after a year; he had failed all of his courses. He supported himself by taking odd jobs and saved enough money to enter medical school in 1911, the only professional school one could enroll in at that time with only a high school degree. During his medical training, he studied psychoanalysis and entered into it as a patient. Following military service during World War I, he worked for the government until 1922, when he joined the staff of St. Elizabeth's Hospital.

In 1923, Sullivan moved to the Sheppard and Enoch Pratt Hospital in Baltimore and joined the teaching staff of the University of Maryland Medical School. Over the next several years, he developed his techniques of interpersonal psychiatry, working primarily with male schizophrenia; he did not get along well with female patients. He also received more than 300 hours of psychoanalysis during this period.

In 1929, Sullivan moved to New York City and established a private practice at a fashionable Park Avenue address. He continued to be very active in professional affairs. He was a founder and director of the Washington School of Psychiatry (a training institute), an editor of the journal of Psychiatry, and a consultant to the Selective Service Board and to UNESCO.

(Inspirational Story 6):

Henry A. Murray was born to great wealth. He spent his childhood in a house in New York City on what is now the site of Rockefeller Center. Summers were spent on a Long Island beach. While still a child, he accompanied his parents on four long trips to Europe.

At an early age, he became highly sensitized to the emotional problems and sufferings of others, due to his exposure to two neurotic aunts, one of whom was a hysteric while the other suffered intense bout of depression.

As a child, Murray was afflicted with internal strabismus (cross eyes). At the age of 9, in the dining room of his home, he was operated on to correct the condition. As a result, he no longer had internal strabismus; it was now external strabismus, thanks to a slip by the surgeon, and Murray was left without stereoscopic vision. After his surgery, no matter how hard he tried he was never able to play well at tennis, baseball, or any such game, because he could not focus both eyes on the ball. It was at that time that he began to stutter. He remained unaware of the visual defect until he was in medical school, when a physician asked him if he had had trouble playing games as a child.

These two defects -- stuttering and ineptness at sports -- created a need to compensate. When he played football, it had to be as quarterback (and he never stuttered when giving signals); he also took up boxing in school.

After Groton prep school, Murray went to Harvard. He majored in history and got mediocre grades because he devoted so much time in athletics. His career then followed a devious route to the study of personality. In 1919, he graduated from Columbia University Medical School as the top-ranking member of his class. Following that, he received an M.A. in biology from Columbia, then taught physiology for a short time at Harvard. In 1927, he received his Ph.D. in biochemistry from Cambridge University.

Murray's sensitivity to the sufferings of others was reinforced during his internship when he began to search for psychogenic factors in the backgrounds of his patients. Then, in 1923, he was greatly influenced by Jung's book Psychological Types.

In 1927, Murray was offered an appointment by psychologist Morton Prince as an assistant in founding the Harvard Psychological Clinic, which was set up expressly to study personality.

In later 1930's, Murray developed the well-known Thematic Apperception Test (TAT), one of the most widely used

projective measures of personality in both research and treatment settings. For some 25 years Murray investigated the work of author Herman Melville, and in 1951 he published an analysis of the psychological meaning of the novel Moby Dick. Murray stayed at Harvard until his retirement in 1962. Well respected and recognized in psychology, Murray has been awarded the Gold Medal Award of the American Psychological Foundation and the Distinguished Scientific Contribution Award.

(Inspirational Story 7):

Abraham Maslow was born in 1908 in Brooklyn, New York. His parents were immigrants with little education and little prospect of rising above the marginal conditions under which they lived. As with so many immigrant parents, their hopes were for the next generation; they hoped that their children would rise to a higher station in life. Maslow's father, at the age of 14, had walked and hitchhiked from Russia across all of Western Europe, so great was his ambition to emigrate to America. This drive and motivation to succeed seems to have been instilled in the young Maslow.

Maslow's childhood was not an idyllic one. As the only Jewish boy in his neighborhood, he was very aware of his minority-group status. By his own description, he was isolated and unhappy, growing up without friends or companions. He was not especially close to his parents. As so many others have done in similar situations of isolation and loneliness, Maslow turned to books for companionship. The library became the playground of his childhood and books and education the road out of the ghetto of poverty and loneliness.

At his father's insistence, Maslow began the study of law, but he decided after two weeks that he didn't like it. What he really wanted to do was study "everything," a desire his father found difficult to understand.

Maslow received his Ph.D. from Wisconsin in 1934 and returned to New York, first to Columbia University and then to Brooklyn College, where he remained until 1951. During his early post-Ph.D. years, Maslow continued his Wisconsin research on sexual behavior but shifted from monkeys to humans. The research lasted until 1941, when his interests changed at the start of World War II, an event that moved him deeply. The beginning of the war was an intensely emotional experience. Maslow told of watching, with tears streaming down his face, a ragtag parade, shortly after the attack on Pearl Harbor. "The moment changed my whole life," he wrote,"and determined what I have done ever since." He resolved to devote his life to the development of a psychology that would deal with the highest ideals and potentials of which we are capable. He wanted to improved the human personality and to demonstrate that human beings can display more noble behaviors than hatred, war, and prejudice. Thus, it was a personal experience that led to Maslow's theory of personality.

In 1951, he went to Brandeis University, where he later became chairman of the psychology department. He remained at Brandeis, developing and refining his theory until 1969. Toward the end of his life, he became an immensely popular figure. After he suffered a heart attack, he threw himself

into his work more vigorously than ever and gave up favorite activities such as plays, poetry reading, and long walks in the woods. In one of his last interviews, he said, "How can I piddle around at these things when work has to be done, and mankind has to be helped." During his lifetime, Maslow received a great many awards and honors, including election to the presidency of the American Psychological Association in 1967.

Appendix K

(One-item Manipulation Check)

97. How serious were you during the 10-minute prayer time? (Please record the answer on the computer data sheet).

1	2	3	4	5	6	7
Not Very Serious						Very Serious

Appendix L

(Instruction for the Following Six Days)

(Group I)

Before the end of today's session, please pay attention to the following instructions.
Instruction for the following six days:

1) You are to continue praying to God about the current most troublesome life event that you identified. Pray daily for the next six days just as you did in this session.

2) Before you pray, please be alone in a quiet place. Be silent for a brief moment. Then, pray and simultaneously put your prayer in writing on sheets of paper provided (single-spaced, one-sided format) for 10 minutes, approximately during the same time of the day. Please do not skip any day.

3) Pray as you usually would in the past.

4) Pray/write continuously without making any changes.

5) Start a new page each day and put the date, beginning time and closing time of the 10-minute segment on top of the page.

6) Please continue to pray for the same event identified, and do not switch to other troublesome life events during the 10-minute prayer time.

7) In the event that the troublesome life event originally identified no longer poses any feelings of anxiety, please continue to pray about the situation, perhaps in a different way. For example, you could thank God for feeling better, or praise God about the circumstance, etc.

8) Bring this instruction sheet and the following sheets of paper together with the file folder provided home for your daily assignment.

9) It is essential that you bring all your written materials back for your follow-up session in the file folder provided.

10) Research credits will be given contingent upon the completion of the assignment during the week, the return of the writing materials, and your 1/2 hour participation during the follow up session.

11)Please return all other materials before you leave this room.

12)Please return to the same room at the same time on the same day next week.

(Group II)

Before the end of today's session, please pay attention to the following instructions.
Instruction for the following six days:

1) You are to continue writing to your best friend about the current most troublesome life event that you identified. Write daily for the next six days just as you did in this session.

2) Before you write, please be alone in a quiet place. Be silent for a brief moment. Then, write on sheets of paper provided (single-spaced, one-sided format) for 10 minutes, approximately during the same time of the day. Please do not skip any day.

3) Write as you usually would in the past.

4) Write continuously without making any changes.

5) Start a new page each day and put the date, beginning time and closing time of the 10-minute segment on top of the page.

6) Please continue to write for the same event identified, and do not switch to other troublesome life events during the 10-minute letter writing time.

7) In the event that the troublesome life event originally identified no longer poses any feelings of anxiety, please continue to write about the situation, perhaps in a different way. For example, you could tell your friend that how you feel better, or to thank him/her for listening, etc.

8) Bring this instruction sheet and the following sheets of paper together with the file folder provided home for your daily assignment.

9) It is essential that you bring all your written materials back for your follow-up session in the file folder provided.

10) Research credits will be given contingent upon the completion of the assignment during the week, the return of the written materials, and your 1/2 hour participation during the follow up session.

11) Please return all other materials before you leave this room.

12) Please return to the same room at the same time on the same day next week.

(Group III)

Before the end of today's session, please pay attention to the following instructions.

Instruction for the following six days:

1) You are to continue writing your thoughts, reflections, and opinions about one biographical story provided, daily for the next six days just as you did in this session.

2) Before you write, please be alone in a quiet place. Be silent for a brief moment. Then, read one story, and write on sheets of paper provided (single-spaced, one-sided format) for 10 minutes, approximately during the same time of the day. Please do not skip any day.

3) Write continuously without making any changes.

4) Start a new page each day and put the date, beginning time and closing time of the 10-minute segment on top of the page.

5) Please do one biographical story daily in the order that is presented.

6) Bring this instruction sheet, biographical stories, and the following sheets of paper together with the file folder provided home for your daily assignment.

7) It is essential that you bring all your written materials back for your follow-up session in the file folder provided.

8) Research credits will be given contingent upon the completion of the assignment during the week, the return of the written materials, and your 1/2 hour participation during the follow up session.

9) Please return all other materials before you leave this room.

10) Please return to the same room at the same time on the same day next week.

Appendix M

Instruction Sheet
(Follow-up Session)

The following pages include different sets of questions asking for some information about you. Please answer different sets of questions according to the order presented.

Please record your answers by blackening the appropriate circles on the computer data sheet for item 1 to 61.

Since the study is strictly confidential and anonymous, please answer each question as honestly as possible. Please also remain quiet, and do not talk with other research participants while the session is in progress.

When finished, please return all the writing materials from the last six days, all other sheets of paper, and this packet. Then, you will receive research credits and a feedback sheet telling you about the study.

Please begin now.

Appendix N

(Spielberger State-Trait Anxiety Inventory)
(State version for the Follow-up Session)
Self Evaluation Questionnaire
Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs
STAI Form Y-1

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and to indicate how you feel right now, at this moment, regarding the current most troublesome life event that you identified during the initial session last week.

There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

Please record your answers on the computer data sheet.

Remember: rate how you feel regarding the current most troublesome life event that you identified during the initial session last week.

1: Not at all
2: Somewhat
3: Moderately so
4. Very much so

1. I feel calm	1	2	3	4
2. I feel secure	1	2	3	4
3. I am tense	1	2	3	4
4. I feel strained	1	2	3	4
5. I feel at ease	1	2	3	4
6. I feel upset	1	2	3	4
7. I am presently worrying over possible misfortunes	1	2	3	4
8. I feel satisfied	1	2	3	4
9. I feel frightened	1	2	3	4
10.I feel uncomfortable	1	2	3	4
11.I feel self-confident	1	2	3	4
12.I feel nervous	1	2	3	4
13.I am jittery	1	2	3	4
14.I am indecisive	1	2	3	4
15.I am relaxed	1	2	3	4
16.I am content	1	2	3	4
17.I am worried	1	2	3	4
18.I feel confused	1	2	3	4
19.I feel steady	1	2	3	4
20.I feel pleasant	1	2	3	4

Appendix O

(Johnson-Chan Prayer Effectiveness Scale)

Instructions: The following is a list of possible effects of praying. Please identify the response that best applies to you for each statement (1= strong agreement to 5= strong disagreement).

Key:

1	2	3	4	5
Strong Agreement				Strong Disagreement

33) Awareness of needs and realities:
Prayer helps me to acknowledge my real needs, to lay aside self-deception, and to develop better understanding of my problem.

34) Confession and sense of forgiveness:
Prayer helps me to find assurance of forgiveness and to gain a sense of relief in dealing with my problem.

35) Trust and relaxation:
Prayer helps me to release tensions, to bring peace ot mind, to dispose worry and fear, and to undergird insecurity with basic confidence in dealing with my problem.

36) Perspective and clarification:
Prayer helps me to see life steadily and whole in the perspective of God. Prayer also helps me to sort out confusions and to work out practical plans of action for my problems.

37) Decision and dedication:
Prayer helps me to relieve indecision in how I should deal with my problems.

38) Renewal of emotional energy:
Prayer helps me to experience euphoria and energy, and to inspire insights in dealing with my problems.

39) Social responsiveness:
Prayer helps me to become more socially sensitive to needs of other, and not only mine.

40) Joy, gratitude, and reconciliation:
Prayer affirms values, enlarges appreciation, and recognizes present good and helps me to remain joyful in light of my problems.

41) Loyalty and perseverance:
Prayer affirms ultimate goals of life, and helps me to persist to carry on in the face of obstacles and fatigue.

42) Integration of personality:
Prayer helps me to recollect the major purpose of conflicted motives, and helps me to unify the energies by focusing my attention on a supreme loyalty. It helps me to give life poise and inner peace.

Appendix P

Religious Opinion Survey

Instructions: The following is a list that describes how people see religion. Please identify each statement with the response that best applies to you (1= strong agreement to 5= strong disagreement).

For items 51 and 52, please use choices below the statement. Please record your answers on the computer data sheet.

Key:

1	2	3	4	5
Strong Agreement				Strong Disagreement

43. What religion offers most is comfort when sorrow and misfortune strike.

44. I try hard to carry my religion over into all other dealings in life.

45. Religion helps to keep my life balanced and steady in exactly the same way as my citizenship, friendship, and other memberships do.

46. One reason for my being a church member is that such membership helps to establish a person in the community.

47. The purpose of prayer is to secure a happy and peaceful life.

48. My religious beliefs are what really lie behind my whole approach to life.

49. The prayers I say when I am alone carry as much meaning and personal emotion as those said by me during services.

50. The Church is most important as a place to formulate good social relationships.

51. If not prevented by unavoidable circumstances, I attend Church about:
    1) more than once a week
    2) once a week
    3) two or three times a month
    4) once every month or two
    5) rarely

52. I read literature about my faith (or church):
    1) frequently
    2) quite frequently
    3) occasionally
    4) rarely
    5) never

53. It is important to me to spend periods of time in private religious thoughts and meditation.

54. The primary purpose of prayer is to gain relief and protection.

Appendix Q

(Religious Behavior Survey)

Some Facts About You

55.What is your religious preference?
1)Catholic 2)Protestant 3)Jewish
4)Others:(specify)_____ 5)None

56.How much do you believe in the effectiveness of prayer?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
None Very much

57.How important is prayer in your life?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
None Very much

58.How often do you engage in personal prayer on average?
1) never
2) once a year or less
3) once every 6 months
4) once a month
5) 2-3 times a month
6) once every week
7) 2-3 times a week
8) 4-6 times a week
9) once every day
10)more than once every day

59.How often do you read the bible on average?
1) never
2) once a year or less
3) once every 6 months
4) once a month
5) 2-3 times a month
6) once every week
7) 2-3 times a week
8) 4-6 times a week
9) once every day
10)more than once every day

Appendix R

(Final Manipulation Check)

60. How serious were you during this last week's assigned activities?

1	2	3	4	5	6	7
Not Very Serious						Very Serious

61. How serious were you during the participation of today's segment of the study?

1	2	3	4	5	6	7
Not Very Serious						Very Serious

What do you think this study is all about? Include any comments regarding this study.

The End.

Please return all the writing materials from the last six days, all other sheets of paper, and this packet. Then, you (psychology students) will receive research credits and a feedback sheet.

Appendix S

Feedback Sheet

The current study primarily investigates the use of prayer in coping with anxiety. Since an experimental design was utilized, participants were involved in one of the three verbal communication methods during the treatment condition. Pre- and post-measurements of the level of anxiety were recorded and compared among different groups.

Other factors involved in the use of prayer in coping with anxiety such as the believability, frequency, and orientation of viewing prayer were also studied in relation to its anxiety-reduction effects.

Although the relationship between the use of prayer, and its anxiety reduction effects are widely practiced and accepted in the Christian and other religious world views, only scanty empirically-based, psychological research could be found. This study aims to provide some data regarding the relationship between the use of prayer and its anxiety coping properties.

Some of the seminal works regarding religious behavior and mental health issues include: G. W. Allport (1950)'s The Individual and His Religion, D. Batson and W. L. Ventis (1982)'s The Religious Experience, and P. E. Johnson (1956)'s Psychology of Religion.

A brief summary of the results of this study will be available to interested participants in the future. Please drop a note to the principal investigator, Tommy H. M. Chan, M.A. at the Graduate Office of Psychology, Room 149 Snyder Hall, MSU, E. Lansing, MI 48825 if you are interested to obtain a copy.

All data collected will continue to remain confidential and anonymous throughout the course of data analysis and report.

Thank you for your participation.

Appendix T

(Research Participants Recruitment Advertisement)

RESEARCH PARTICIPANTS NEEDED

Title: Verbal Communication and Anxiety
Nature of Participation: Completing surveys and involving in a 10-minute communication-related activity.

Participation time required:
a) Initial session: one hour
b) Weekly activities: 10 minutes each day for 6 days
c) Follow-up session: 30 minutes
Total: 2 1/2 hours

Date/Time/Place:

Period 1
4/29/92 (Wed.) at 5:15 - 6:15 p.m. in 321 Baker Hall
5/6/92 (Wed.) at 5:15 - 5:45 p.m. in 321 Baker Hall

Period 2
4/30/92 (Thurs.) at 4:15 - 5:15 p.m. in 455 Baker Hall
5/7/92 (Thurs.) at 4:15 - 4:45 p.m. in 455 Baker Hall

Period 3
5/1/92 (Fri.) at 9:00 - 10:00 a.m. in 455 Baker Hall
5/8/92 (Fri.) at 9:00 - 9:30 a.m. in 455 Baker Hall

Period 4
5/11/92 (Mon.) at 5:00 - 6:00 p.m. in 555 Baker Hall
5/18/92 (Mon.) at 5:00 - 5:30 p.m. in 555 Baker Hall

Period 5
5/19/92 (Tues.) at 5:00 - 6:00 p.m. in 555 Baker Hall
5/26/92 (Tues.) at 5:00 - 5:30 p.m in 555 Baker Hall

Period 6
5/20/92 (Wed.) at 5:00 - 6:00 p.m. in 321 Baker Hall
5/27/92 (Wed.) at 5:00 - 5:30 p.m. in 321 Baker Hall

Period 7
5/21/92 (Thurs.) at 5:00 - 6:00 p.m. in 455 Baker Hall
5/28/92 (Thurs.) at 5:00 - 5:30 p.m. in 455 Baker Hall

Period 8
5/22/92 (Fri.) at 9:00 - 10:00 a.m. in 555 Baker Hall
5/29/92 (Fri.) at 9:00 - 9:30 a.m. in 555 Baker Hall

Criteria for participation:

Individuals who meet the following criteria will be accepted to the study:
a) You do not have strong feelings against religion and prayer practices.
b) You have engaged in personal prayers.

Benefits:
a) be familiarized to the a research area in psychology of religion.
b) access to the research findings in the future.

If interested, please print your name, phone number, and choose one of the eight periods listed that you can participate on the sign-up.

Please write the time slot and location you choose on your calender as a reminder.

A copy of the sign-up sheet will be available on a bulletin board in the hall way facing the Graduate Office of the Department of Psychology (135 Snyder Hall).

For further information, please call the principal Investigator: Tommy Chan, M.A.
1613 Drexel Rd.
Lansing, MI 48915
(517) 482-5119

Appendix U

Relevant Correlational Coefficients

	FP	FC	FA	TA	P.Freq.	P.Bel.	JCPE	IO	EO ...
D.Dis	0.12								
FP		0.14	-0.24*						
FC									
FA									
IP				-0.25*	0.77**	0.67**	0.66**	0.84**	
EP				0.16	0.20	0.18	0.39**	0.7**	
SRS									
Time 1									
Time 2									
Time 3									

Key:
D.Dis= Degree of distress of the most troublesome event in the last 12 months.
FP= Frequency of using prayer as a coping strategy.
FC= Frequency of using cognitive method as a coping strategy.
FA= Frequency of using avoidance as a coping strategy.
IP= the intrinsic prayer subscale of the Feagin-Chan Intrinic-Extrinsic Prayer Inventory
EP= the extrinsic prayer subscale of the Feagin-Chan Intrinic-Extrinsic Prayer Inventory
TA= Trait Anxiety (T-STAI).
P.Freq= Frequency of prayer.
P.Bel.= Degree of Believability about prayer.
JCPE= ratings in Johnson-Chan Prayer Effectiveness Scale.
IO= Intrinsic religious orientation.
EO= Extrinsic religious orientation.
SRS= Social Functioning and Resources Scale.
Time 1= State-Anxiety scores (S-STAI) at Time 1
Time 2= State-Anxiety scores (S-STAI) at Time 2
Time 3= State-Anxiety scores (S-STAI) at Time 3
Gain 1= Time 2's S-STAI scores minus Time 1's S-STAI scores
Gain 2= Time 3's S-STAI scores minus Time 1's S-STAI scores
IP2= second measure of the intrinsic prayer subscale of the Feagin-Chan Intrinic-Extrinsic Prayer Inventory
EP2= second measure of the extrinsic prayer subscale of the Feagin-Chan Intrinic-Extrinsic Prayer Inventory

	Time 1	Time 2	Time 3	Gain 1	Gain 2	IP2	EP2	EP
D.Dis								
FP								
FC								
FA								
IP						0.90**		0.31**
EP							0.68**	
SRS	-0.16	-0.16	0.03	-0.03	0.19			
Time 1				-0.33**	-0.49**			
Time 2				0.57**	-0.07			
Time 3				0.09	0.50**			

(n = 101)
* Significance at 0.05 level; ** Significance at 0.01 level (2-tailed)

Figure 5: A Correlation Matrix with Relevant Coefficients

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