A Review of the Evidence Regarding the Behavioral Medical and Psychological Efficacy of Christian Prayer*

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Prayer represents a vital component of modern life that influences psychological, bodily, and spiritual health. This article reviews psychological aspects of prayer and then explores the effects of prayer and prayer-like interventions upon biological systems. Next, evidence is explored which provides clues to the extent that prayer might influence the health of human and nonhuman organisms. Finally, the effects of prayer are discussed in light of a series of reviewed studies.

Introduction

Christian prayer, as a psychological and behavioral medical intervention, enjoys empirical, anecdotal, and theoretical support as a means to influence human behavior and experience. Yet, most mental health professionals are unaware of the effect that prayer exerts on biological and psychological systems. Hence, mental health professionals should familiarize themselves with the prayer literature, because the data shows that not only does prayer remain relevant to the world view of many clients and their communities, but prayer can exert a modest, but significant effect on biological and psychological systems.

Prayer remains an activity practiced by many Americans. According to Greeley (1991), survey data for the last half century shows that over 95 out of every 100 people profess belief in God, three out of four believe in life after death, three out of four accept the divinity of Jesus Christ, three out of five believe in hell, two out of five go to religious services (three out of five of those who are over forty), nine out of ten pray weekly, one out of two pray daily, and one out of four pray several times a day. The data depicts a spiritual populace, seeking God in prayer, looking for a special way to relate to the divine.

The fact that prayer plays a central role in Americans' dealing with psychological and medical issues finds expression in the popular media, cyberspace, and academe. A recent cover story in a national news magazine (Gibbs, 1995) reported the role prayer played in purportedly healing a little girl from a brain tumor. The same article quoted Christians claiming to gain ego strength by perceived interaction with God in prayer. In cyberspace *Christianity On-line* sponsors bulletin boards on which Christians post prayer requests for psychological and medical problems. Sometimes fellow Christians download these prayer requests and whole churches intercede for the petitioners. Also, on-line pamphlets cover theological issues such as the interrelationship between grace and prayer. Recently, the *American Psycho-logist* published a breakthrough article in which Jones (1994) argued that religion "could participate as an active partner with psychology as a science" (p. 184). A large part of this psychology/religion integration will include prayer.

Prayer has relevance to the subspecialty of behavioral medicine. A survey (Bearon and Koenig, 1990) of 40 adults (65-74 years) showed that mature people pray regularly for their health. Over half of the respondents reported praying for help and healing the last time they experienced a medical symptom. Respondents prayed most for serious symptoms which required medical attention. Results showed that prayer and medical treatment were not mutually exclusive. Further research suggests that praying with distressed patients is a therapeutic, mainstream activity. In a survey of family doctors from Illinois, Koenig, Lucille, and Dayringer (1989) found that many physicians pray with older patients and believe that it promotes health.

Relevant to the modern worldview and to health issues, prayer and prayer-like activities have been empirically investigated. This research is important to the mental health professional's understanding of prayer, but often important findings related to prayer go underreported. Benor (1992), a researcher and physician, found from a review of 150 studies of prayer and prayer-like techniques employed toward enzymes, plants, animals, and people that more than half of the scientific studies yielded significant results. Benor observed that if "healing were a medication, it would be on the market" (p. 74.)

A fuller understanding of prayer will enable psychologists to make this therapeutic behavior less professionally obscure and more available to clients. Awakened interest in prayer may generate innovations in Christian counseling. That the National Institute of Health awarded $28,800 in 1993 to study prayer interventions for substance abuse, suggests that a trend may already be underway (Health Responsibility Systems, Collective Work & Database, 1994).

This article represents an attempt to help mental health professionals further understand prayer and its psychological and biological effects on living systems. After first defining prayer from a Christian perspective, summaries of prayer studies relevant to mental health professionals, especially to practitioners of behavioral medicine, will be presented. This article also compiles anecdotal and theoretical/theological observations germane to the prayer and its interface with psychology. The following sections argue from empirical data that prayer correlates with beneficial changes in physiological systems of people who pray, that prayers of a person or a group may influence the psychological and biological systems of others, and that prayer correlates with psychologically desirable states and outcomes. Over-all, this article provides an overview of prayer for interested mental health professionals and behavioral medicine specialists.

Psychotheological Aspects of Prayer

What is prayer? What is its nature and how is it defined? The nature of prayer differs across religions depending upon the conception of God. Christianity finds God essentially all-loving and all-powerful and revealed in Jesus Christ. Traditionally, Christian prayer is intimate communication with the benevolent deity (Finney and Malony, 1985). This intimate communication so varies, even from biblical times, that precisely defining prayer is difficult.

> There is no one definition of prayer that will completely cover all references to it in the Bible. Prayer is often described in terms of intercourse and spiritual communion with God, with or without the mediation of priests or heavenly beings; it is usually, but not necessarily, vocal. By it the petitioner's will and activities are identified with God, effecting an intimate personal contact and relationship with Him (Masterman, 1967, p.669).

Working toward an understanding of prayer has occupied the church throughout the duration of its existence. According to the *New Catholic Encyclopedia* (1967) the Church's understanding of prayer developed through three epochs of church history: the patristic age, the scholastic age, and the modern age. In the patristic age, the church fathers conceived of prayer as "an appeal for good things made to God by devout people" and "a conversation and union between man and God" (p. 671). In the scholastic age theologians conceived of prayer often in terms of mere petition, asking for something without necessarily conversing. Most recently the understanding of prayer has broadened. In the wide sense the conception of prayer includes all prayer forms and emphasizes that the activity of prayer entails not only a monologue but a dialogue in which man relates to God, who has first related through His word and especially through the Word, Jesus, incarnate.

Throughout church epochs, the "conversation with God" in which Christian worshipers have engaged includes verbal prayers and mystical/contem-plative prayers. Verbal prayer includes holy activities like petition, intercession, thanksgiving, and adoration. Mystical prayer, or contemplative prayer, can be defined as fully attending to God in a passive, nondefensive, nondemanding, open, nonverbal way. Contemplative prayer is not a technique; it is an interpersonal response to the Almighty. Contemplatives wait on God to deepen their confidence in his power and love so that they can grow in Christlikeness (Finney and Malony, 1985, p. 105).

According to the *Modern Catholic Encyclopedia* (Farrell, 1994) either verbal or contemplative prayer can be shaped by the needs, intentions, and attitudes that Christians bring to the activity of prayer. In verbal and nonverbal approaches to God, the worshiper often develops an internal posture and approaches the throne of grace with that stance. *Petition* is a form of prayer whereby the petitioner requests from God that God provide for personal needs or desires. God is asked to intervene so that the petitioner may receive their object. *Gratitude* is a prayer of thanks for the gifts bestowed by God. This prayer responds "to the wonders and joys of daily life by acknowledging and exhibiting appreciation to the one who has provided all" (p. 686). *Adoration* is the prayer that provides God with the devoted love, veneration, praise, and joyful submission that is due to God alone. *Reparation* is penitential prayer. It is prayer wherein one recognizes one's faults, feels sorrowful about them, and seeks reunion with God to further glorify Him.

Effects of Prayer and Prayer-Like Interventions within Biological Systems

Clinical and research evidence indicates that some forms of prayer cause measurable, healthy changes in the organism, which in turn positively influence mental health. One form of prayer, recognized by Christian counselors (Kelsey, 1976) and behavior medicine specialists as particularly beneficial is the "Jesus Prayer" of Eastern Orthodoxy. Psychologically and medically beneficial, this prayer was recommended by St. Gregory Palamas, whose manuscript suggested that the Jesus Prayer should be conducted as follows:

> Sit down alone and in silence. Lower your head, shut your eyes, breathe out gently, and imagine yourself looking into your own heart. As you breathe out say, "Lord Jesus Christ, have mercy on me." Say it moving your lips gently, or simply say it in your mind. Try to put all other thoughts aside. Be calm, be patient and repeat the process very frequently (from Benson, 1975 in Marcer, 1986, p. 23).

Of course, St. Gregory was neither a psychologist nor a medical researcher. He and his followers sought God. Yet, a by-product of the Jesus Prayer is holistic stress reduction, thus associating therapeutic as well as spiritual, efficacy with prayer.

> Gregory did not advise his followers to recite the Jesus Prayer in order to wean them off benzodiazapines or to cure their hypertension! He did so in order that they might have union with God [but] ... irrespective of its spiritual value, meditation has the power to combat a wide range of illnesses, especially those believed to be associated with stress. Much of the impetus for exploring the clinical application of meditation came from research into the relaxation response, which was conducted by Herbert Benson and his colleagues at the Harvard Medical School (Marcer, 1986, p. 23).

Benson conducted early research on Transcendental Meditation (TM), which in practice, although not in theology, much resembles the "Jesus Prayer." This research gave rise to considering the benefits of prayer and meditation as stress reduction tools. Repetitive prayers like the "Jesus Prayer" may benefit worshipers, because the spiritual practice reverses the "fight-or-flight" stress response.

The fight-or-flight response can adversely affect health. Grounded in evolutionary utility, the stress response causes involuntary, physiological changes when a person feels threatened. Unfortunately, the body responds to life threatening and non-life threatening stressors in much the same way. For example, an employee's body may respond to a non-life threatening boss' frown in the same way it would if confronted by a life threatening predatory animal. In either circumstance dramatic physical changes can occur. Confronted by a real or imagined threat, the hypothalamus activates the sympathetic nervous system to release adrenaline and noradrenaline. Once released into the soma, these messengers create an aroused state (Benson and Stuart, 1992).

Continual arousal in the face of marginal threats menaces heath because of the taxing psychosomatics involved. Metabolism, heart rate, blood pressure, breathing rate, and muscle tension all increase. Prolonged over time, the stress response creates physical problems like hypertension, heart trouble, headaches, digestive and stomach anomalies and lowered immunity. The stress response also correlates with psychological problems like anxiety, panic, pessimism, and so forth.

Problems associated with stress led researchers to look for a stress antidote. Benson found that the body possesses the capacity to counter-balance the stress response with a relaxation response. During the relaxation response markers of psychological stress reverse. Heart rate drops, breathing rate drops, and so forth. All of this has been scientifically documented. Research into TM showed that meditation can reverse the stress response and trigger the relaxation response. Clinical evidence gathered by Benson and his colleagues at the Mind/Body Institute further suggests that repetitive Christian prayer triggers the relaxation response (Benson and Stuart, 1992). Their case studies report abatement of stress-related physical problems, as well as lessened anxiety, freedom from worry, and reduced negativism. At the same time, self-esteem increases among repetitive prayer practitioners, characterized by a sense of improved performance and efficiency.

Furthermore, a recent study into the health/spirituality relationship con-ducted by Benson's colleague, Jared Kass, Ph.D. at Boston's Deaconess Hospital:

> … found that a significant number of those who elicit the relaxation response ... reported an increase in positive attitudes associated with spirituality. Spirituality in this study was linked to increased life

> purpose and satisfaction. They also found that an increase in positive attitudes contributed to improvements in health. (Benson and Stuart, 1992, p. 38).

In summary, repetitive prayer and prayer-like activities appear to trigger mechanisms associated with the relaxation response and correlates with positive attitudes and good health.[1]

In *The Wellness Book* (1992) Benson advises that two components are required to elicit the relaxation response, (a) a mental focusing device like a repetitive prayer, word, or sound, and (b) a passive attitude toward distracting thoughts, directing the mind back to the prayer when clients become conscious of straying into a train of thought. His instructions for eliciting the relaxation response sound like the writing of an updated St. Gregory:

> (a) Pick a focus word, phrase, image or prayer. It can be rooted in your personal belief system. For example a Christian might choose the opening of Psalm 23, *the Lord is my shepherd* .... (b) Sit quietly in a comfortable position. (c) Close your eyes. (d) Relax your muscles. (e) Breathe slowly and naturally, and as you do, repeat your focus word or phrase as you exhale. (f) Assume a passive attitude. Do not worry about how well you are doing. When other thoughts come to mind, simply say to yourself, "Oh well," and gently return to the repetition. (g) Continue for ten or twenty minutes. (h) Practice the technique once or twice daily. (Benson and Stuart, 1992, p. 46).

Benson recommends utilizing the technique in the morning and in the evening for twenty minutes each time. The location should be relatively free from distractions. While relaxing the worshiper should assume a comfortable position, kneeling or sitting with relaxed muscles. Often, while eliciting the relaxation response through prayer, worshipers find it useful to breathe deeply, coordinating their prayer with their breath. Additionally, clinical evidence shows that combining faith with repetition of prayer words increases the likelihood that beneficial psychophysiological effects of the relaxation response will occur. Prayers that Christians find beneficial in the clinical setting include "Come, Lord," "Lord, have mercy," "Our Father," "Our Father who art in heaven," "Lord Jesus Christ, have mercy on me," "Hail Mary," and "The Lord is my shepherd" (Benson and Stuart, 1992, p. 51). Benson found that practices of this sort globally impact a person's life. As prayer elicits the relaxation response, a person tends to carry the physiologically based sense of peace into everyday life.

Some medical experts agree with Benson that prayer, along with other relaxation producing techniques, improves health. Hall and O'Grady (1991) remark in *Psychoneuroimmunology* that

> ... interventions that are thought by some to have health promoting effects include guided imagery, biofeedback, *prayer* as well as the common denominator in all these strategies, relaxation. Recent studies suggest that these types of interventions may be capable of altering the immunocompetence of the individual (p. 1068).

While medical experts like Benson, Hall and O'Grady advance the idea that prayer is a factor in health improvement, literature searches reveal little direct experimental evidence that changes occur in the relaxed bodies of those who pray. Benson and his colleagues based his inferences that repetitive prayer triggers the relaxation response from their TM studies and uncontrolled clinical evidence. Similarly, Hall and O'Grady have lumped prayer with relaxation in general which is proven to enhance immunity (Masters, Burish, Hollon, and Rimm, 1987). Hence, their association of prayer with immuno-enhancing relaxation strategies is inferential. Perhaps future research will strengthen and factualize these reasonable assertions.[2]

One study, however, did find positive measurable bodily changes in praying Christians. Surwillo and Hobson (1978) were interested to see if EEG's of praying Christians would show the same slowing of brain waves found in average Transcendental Mediators. They selected six subjects from the evangelical, Protestant Church of God, chosen because of their devout religious life. Subjects devoted an average of 30 minutes a day to prayer, some praying up to an hour. During the experiment, subject's EEG's were taken at rest before prayer, during prayer, and after prayer. Prayer itself consisted mostly of adoration and praise of God. Contrary to the hypothesis, brain waves of these advanced worshipers actually increased during 20 minute prayer conditions. "From this standpoint, it would appear that the individual's state of consciousness during prayer is quite different from that reported to occur during Transcendental Meditation" (p. 140). Accounting for this, the investigators observed that advanced Transcendental Meditation and

advanced yogic meditation have produced similar high-frequency brain wave activity among adepts. They suggested that

> ... highly experienced meditators—persons who would be considered "masters"—may show an acceleration in frequency of electrocortical activity, particularly during deep meditation. The similarity of these results to those obtained in the present investigation from subjects during prayer is striking indeed. (p. 142).

Anecdotally, a subject in the study whose brain waves shifted the most during prayer also exhibited the most devout behavior outside of the laboratory in her everyday lifestyle. Getting up at 5 a.m. daily, she prayed for at least an hour, reportedly with tears flowing freely down her cheeks. Although the very small number of research subjects in this study precludes generalization or even definitive interpretation, the results are suggestive that devout Christian prayer can dramatically and measurably affect the body.

Prayer Within Human and Nonhuman Biological Systems

Despite limited scientific evidence that prayer for others improves their health, people continue to pray recovery from illness and believe that it benefits their health. A recent survey of cystic fibrosis patients and their families (Stern, Cana, and Doershuk, 1992) revealed that among the most common non-medical therapies utilized by respondents, patients and their families overwhelmingly was to seek out groups of people to pray for them. Survey data indicated that respondents perceived group prayer to increase their or their loved-one's health and to provide psychosocial benefits. Group prayer was the most common nonmedical therapy (48%); of these, 65% used group prayer frequently, and 93% perceived benefit (primarily maintaining health in asymptomatic patients). In addition, group prayer reportedly benefited patient/family members by demonstrating family/community support. The fact that 93% perceived benefit when others pray for them is an important finding. The mere fact that people believe that others' prayers improve their health makes the matter worthy of further research. Two studies have looked at prayer's effects on humans.

Collipp (1969, in Dossey, 1993) conducted a small study on the effect of prayer on a group of children with leukemia and compared outcomes to a group of children in a no-prayer control group. The names of 10 out of 18 leukemic children were randomly selected and sent to individuals who had agreed to organize a prayer group. Ten families were enlisted in their Protestant Church to pray daily for these 10 children. They were not told that this was a study on the efficacy of prayer. Each family received weekly reminders of its obligation. The 10 Protestant families prayed for the 10 children in the experiment group for 15 months. The results were startling: "Of 10 children with leukemia in the experimental group 7 were still alive; of 8 children with leukemia in the control group, only 2 were alive" (p. 202). The difference in survival was at the 90% level of significance. Collipp concluded that the data supported the hypothesis that Christian prayers for the sick are efficacious. However, a less enthusiastic Dossey (1993) criticized the experiment for having too few research subjects—compromising generalizability of findings, no checks on the people praying were made (to see if they in fact prayed), and diagnostic dissimilarities between prayer and control groups made true comparison between groups difficult.

Another, better controlled, study concerned the impact of prayer upon coronary patients. A cardiologist, Byrd (1988) designed and implemented a now classic study at the coronary care unit of San Francisco General Hospital. Over ten months, 393 patients admitted to a hospital coronary care unit for heart attack. Patients were assigned randomly to either an intercessory prayer group (IP) or a no prayer group (NP) control condition. Christians prayed for the IP group from outside the hospital. The NP group received no prayer. Patients and hospital staff were blind to which patients were in which group. At the study's finish, the prayed-for group were five times less likely to need antibiotics than no-prayer counterparts. Also, prayed-for patients had significantly less pulmonary edema (a heart related lung problem) than no-prayer patients. Prayed-for patients were intubated (artificially ventilated) less often than no-prayer patients; and fewer people in the prayed-for group died, although the result was not statistically significant. Byrd (1988) wrote, "These data suggest that intercessory prayer to the Judeo-Christian God has a beneficial therapeutic effect in patients admitted to a coronary care unit" (p. 826).[3]

While more research is needed to empirically establish the efficacy of people praying for one another, one group of Christian researchers have begun to establish that prayer in fact contributes to health of non-human biological systems. Spindrift is an organization of Christian parapsychologists who evaluated the effects of prayer on unlikely research subjects, usually beans, sprouts, yeast, and so forth. They have found

that prayer actually does have a measurable biological effect on living physical systems. For example, one Spindrift researcher, Fairfax (1993), reported findings of bean experiments to show that prayer influences the capacity of beans to hydrate. Results further showed that beans tended to sprout more if they had been prayed for, and that mental proximity to beans in the minds of those praying influenced the weight gain of beans. Spindrift (1993) asserts that such experiments have scientific credibility and that some of their work has received partial endorsement by Ph.D.s conversant in experimental work. This last assertion, however, was published by Spindrift itself and no names were given; hence, we have no way to judge whether truly qualified experts have independently endorsed their research. A literature review has found only Dossey addressing Spindrift's work.

Dossey (1993), an ecumenically oriented authority on prayer research, has given credence to Spindrift's Christian prayer research. In *Healing Words* (1993) Dossey suggests that Spindrift's research into the impact of prayer on biological systems sheds light on how exactly Christian prayer (and prayer in general) might be most effective.

> The Spindrift organization ... has performed simple laboratory experiments showing that prayer works. After proving that prayer is effective, they proceeded to investigate which type of prayer strategy works best. One of their most important contributions is the distinction they make between *directed* and *nondirected* prayer. Practitioners of directed prayer have a specific goal, image, or outcome in mind. They are "directing" the system, attempting to steer it in a precise direction. They may be praying for the cancer to be cured, the heart attack to resolve itself, or the pain to go away. Nondirected prayer, in contrast, is an open-ended approach in which no specific outcome is held in mind. In nondirected prayer the practitioner does not attempt to tell the universe [or, in the Christian's case, God] what to do (p. 97).

For Dossey, the prayer principle drawn from Spindrift experiments corroborates a biblical principle. "One need only pray for what's best - the 'Thy will be done' approach" (p. 100). In the Lord's prayer, prescribed by Jesus to his disciples, this approach of surrendering the individual, directive will to God, while adapting an agendaless, nondirective approach to prayer is implicit in Jesus' words: "... your will be done on earth as it is in heaven" (Mt 6:10). God appears to work through our prayer intentions in the most perfect, healing way, if we remove our specific requirements from the prayer.

The Spindrift research begins to establish that Christian prayer can cause measurable differences in targeted biological systems. It further suggests that the mechanism of healing action, whether God or grace, may best be unleashed when we pray nondirectively, praying, "Thy will be done."

Psychological Effects of Prayer

Anecdotal and empirical evidence suggests that a relationship exists between prayer and psychological healing. A Jesuit priest (Dunn, 1981) recorded highlights of an interview with a 55 year old woman who felt that prayers for healing her low self-esteem had been answered.

> She talked about how for years she had wearied herself with analyzing, hitting at symptoms but never striking the root. "It came with a bang. I still have problems, but I'm one with myself now. I'm satisfied to stay in the present, and I'm not always anxious about the future and the past. I feel as though I have finally fallen into my niche. I can handle my problems with confidence." I asked her whether this [healing and answer to prayer] was when she really found God. Surprisingly, she said No. "I have been at one with God in my deepest being," she said, "but not in my psychology. Then that part of me, too, joined that deeper part of me where I am one with God" (p. 37).

This woman experienced inner healing. Is there any research evidence to corroborate her experience that prayer influences psychological health?

One study used frontalis muscle tension (electromyograph—EMG) and anxiety measures to research prayer's impact on anxiety. Elkins, Anchor, and Sandler (1979) compared frontalis muscle tension and results of anxiety measures across a prayer (either intercessory or reflective) group, a relaxation training group, and a control group.

> Group comparisons on EMG readings revealed that ... prayer produced less tension reduction than relaxation training but only slightly (non) significant more tension reduction than the control

> condition. On [anxiety measures], this same between group relationship was found with the prayer group's rated anxiety reduction barely failing to be statistically significant as compared to the control group. This finding suggests that prayer group subjects tended to experience a greater amount of tension reduction as a result of prayer than actually was measured physiologically (p. 86).

In other words, the prayer group experienced less muscle relaxation than the relaxation training group but the prayer group did (although not statistically significant) relax more than controls. In this study, prayer tended to reduce psychophysiologically measured anxiety. While not statistically significant, the results suggest that under certain conditions prayer positively reduces anxiety.

In another study, Carlson, Bacaseta, and Simanton (1988) compared psychological and physiological outcomes across a devotional meditation (DM) or devotional prayer group, progressive relaxation (PR), and wait-list control (WL) group. While measured for frontalis muscle tension and skin temperature, the DM group sat quietly, then listened to taped scriptural material, reflected upon it for two minutes in silence, engaged in liturgical prayer, and reflected again. DM sessions lasted 20 minutes. The results of the study were promising for DM-style prayer. As operationalized above, DM changes

> ... several psychological and physiological variables in a population of Christian students. Following a 2-week program where subjects individually were exposed to DM, it was found that they reported less anger and anxiety than persons who underwent 2 weeks of PR training or who were assigned to a wait-list control group. Furthermore, persons experiencing DM also displayed less muscle tension, as measured by reduced EMG activity ... than did persons who performed PR ... the present results offer strong support for continued exploration of the efficacy of DM strategies for reducing clinically relevant symptoms among persons with a Christian background (p. 366).

A famous study of psychological effects of prayer (Parker and St. Johns, 1957) involved assigning 45 psychotherapy clients to nine months of either weekly individual psychotherapy, daily individual home prayer, or weekly structured group prayer. Symptoms across the three groups included anxiety, depression, anger, and somatic complaints. At the end of the nine months self-report and psychological testing showed 72% reported improvement in the structured prayer therapy group, 65% improvement in the psychotherapy group, and no improvement in the home prayer group. Commenting on their data, Parker and St. Johns noted that psychotherapy worked well, but not as well as group prayer, because while learning more adaptive and honest psychological stances, the clients did not have a curative connection to the divine. They went on to say that the group of individuals that prayed at home, those in the individual home prayer group, may have prayed in maladaptive ways that reinforced their problems. An example of a minister's son illustrates this point.

> Jerry ... used rote prayer ... reiterated his guilt and his "wormy" feelings, constantly asking for forgiveness which he never took. His concept of God was a faraway Being which increased his feelings of dependence and inadequacy because he could never be sure He was Listening. Each night he confirmed his symptoms, his discontent, his hopelessness, following this with a positive statement that he was not worthy of anything better, and for 271 evenings straight he told God and himself what a failure they made as a team (p. 50).

Ultimately, the researchers concluded that the prayer group succeeded, because it drew upon psychological insights drawn from psychological testing and group feedback, allowing the members to pray honestly about real problems in the supportive context of a curatively minded group that prayed proactively. Following weekly two hour group sessions, each prayer group participant had prayer homework.

> Four guidelines were given for this prayer. First of all, it had to be regular. Secondly, it had to be an act of surrender. The individual was to pray with the attitude of giving up his or her desires and demands, seeking only to do God's will. Thirdly, the prayers were to be positive, affirmative statements rather than desperate begging or negative statements. While praying, the subjects were to visualize themselves as they desired themselves to be. Finally, the prayer was to be receptive. Participants in the prayer therapy were asked to pray believing that they had already received what they requested from God (Finney and Malony, 1985, p. 108).

Unfortunately, the experiment was poorly controlled. No control group existed, psychometric assessment may have been unreliable, and extraneous variables were not taken into account. Nevertheless, this study represented an indication that prayer may be psychologically beneficial under the right circumstances.

Still other studies of prayer and psychology have been accomplished. Research by Welford (1947), positively reviewed by Finney and Malony (1985), suggests that the motivation to pray in a petitionary manner stems from the need to reduce frustrations and the need to come to terms with unusual situations. The conclusion is that petitionary prayer may be a positive means of adjustment that reflects Christian metaphysical assumptions. A study on the effects of verbal prayer by Carson and Huss (1979) cited Finney and Malony (1985), compared two groups of chronic undifferentiated schizophrenics, the experimental group incorporating prayers about the love of God and the worth of each individual into ten weekly meetings with nursing students. The control group received only a therapeutic relationship. Psychological measures showed that.

> ... the experimental group grew in their ability to express anger and aggression. They also became more hopeful about changing their lives, exhibited more appropriate affect, and decreased in somatic complaints (Finney and Malony, 1985, p. 110).

Finney and Malony (1985) found that flaws in the study's design make the results merely suggestive.

Two studies on contemplative prayer (Mallory, 1977 and Sacks, 1979, both in Finney and Malony, 1985) suggest that contemplative prayer among Catholic religious populations is associated with positive mental health and cognitive integration. Unfortunately, one study had methodological problems; the other had results that only tended toward significance.

Morgan (1983) found frequent prayer impacts object relations, i.e. frequent prayer is associated with being nice to others. From the point of view of the psychology of religion this makes sense. If a person relates to God in an open and honest way while subscribing to Christian principles, they may be disposed to relate to others in the same generous, graceful way in which they experience God in prayer. Using survey data, Morgan (1983) established a strong connection between frequent prayer and positive behaviors toward others.

> Those who pray frequently, those who have integrated prayer into day-to-day life, seem to practice what they preach. The prayerful are less likely to intensely dislike anyone, to feel resentful when they don't get their way, to like to gossip or to get very angry or upset .... On the other hand, the more prayerful are more likely to stop and comfort a crying child, to be a good listener, and even to get along with loud mouthed obnoxious people. [Prayerful people] apparently turn the other cheek too, because they do these things despite the fact that they are no more likely to consider their fellow man/woman fair, helpful, or trustworthy than the less prayerful. Finally, ... in the interview situation ... interviewers judged the more prayerful as more cooperative and friendly. Are religious people nice people? ... yes—prayerful people do seem more friendly and cooperative (pp. 690-691).

According to the *New Catholic Encyclopedia* (1967) "Prayer makes the virtue of ... charity more vital and dynamic in a person's life" (p. 671). Morgan's conclusions corroborate this claim. Morgan's along with other studies mentioned here suggest that prayer measurably influences emotional health and psychologically determined factors like object relations.

Conclusions

Relevant to the modern American Christian, prayer appears to factor in as an important aspect of the modern worldview and behavioral practice. Research and anecdotal evidence creates an incomplete but growing argument that prayer positively influences the psychology and psycho-physiology of those for whom the prayers are offered. On similar lines, anecdotal and research evidence exists which paves the way for establishing that prayer by a person or group may influence targeted biological systems. Other research and anecdotal evidence raises the question whether or not prayer plays a role in determining emotional health and positive object relations. These findings suggest that Christian therapists wishing to incorporate prayer into the therapeutic process should familiarize themselves with psychobiological and psychotheological aspects of prayer. Further developments in clinical practice and empirical research may prove that prayer contributes to increased health and wholeness of the individual.

Reference Notes

1. Researches at the University of Pennsylvania (Newberg, et. al., 2001) studied a small group of Tibetan Buddhist and Roman Catholic nuns. The Buddhists meditated and the nuns practiced Centering Prayer. Observed via brain imaging technology, subjects' brains changed dramatically and nonpathologically while they enjoyed a sense of freedom from self and merged with the Ultimate. This brain imaging study of the praying brain has inaugurated the field of neurotheology. Eventually, such research will further our understanding of the neurological underpinnings of the health benefits of mystical Christian prayer. The most healthful aspect of such prayer, however, is least easy to measure, which is the love that supplicants and God enjoy in their intimate communion.
2. Newly reviewed research (Seeman, et. al., 2003) bears out that meditation and prayer techniques bless the body. Well designed studies show that meditation appears to lower blood pressure (Sneider, et. al., 1995), correlates with lower cholesterol levels (Patel, et. al., 1985), and is associated with improved health outcomes in clinical patient populations (Kabat-Zinn, et. al., 1998). Many of the studied meditation/prayer practices have been "baptized" and fruitfully employed by various Christian faith communities.
3. In 1999 Harris replicated the Byrd study with a larger sample size (n=990) that generated remarkably similar results. Scientific evidence mounts that prayer will foster recovery from heart attacks.

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