A Systematic Review of the Empirical Literature on Intercessory Prayer

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Perhaps surprisingly, many social workers appear to use intercessory prayer in direct practice settings. To help inform practitioners' use of this intervention, this article evaluates the empirical literature on the topic using the following three methods: (a) an individual assessment of each study, (b) an evaluation of intercessory prayer as an empirically supported intervention using criteria developed by Division 12 of the American Psychological Association (APA), and (c) a meta-analysis. Based on the Division 12 criteria, intercessory prayer was classified as an experimental intervention. Meta-analysis indicated small, but significant, effect sizes for the use of intercessory prayer (g = –.171, p = *.015). The implications are discussed in light of the APA's Presidential Task Force on Evidence-based Practice.*

Keywords: *intercessory prayer; evidence-based practice; spirituality; religion; direct practice*

Intercessory prayer is commonly defined as prayer offered for the benefit of another person (Tloczynski & Fritzsch, 2002). Typically, either a silent or verbal request is made to God, or some other type of transcendent entity, which the petitioner believes is able to effect change in another person's life (Halperin, 2001; Roberts, Ahmed, & Hall, 2003; Targ, 2002). Accordingly, intercessory prayer differs from other types of prayer, such as personal prayer, in which an individual prays for himself or herself. Although a considerable amount of research has explored the effects of personal prayer (Koenig, McCullough, & Larson, 2001), this article focuses on intercessory prayer because of its apparent widespread usage as a therapeutic intervention.

A surprisingly high percentage of social workers appear to use intercessory prayer in their work with clients (Heyman, Buchanan, Musgrave, & Menz, 2006; Stewart, Koeske, & Koeske, 2006). One national survey of direct practitioners affiliated with the National Association of Social Workers (NASW; N = 2,069) found that 28% of respondents had engaged in verbal prayer with their clients, whereas 57% prayed privately for their clients (Canda & Furman, 1999). Similarly, among a national sample of NASW affiliated gerontological workers (N = 299), 43% reported praying verbally with their clients either "sometimes" or "often." In terms of their private prayer interventions, two thirds of respondents indicated they prayed either sometimes (43%) or often (24%) for their clients (Murdock, 2004). In short, although the use of prayer as a therapeutic intervention remains controversial (Canda, Nakashima, & Furman, 2004; Praglin, 2004), the extant data suggest that most social workers use intercessory prayer as a professional intervention.

The widespread use of intercessory prayer in clinical settings implicitly raises questions about the effectiveness of prayer as an intervention strategy. Even in newly emergent areas such as spirituality, the NASW Code of Ethics (1999, sec. 1.04 [c]) stipulates that social workers should employ interventions only after conducting the necessary research to ensure the competence of their work. Qualitative research, however, suggests that many social workers hold strong beliefs, both in favor and against, on using prayer in therapeutic settings (Canda et al., 2004). Consequently, it is unsurprising that concerns have been expressed in the social work literature that practitioners' personal metaphysical beliefs rather than established professional protocols may be guiding therapeutic decisions (Sahlein, 2002).

In keeping with the premise that professional practice should be based on empirical knowledge rather than a priori, personally held beliefs (Rosen, Proctor, & Staudt, 1999), this study explores the effectiveness of intercessory prayer as an intervention strategy. It is important to note at the onset that the purpose of this article is not to suggest

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that God, or some other transcendent entity, does or does not exist. Although it is theoretically possible that a transcendent being exists and responds to prayer, it is also possible that prayer taps into presently undiscovered natural mechanisms that produce change (Hodge, 2000; Leder, 2005). In other words, intercessory prayer may effect change supernaturally, naturally, or not at all. The discussion of various mechanisms lies beyond the purview of this article. Rather, the purpose of this article is to examine the empirical literature that is capable of informing and guiding practice decisions regarding the use of intercessory prayer.

METHOD

Search Protocol

Toward this end, a key word search of *Social Work Abstracts*, *PsycInfo*, and *Medline (latest years)* was conducted in July 2006 using the term *prayer*. Titles and abstracts were reviewed and pertinent articles obtained. Major reviews of the spirituality and religion literature were also examined (Astin, Harkness, & Ernst, 2000; Halperin, 2001; Harris, Thoresen, McCullough, & Larson, 1999; Johnson, 2002; Koenig et al., 2001; Masters, Spielmans, & Goodson, 2006; McCullough & Larson, 1999; Ramondetta & Sills, 2004; Tolson & Koenig, 2003; Townsend, Kladder, Ayele, & Mulligan, 2002). Potentially relevant articles were read and the reference sections examined for other studies that might be pertinent to the present review.

As might be expected given the subject matter, studies on intercessory prayer have been controversial, especially if positive outcomes are reported (Halperin, 2001; Sicher, Targ, Moore, & Smith, 1998; Targ, 2002). Perhaps the most controversial study has been conducted by Cha and Wirth (2001), and the interchange between Cha (2004) and Flamm (2005) illustrates some of the issues in play. No attempt was made to assess the validity of the various arguments in deciding which studies to include in this review. In at least some cases, the central issues seem to be rooted in differing metaphysical assumptions about the nature of reality, a subject that is beyond the scope of the present article. Thus, all studies featured in academic journals that meet the search criteria were included in this study.

Inclusion and Exclusion Criteria

Because the purpose of the review was to examine research capable of informing and guiding practice decisions, studies had to meet the following criteria to be included in the review: (a) use intercessory prayer as an intervention, (b) implement the intervention with a population of clients or patients, and (c) test the efficacy of the intervention, preferably using standardized measures and a double-blind randomized control trial (RCT) methodology.

RCTs are widely considered to represent the "gold standard" for empirically validating interventions; although, concurrently, it is important to note that this method involves a number of debatable epistemic assumptions (Slife & Gantt, 1999). In a double-blind RCT design, participants are randomly assigned to either a control group or an experimental group, which is sometimes referred to as a treatment or intervention group. Both the participants and the experimenter are kept uninformed regarding who is receiving the experimental intervention. Some observers have argued that RCTs are particularly important in studies of intercessory prayer because they help control for important confounders such as hope and expectation effects (Chambless & Ollendick, 2001; Targ, 2002). In other words, RCTs help minimize various extraneous effects that might foster false positives or negatives, clarifying whether the experimental treatment, in this case intercessory prayer, is responsible for the observed outcome.

Studies were included regardless of whether participants knew they might be receiving prayer. Some institutional review boards (IRBs) have waived informed consent procedures on the grounds that no known risks exist for receiving intercessory prayer, whereas others have required them. In the latter case, it is possible to argue that the administration of informed consent creates expectancy effects, although as discussed directly above, the RCT design helps mitigate any effects created.

Studies were held to be outside the parameters of the review if they employed nonclinical/patient samples (O'Laoire, 1997; Tloczynski & Fritzsch, 2002) or featured less rigorous designs, such as single case studies (Kowey, Friehling, & Marinchak, 1986; Sajwaj & Hedges, 1973) or nonrandom, voluntary assignment to control and treatment groups (Carson & Huss, 1979). As implied in the introduction, the relatively extensive research on the effects of personal prayer fell outside the study's scope (Bernardi et al., 2001; Fabbro, Muzur, Bellen, Calacione, & Bava, 1999; Sistler & Washington, 1999). Similarly, cross-sectional research on prayer was deemed beyond the purview of the study (Ellison, 1993).

In addition to intercessory prayer, other methods of distance healing also exist that are designed to foster client well-being (e.g., bioenergetic healing). Because

the purpose of this study was to examine the effectiveness of prayer interventions, studies that employed other types of distance healing were also deemed to be outside the parameters of the present study (Beutler et al., 1988; Carvalho, 1995). One study, however, incorporated secular methods along with prayer but used a rotating schedule so that clients were exposed to intercessory prayer (Sicher et al., 1998). Because prayer seemed to be the primary intervention used, a decision was made to include this study in the review.

Analysis

To assess the research on intercessory prayer, three methods were used. First, studies were critically assessed in keeping with reviews conducted in the field of medicine (Townsend et al., 2002). Second, in accordance with other systematic reviews conducted in social work (Hodge, 2006a; Tucker & Potocky-Tripodi, 2006), the studies were evaluated in light of the standards developed by Division 12 of the American Psychological Association (APA) for determining empirically supported treatments (Chambless et al., 1995; Chambless & Ollendick, 2001).

Finally, a meta-analysis was conducted. The studies that emerged from the search exhibited substantial clinical diversity. In such situations, a meta-analysis is commonly considered inappropriate (Higgins & Green, 2005). Although recognizing this limitation, earlier reviews in medicine have conducted meta-analyses to provide some type of qualitative measure of clinical effects (Astin et al., 2000; Masters et al., 2006). Consistent with this practice, a meta-analysis was performed using Comprehensive Meta-Analysis V. 2.

RESULTS

Critical Assessment

Seventeen studies met the criteria for inclusion. These studies, which examined the effects of prayer on a wide variety of physical and psychological outcomes, are summarized in Table 1. Included in the table is information on the study's design, whether expectancy effects may have been created by the use of informed consent, the experimental sample and intervention, whether intercessors were directed to pray in a specific manner, the control group, and the results. These studies are discussed in more detail below, beginning with those studies in which no positive findings were obtained, through those studies with various mixed findings, to those studies reporting significance across all outcomes at the other end of the continuum.

Studies Featuring No or Marginal Prayer Effects

In perhaps the most rigorous study to date, Benson and associates (2006) examined the effects of prayer among cardiac bypass patients in six hospitals. Individuals were informed of the study's purpose and randomly assigned to an experimental group, which received intercessory prayer ($n = 604$), and a control group, which received no prayer ($n = 597$). The study also included a third arm ($n = 601$), in which members were told they would be receiving prayer. This three-group design allowed investigators to examine the effects of being certain of receiving prayer. The intervention was provided by three Christian prayer groups who agreed to pray for a successful surgery, no complications, and quick recovery.

At the 30-day follow-up point, a comparison of the experimental and control groups revealed no significant differences on any of the three outcomes (mortality, complications, and major events). Interestingly, an examination of the experimental group and the third group revealed that being certain of receiving prayer was associated with negative outcomes. Individuals certain of receiving prayer were 14% more likely to experience complications than individuals who were uncertain of receiving prayer but did, in fact, receive prayer.

A somewhat similar design was used by Walker, Tonigan, Miller, Comer, and Kahlich (1997) to explore the effects of intercessory prayer among clients receiving treatment for alcohol dependence. Potential participants were informed of the purpose of the study and randomly assigned to a control group ($n = 18$), which received the standard treatment, and an experimental group ($n = 22$), in which the standard treatment was supplemented with daily prayer from a diverse group of Protestants, Catholics, and Jews. Positive, nondirective prayer was suggested. In addition, a normative, comparison sample ($n = 123$) was included in the study to control for any placebo or expectancy effects that existed as a result of being informed that someone might be praying for them.

No significant differences emerged between the experimental or the control group during the course of the 6-month study, with both groups achieving a substantial reduction in alcohol consumption. Because the standard treatment was largely successful, it is possible to argue that little margin exists for the experimental treatment to record better results. Although no differences emerged between the experimental and the control groups, both groups recorded a 3-month delay in the

TABLE 1: ***Overview of Studies on Intercessory Prayer***

Authors	*Design*	*Expectancy Effects*	*Sample (n)*	*Experimental Intervention (*n*)*	*Directed Prayer*	*Control (*n*)*	*Result*
Benson et al. (2006)	Prospective, double-blind RCT	Y	604 primarily White Protestant and Catholic males receiving cardiac bypass surgery	An unspecified amount of daily, distant IP for each client, for 14 days starting the night before surgery, by 2 Catholic and 1 Protestant prayer groups (n?)	Y	Usual treatment (597)	*ns*
Walker, Tonigan, Miller, Comer, and Kahlich (1997)	Prospective, double-blind RCT	Y	22 primarily Hispanic males of unknown religion receiving treatment for alcohol abuse	An unspecified amount of daily, distant IP for each client, for 6 months, by experienced Protestant, Catholic, and Jewish intercessors (n?)	N	Usual treatment (18)	*ns*
W. J. Matthews, Conti, and Sireci (2001)	Prospective, double-blind RCT	Y	15 primarily Black Protestant males receiving kidney dialysis	5-15 min. of daily distant IP for each client, for 6 weeks, by an experienced Catholic prayer group (6)	Y	Usual treatment (33)	*ns*
Mathai and Bourne (2004)	Prospective, triple-blind RCT	N	16 children of unknown religion coping with psychiatric disorders	An unspecified amount of distant IP for clients in the intervention group, once a week, for 3 months, by a committed group (6)	N/A	Usual treatment (17)	*ns*
Seskevich, Crater, Lane, and Krucoff (2004)	Prospective, double-blind RCT	Y	19 likely males of unknown religion receiving heart surgery in a VA medical center	An unspecified amount of distant IP for each client, by 8 prayer groups from different traditions: Unity, Moravian, Baptist, Jewish, evangelical, Buddhists (2 of), and Catholic	N/A	Usual treatment (18)	*ns*
Krucoff et al. (2001)	Prospective, double-blind RCT	Y	23 males of unknown religion receiving heart surgery in the Bible Belt	An unspecified amount of daily distant IP for each client, for 30 days, by 8 groups: Unity (?), Moravian (8), Baptist (3 congregations), Jewish (?), evangelical (1 congregation), 2 Buddhists (18 and 150), and Catholic (17)	N/A	Usual treatment (21)	*ns* trend favors prayer group
Krucoff et al. (2005)	Prospective, double-blind RCT	Y	84 primarily males of unknown religion, of various degrees of religious commitment, receiving heart surgery	Two-tier prayer intervention: tier 1—an unspecified amount of distant IP for each client, for 5 to 30 days, by 12 diverse prayer groups; tier 2—an unspecified amount of distant IP for the 12 prayer groups by an additional 12 prayer groups	N/A	Usual treatment (88)	*ns* trend favors prayer group
Aviles et al. (2001)	Prospective, double-blind RCT	Y	400 primarily males of unknown religion wrestling with heart disease	An unspecified amount of distant IP, offered at least weekly for 26 weeks, for each client, by 5 Christian prayer groups (1-65; *Mdn* = 1 intercessor)	N	Usual treatment (399)	*ns* trend favors prayer group

(continued)

TABLE 1: (continued)

Authors	*Design*	*Expectancy Effects*	*Sample (n)*	*Experimental Intervention (n)*	*Directed Prayer*	*Control (n)*	*Result*
Joyce and Welldon (1965)	Prospective, double-blind sequential matched design	N	16 primarily female Anglicans with progressively deteriorating rheumatic disease	Approximately 5 minutes of daily distant IP for each client, for 6 months, (approx. 15 hours of prayer total), by 19 Quakers and nondenominational Christians	N	Usual treatment (16)	*ns* trend favors prayer group
Collipp (1969)	Prospective, triple-blind	N	10 children of unknown religion with leukemia	An unspecified amount of daily distant IP for each client, for 15 months, by 10 families in a Protestant church	N/A	Usual treatment (8)	*ns* trend favors prayer group
D. A. Matthews, Marlowe, and MacNutt (2000)	Quasi-experimental using pre- and posttests	Y	26 primarily White, elderly, born-again females with arthritis	6 hours of in-person verbal prayer over 3 days for each client by "several" Charismatic Catholics	N/A	Wait-listed and then received prayer (14)	Sig. (in person) *ns* (dist.)
Byrd (1988)	Prospective, double-blind RCT	Y	192 patients of unknown religion in coronary care	An unspecified amount of daily distant IP for each client, until discharged, by 3 to 7 born-again Protestants and Catholics	Y	Usual treatment (201)	Sig.
Harris, Thoresen, McCullough, and Larson (1999)	Prospective, double-blind RCT	N	466 primarily elderly cardiac patients of unknown religion	An unspecified amount of daily distant IP for each client, for 28 days, by 15 teams composed of 5 Christians	Y	Usual treatment (524)	Sig.
Furlow and O'Quinn (2002)	Prospective, double-blind RCT	Y	21 primarily male, elderly, Christian cardiac patients	Approximately 3 to 6 minutes of daily distant IP for each client, during their hospital stay (27 to 88 minutes total) by 5 female church members	Y	Usual treatment (17)	Sig.
Sicher, Targ, Moore, and Smith (1998)	Prospective, double-blind RCT	Y	20 primarily White middle-age males of unknown religion with AIDS	1 hour per day of distant IP, per client, for 10 weeks, rotating among a total of 40 Buddhist, Christian, Jewish, Native American, Shamanistic, and secular healers, all with experience healing AIDS	Y	Usual treatment (20)	Sig.
Leibovici (2001)	Retroactive RCT	N	1,691 primarily elderly patients of unknown religion with bloodstream infection	A list of names was given to a single person of unknown religion who said a "short prayer" for the group	Y	Usual reatment (1,702)	Sig.
Cha and Wirth (2001)	Prospective, double-blind RCT	N	88 women of unknown religion receiving treatment for infertility	Two-tier prayer intervention: Tier 1—an unspecified amount of daily distant IP for groups of 5 clients, for approx. 4 weeks, by groups consisting of 3 to 13 Christians; Tier 2—an unspecified amount of prayer offered for the above groups by additional Christian groups	Y	Usual treatment (81)	Sig.

NOTE: RCT = randomized control trial; IP = intercessory prayer.

reduction of alcohol consumption after entering treatment relative to the normative, comparison sample. Consistent with the previous study, the belief that someone might be praying seemed to produce negative effects—increased alcohol consumption relative to the comparison sample. Although the adverse outcome disappeared by the end of the study, the finding raises the possibility that engendering expectancy of prayer may have detrimental effects.

The effects of expectancy were directly explored by W. J. Matthews, Conti, and Sireci (2001), who informed potential participants that they would receive either prayer or positive visualization. However, after creating the expectation that all volunteers would receive some form of distant healing, one third of participants ($n = 33$) were randomly assigned to a treatment group that received no prayer or visualization. The researchers were thus able to examine if prayer, positive visualization, or the effect of expectancy was associated with better physical or psychological outcomes among patients receiving kidney dialysis. In this study, the 5- to 15-min daily prayer, offered during the course of 6 weeks, was provided by a group of six Catholics using scripted prayers that requested emotional and physical healing. No significant differences emerged among the three groups, suggesting that the effects of prayer and positive visualization cannot be distinguished from expectancy.

Nonsignificant results were also obtained by Mathai and Bourne (2004) using a triple-blind design. These individuals investigated the effectiveness of intercessory prayer among children coping with psychiatric disorders. Prayer was offered weekly by a committed group of 6 individuals selected by the chief investigator. No difference in outcomes emerged at 3 months between the experimental group ($n = 16$) and the control group ($n = 17$).

Two studies, apparently based on the same sample, explored the effectiveness of four approaches—stress relaxation, imagery, touch therapy, and prayer—with patients ($N = 150$) receiving heart surgery for unstable coronary symptoms (Krucoff et al., 2001; Seskevich, Crater, Lane, & Krucoff, 2004). After being informed about the nature of the study, volunteers were randomly assigned to one of the four treatment groups or the control group. Off-site prayer was provided by diverse theological groups (e.g., Buddhist, Jewish, Baptist) from around the globe (Nepal, Israel, United States). Both studies reported that prayer was unrelated to outcomes. In the initially published study, however, the authors reported that quadrupling the sample size would have likely produced significant findings in favor of the experimental prayer group.

In response, Krucoff and associates (2005) essentially replicated their design in a larger, nine-center study ($N = 748$). Of particular interest, was the use of a two-tier prayer intervention modeled after the Cha and Wirth (2001) study. Although all cardiac patients in the intervention group ($n = 371$) received a single "dose" of prayer, a subgroup ($n = 84$) received an additional dose of prayer. More specifically, a second set of prayer groups prayed for the efficacy of the prayers offered by the other groups, so as to compound their effectiveness. No significant differences emerged between the intervention and control groups among those receiving the single dose or the double dose. Yet although no trend was apparent among recipients of the single-tier prayer, recipients of the two-tier prayer exhibited a trend in favor of the experimental group across three of the four outcomes at the 6-month follow-up. Most notable was the lower rate of death and readmission (25% vs. 35%, $p = .0979$).

Similar results were obtained in an examination of the effects of intercessory prayer on cardiovascular disease progression (Aviles et al., 2001). Potential participants were informed of the study's purpose and randomly assigned to control ($n = 399$) and treatment groups ($n = 400$), with the latter group receiving nondirected prayer at least once a week for 26 weeks following discharge. The prayer was provided by professing Christians, with each intercessor praying for anywhere from 1 to 100 patients ($Mdn = 5$). No significant differences emerged between the control and treatment group on any of the outcomes studied; however, a pattern of positive findings existed across outcomes for the prayer group.

In perhaps the earliest double-blind study on prayer, Joyce and Welldon (1965) explored the effects of prayer on patients with progressively deteriorating rheumatic disease. Individuals, who were not informed of the study's purpose to control for expectancy effects, were matched on a number of demographic characteristics and then randomly assigned to treatment ($n = 16$) and control groups ($n = 16$). A sequential study design was used, resulting in matched patients being enrolled in the study over a period of time. Nondirective, meditative prayer was offered daily by Quakers and an interdenominational group, who were told that the study would last for 6 months and that they would not be contacted until the study was completed.

Although no significant differences emerged between the two groups, the researchers suggested that the nonsignificant findings may have been because of the excessive length of the study. Because of delays in enrolling matched pairs into the study, many patients were not evaluated until at least 12 months had elapsed, more than twice as long as the study was intended to last. The researchers reported that they did not know if the intercessors continued to pray beyond the 6 months they had committed to, but they observed

a distinct trend in results. Consistently positive results were obtained during the first 12 months, at which point the trend changed. If the time period of the analysis was changed to reflect the first 12 months, then significant results would have been obtained in favor of the group receiving prayer.

The final study in this subsection focused on children wrestling with leukemia (Collipp, 1969). Neither the children, their families, the service providers, or the Protestant group that agreed to pray for the children were informed of the study. At the study's 15-month conclusion, 7 of the 10 children in the experimental group were still alive, whereas only 2 of the 8 children in the control group were living. The difference was significant at the nontraditional level of .10, and 1 child in the control group was atypical. This study may represent the midpoint of the continuum because it is arguable that the study belongs in the next subsection, which delineates significant findings. If the atypical child is removed from the analysis, the results are significant at the traditional .05 level.

Studies Featuring at Least Partially Significant Results

Although all the studies in this review examined the effects of distance or remote intercessory prayer, D. A. Matthews, Marlowe, and MacNutt (2000) also explored the effects of in-person, verbal intercessory prayer. Patients with rheumatoid arthritis served as the study's participants, all of whom were informed of the study's purpose. Because of insufficient volunteers, randomization did not occur for the in-person prayer component of the study. The first 26 volunteers functioned as the experimental group, whereas the next 14 served as a wait-list control group for 6 months, after which they also received the 3-day, in-person prayer intervention. Pretests and posttests were conducted for the whole group 1 year after the intervention ($N = 40$). For the study's distance prayer component, a double-blind RCT protocol was used in which participants were randomly assigned to either a control group or a treatment group. In addition to the 3-day in-person prayer, the treatment group received supplemental distance prayer for 10 min a day for 6 months. Charismatic Catholics provided all prayers, which incorporated requests for healing.

Although analysis revealed that the supplemental distant prayer had no effect, in-person prayer yielded significant differences. The first group receiving in-person prayer did significantly better than the wait-list control group at 6 months on a number of the 10 outcomes. The wait-list control group also demonstrated significant improvement 6 months after receiving the 3-day in-person prayer. These gains were maintained for the entire sample at the final follow-up, 12 months after the in-person prayer intervention.

Three studies have explored outcomes among patients in coronary care settings using generally similar methodologies (Byrd, 1988; Furlow & O'Quinn, 2002; Harris et al., 1999). Among the outcomes of interest were (a) length of hospital stay, (b) length of stay in the coronary care unit, and (c) various global measures of patient progress, outcomes, or complications. During the patient's hospital stay, devout Christians offered daily prayer for rapid recovery with no complications.

Using relatively large samples, Byrd (1988; $N = 393$) and Harris and associates (1999; $N = 990$) recorded similar results, even though the former study used informed consent and the latter did not. Although no significant differences emerged regarding length of stay, the experimental group recorded significantly better global progress or outcomes. Conversely, Furlow and O'Quinn (2002), who did inform participants of the study's purpose, found the exact opposite—no difference in the area of complications, but the prayer group ($n = 21$) recorded significantly shorter stays in the hospital and the coronary care unit relative to the control group ($n = 17$).

Patients with advanced AIDS ($N = 40$) have also been the subject of study (Sicher et al., 1998). The 10-week intervention incorporated prayer offered from members of a variety of traditions (e.g., Buddhist, Christian, Jewish, Native American) and some secular forms of distant healing (e.g., bioenergetic healing). A rotating schedule randomized healers across the 10-week intervention so that participants were exposed to 10 different healers, most of which appeared to use prayer. Healers were asked to facilitate the participants' health and well-being, working on the task for 1 hour per day for 6 consecutive days. Informed consent was used.

Of 11 outcomes measured, significant differences emerged on 6 at the conclusion of the study at 6 months. Relative to the control group, the experimental group experienced significantly fewer hospitalizations, outpatient visits, and new illnesses; fewer days of hospitalization; and less severe new illnesses. The mood of the experimental group also improved significantly, with significant differences occurring on four of the measure's six subscales (e.g., lower levels of depression, tension, confusion, and fatigue among the intervention group).

Although all other studies in the review employed a prospective design, following individuals through time, Leibovici's (2001) study used a retroactive design. Arguing that it cannot be assumed, a priori, that time is necessarily linear or that God is limited by what we perceive as linear time, Leibovici explored the effectiveness of prayer offered in the present for events that took

place in the past, namely patients hospitalized 4 to 10 years previously. A 6-year list of adults consecutively admitted to an Israeli hospital with bloodstream infections was randomized into intervention (n = 1,691) and control groups (n = 1,702). A list of first names of individuals in the intervention group was given to a person who then said a short prayer, requesting full recovery and well-being for the whole group.

Three outcomes were examined: mortality while in the hospital, length of hospital stay, and length of the infection-induced fever. Significant differences emerged for the latter two outcomes, and mortality was lower in the intervention group, although the difference was not significant. In other words, the length of time in the hospital and the duration of the fever were significantly lower for the group that received retroactive prayer, 4 to 10 years after hospitalization. In this case, it is clear that expectancy effects are inoperative. Study participants could not have expectations about an intervention that was not conceived until years later.

In contrast to Leibovici's (2001) study, which employed a seemingly minimal dose of prayer, the final study in the section used two-tier or "compounded" prayer. Cha and Wirth (2001) examined pregnancy rates among Korean women (N = 219), aged 26 to 46, undergoing in vitro fertilization–embryo transfer. To compound or increase the effect of the prayer intervention, those in the first tier prayed that women in the experimental group would get pregnant, whereas those in Tier 2 prayed that the efficiency of the intervention would be enhanced. Prayer was offered during the course of the fertilization schedule by Christians in Australia, Canada, and the United States, without the knowledge of the providers or patients (i.e., informed consent was not used).

Compared to the control group, women in the experimental group were significantly more likely to become pregnant (50% vs. 26%). When results were broken down and analyzed by age group, no significant differences emerged among the below-30 group, in which the pregnancy rates were extremely high for both groups. Differences were pronounced, however, among the 30- to 39-year-old group (51% vs. 23%) and the older than 39 group (42% vs. 23%).

Intercessory Prayer as an Empirically Supported Intervention

As the above assessment implicitly illustrates, intercessory prayer does not meet the criteria established by the APA's Division 12 for classification as an empirically supported treatment (Chambless et al., 1995; Chambless & Ollendick, 2001). To achieve such classification, studies must meet a number of criteria, including the use of a clearly defined intervention (ideally delineated in a treatment manual), which is administered by therapists, with clients wrestling with a specific, classifiable problem. To be considered effective in addressing a problem, the findings must be replicated by at least two different research teams.

These criteria were rarely met. The prayer interventions reviewed were typically not administered by therapists, and, in many cases, relatively little information was provided about the nature of the interventions. It is also noteworthy that most of the interventions were employed with clients wrestling with a variety of medical, rather than psychological, problems.

In short, intercessory prayer cannot presently be considered an empirically supported intervention for any psychological problem. Even within the evidence-based practice movement, however, the Division 12 criteria have been controversial (APA Presidential Task Force on Evidence-based Practice, 2006). A meta-analysis represents an alternative method for synthesizing results from multiple studies by providing a quantitative estimate of the size of an intervention's effects.

Meta-Analysis

To calculate an omnibus effect size for intercessory prayer, outcomes were weighted and averaged across studies. In studies with multiple dependent measures, outcomes were pooled to create one effect size for each study. Although some previous meta-analyses have been based on selecting a single significant outcome (Astin et al., 2000), the pooled outcome approach is more conservative. Thus, for example, with Harris and associates' (1999) study, the effect size was calculated using all 40 outcomes rather than the primary global measure of complications that the research team expected might illustrate the effects of prayer.

Of the three dependent measures in Leibovici's (2001) study, insufficient information was reported to calculate effect sizes for the two significant outcomes (i.e., length of hospital stay and fever). Thus, only the nonsignificant mortality outcomes were used. With Krucoff and associates' (2005) study, effect sizes were calculated based on the outcomes achieved using the two-tier prayer intervention. The authors implied that the compounded dose of prayer might more effectively illustrate the incremental effects of intercessory prayer provided in the study (89% of patients knew of additional, outside intercessory prayer that was being offered on their behalf during the study). Supplementary analysis using the outcomes obtained with the single-tier intervention did not affect whether any of the models reported below achieved significance.

Masters et al. (2006) suggested that both fixed- and random-effects models be used to calculate effect size. The heterogeneity and limited number of studies argue in favor of a fixed-effects model, which allows for greater generalization. Conversely, the fact that the fixed-effects model is more conservative, in conjunction with the fact that research on prayer is still in its infancy, argues in favor of a random-effects model.

As can be seen in Table 2, both models were significant. Based on commonly accepted conventions, the .171 effect size for intercessory prayer recorded using the random-effects model is considered small (Vaughn & Howard, 2004). The classic fail-safe *N* is 32. In other words, 32 additional studies with a mean effect of zero are needed for the combined two-tailed *p* value to exceed the traditional .05 level of significance.

Additional analysis was also conducted in which perhaps the most controversial study featuring positive outcomes was removed from the models. Without the Cha and Wirth (2001) study, the effect size diminished, and the random-effects model was no longer significant ($p = .062$). The fixed-effects model, however, remained significant.

TABLE 2: ***Effects of Intercessory Prayer Across Studies***

Model	*Studies Included in Analysis*	g[a]	Z	p
Random effects	All	–.171	–2.436	.015
Fixed effects	All	–.095	–2.724	.006
Random effects	Without Cha and Wirth (2001)	–.109	–1.866	.062
Fixed effects	Without Cha and Wirth (2001)	–.077	–2.154	.031

a. All effect sizes are converted to Hedge's *g*, which corrects for a small bias in Cohen's *d*. Negative values for *g* and *Z* indicate a positive effect for intercessory prayer.

DISCUSSION AND APPLICATIONS TO PRACTICE

In light of the widespread use of intercessory prayer, this study examined the empirical literature on the topic to provide practitioners with some guidance regarding the use of intercessory prayer in practice settings. Three methods were used to analyze the 17 studies that emerged: an individual assessment of each study, an evaluation of intercessory prayer as an empirically supported intervention using the APA's Division 12 criteria, and a meta-analysis. The results are summarized below. This synthesis is followed by a discussion of implications for practice, which is informed by the APA's Presidential Task Force on Evidence-based Practice (2006).

Findings Supportive of Prayer

Individual assessment revealed that patients who received intercessory prayer demonstrated significant improvement compared to those who received standard treatment devoid of prayer in 7 of the 17 studies. Furthermore, in an additional 5 studies, the trend favored the prayer group. This raises the possibility that an increase in power would yield significant findings.

As Abbot (2000) observes, an extended period of years is often necessary to establish the empirical effectiveness of new interventions. It is not uncommon to achieve positive effects that do not reach the level of significance, as occurred with some of the studies in this review. With the use of similar methodologies, such studies can be combined, a process that often yields significant results.

For example, the use of aspirin with patients with certain heart problems has been associated with a 23% reduction in death from heart attack. Yet as Abbot (2000) notes, these effects only became apparent after six studies ($N = 10{,}859$) conducted over the course of a number of years were combined. Given that a majority of the studies in this review evidenced a trend in favor of the experimental group, it is not inconceivable that similar results will eventually be found for prayer.

The results from the meta-analysis support this thesis. The synthesis of outcomes across studies produced small, but significant, effects for intercessory prayer. These results are consistent with earlier meta-analyses conducted in medicine (Astin et al., 2000; Masters et al., 2006).

Findings Unsupportive of Prayer

Conversely, in 10 of the studies, prayer was unassociated with positive improvement in the condition of clients. In addition, in many of the studies in which significant results were obtained, the results were not uniformly positive across outcome variables. For instance, in the Byrd (1988) study, only six positive outcomes were recorded among 26 specific problem conditions. This type of inconsistent pattern raises the possibility of Type I errors.

Individual assessment also revealed nonsignificant findings among some of the most methodologically rigorous studies. Studies by Benson et al. (2006) and Krucoff et al. (2005) employed a multicenter randomized methodology with relatively large sample sizes. Yet both studies failed to produce significant findings.

In addition, intercessory prayer cannot be classified as an empirically supported intervention for any psychological

problem based on the criteria established by the APA's Division 12 (Chambless et al., 1995; Chambless & Ollendick, 2001). The Division 12 criteria also help illustrate the heterogeneous nature of the current literature. The methodological similarity needed to make informed assessments across studies is lacking.

Interventions, for instance, should be clearly specified so that practitioners can implement them. Yet so many questions exist about the nature of the interventions, it would be difficult for practitioners to replicate the intervention with any degree of confidence. For example, little agreement exists regarding the amount of prayer required for an intervention to be effective. A minimal amount of prayer by a single person has been effective, whereas more extensive prayer by groups has been ineffective, although this cannot be considered a consistent pattern because extensive group prayer has also been effective in some cases as well. Similar questions also exist about the type of prayer (direct requests for healing and well-being vs. nondirective positive affirmations) and the person or persons providing the prayer (Is one's level of personal spirituality related to effectiveness?). Even if replication were possible, many interventions were so time-consuming that it would be unfeasible to use them in many clinical settings.

Implications for Practice

For practitioners who adhere to the protocols established by the APA's Division 12, the implications are clear. Intercessory prayer must be classified as an experimental intervention. For such practitioners, further research is needed involving practitioners using specific prayers offered on behalf of clients wrestling with problems classifiable by the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*). Until such research is conducted, the use of intercessory prayer should generally be avoided in practice settings.

Evidenced-based practice, however, is widely understood in more expansive terms than the criteria established by Division 12. The APA's Presidential Task Force on Evidence-based Practice (2006) has defined evidenced-based practice as "the integration of the best available research with clinical expertise in the context of patient characteristics, culture and preferences" (p. 273). The best available research is defined broadly. In addition to evidence from RCTs and meta-analyses, it includes a wide range of scientific results, including epidemiological studies, qualitative research, and case studies, to list just some.

This appreciation for multiple forms of scientific evidence addresses many of the concerns of those operating from what might be called postmodern epistemic assumptions. As implied above, the epistemological assumptions on which RCTs are based have been extensively criticized (Lincoln & Guba, 2003; Nakashima, 2003; Slife, Hope, & Nebeker, 1999; Tangenberg, 2000; Walker, 2001). Observers operating from postmodern understandings have argued that RCTs are based on modernistic approaches that provide only a partial understanding of existence and, consequently, should be supplemented by more qualitatively oriented approaches. In addition, some commentators argue that the assumptions on which RCTs are based are particularly unsuited for assessing spiritual phenomena (e.g., Slife et al., 1999).

Accordingly, some practitioners may feel that the best available research supports the use of intercessory prayer. The general trend in favor of the prayer group in 12 of the 17 studies, in conjunction with the positive findings from the meta-analysis, suggests that intercessory prayer may be effective. This understanding is supported by research on prayer using nonexperimental designs, in which generally favorable outcomes have been obtained (Koenig et al., 2001).

Consequently, some practitioners may feel that the present level of research satisfies the NASW Code of Ethics (1999, sec. 1.04 [c]) competency requirements for emerging areas of practice. In other words, the current evidence indicates that the use of prayer is consistent with competent service provision. In particular, practitioners who interact with hospital patients, children dealing with leukemia, adults wrestling with advanced AIDS, and older women hoping to become pregnant may believe that the current research supports the use of intercessory prayer.

The Role of Client Preferences

As the above definition of evidence-based practice implies, the APA's Presidential Task Force (2006) emphasizes the importance of client preferences in the selection of interventions. In other words, clients' beliefs and values must also be considered along with practitioners' assessment of the best available evidence. This stance is fully consistent with the NASW Code of Ethics's (1999) affirmation of client autonomy.

Given the importance of client preferences, it may be helpful to know that many members of the general public use prayer to address their health concerns (McCaffrey, Eisenberg, Legedza, Davis, & Phillips, 2004). In addition, African Americans, women, people with disabilities, and the elderly are more likely to pray (Bell et al., 2005; Hendershot, 2003; Levin & Taylor, 1997). In short, for many clients—particularly those

from disadvantaged populations—prayer is a significant strength (Pargament, 1997).

In recognition of this reality, the nation's predominant health care accrediting body, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), now requires the administration of a spiritual assessment (Hodge, 2006b). In the context of conducting a spiritual assessment, or even a general assessment, social workers may find that clients report that intercessory prayer is a significant strength.

A number of options may be appropriate in such situations, depending on the circumstances. For instance, in some cases, practitioners might explore the possibility of clergy or friends who share clients' spiritual orientation conducting intercessory prayer on clients' behalf. In other cases, it may be appropriate for social workers to pray either with or for clients, particularly if requested by clients.

The Use of Informed Consent for Private Intercessory Prayer

Another area the results address is the debate about informed consent regarding private intercessory prayer. Some commentators believe that clients should be informed and their consent obtained before practitioners engage in private prayer. Others believe that it is unnecessary to obtain consent in such situations (Canda et al., 2004; Magaletta & Brawer, 1998).

Yet the process of obtaining informed consent may engender expectancy effects (W. J. Matthews et al., 2001). Although expectancy effects are usually assumed to enhance the provided treatment, this did not occur across the studies surveyed. As seen in the study of clients undergoing therapy for alcohol dependency, informing clients that they may be recipients of prayer may have fostered detrimental outcomes (Walker et al., 1997). Similarly, cardiac bypass patients certain of receiving intercessory prayer were 14% more likely to experience negative outcomes compared to those who were uncertain of receiving prayer (Benson et al., 2006).

These findings raise questions about the appropriateness of obtaining informed consent for private intercessory prayer. The NASW Code of Ethics (1999) requires practitioners to avoid interventions that may cause harm to clients. Although permission should typically be sought before engaging in verbal intercessory prayer, securing informed consent to pray privately for clients may foster detrimental outcomes because of the expectancy effects created by securing consent.

Conversely, little evidence exists suggesting private intercessory prayer engenders negative outcomes, particularly if clients are unaware that prayer is being offered on their behalf. With the exception of one small pilot study (i.e., Mathai & Bourne, 2004), all six studies in which clients were completely unaware of the intervention yielded positive outcomes or exhibited a trend in favor of the group receiving intercessory prayer. This finding held irrespective of when the prayer was offered (prospective vs. retrospective) or the spiritual tradition of those providing the prayer (Quakers vs. Catholics).

Study Limitations

The preceding discussion must be considered in the light of the study's limitations. Many individuals believe that studies with positive outcomes are more likely to be submitted and published, whereas those with nonsignificant results are filed away and never seen (Crisp, 2004; Rosenthal, 1979). Although research confirms that many studies are not published in peer-reviewed journals, the extent to which researchers favor submitting significant findings rather than nonsignificant findings remains unclear (Weber, Callaham, Wears, Barton, & Young, 1998). Interestingly, some authorities suggest that studies linking prayer with salutary outcomes may be more likely to be rejected during the peer-review process because of their controversial nature (Koenig et al., 2001).

Research also suggests that computer searches may not be as effective as manual searches of individual journals in locating relevant articles (Bareta, Larson, Lyons, & Zorc, 1990). The breadth of the literature covered in this search, however, precluded a manual examination of the literature. Another limitation is the small number of participants in some of the studies reviewed, a fact that underscores the emerging nature of this area of study. Some individuals may also consider the study's prioritization of RCTs at the expense of more qualitatively oriented case studies to interject some degree of bias into the findings (Slife & Williams, 1995). Indeed, future researchers should employ diverse methodological strategies to map the effects of intercessory prayer.

CONCLUSION

Intercessory prayer offered on behalf of clients in clinical settings is a controversial practice, in spite of its apparent frequent occurrence. The topic is one that engenders both support and opposition, often passionately held. This study has attempted to shed some light on the controversy by examining the empirical literature on intercessory prayer.

Practitioners who adhere to Division 12 criteria have little basis for using intercessory prayer, in spite of a meta-analysis indicating small, but significant, effect sizes for the use of intercessory prayer. Most practitioners, however, are likely to affirm the broader understanding of evidence-based practice articulated in the APA's Presidential Task Force on Evidence-based Practice (2006). Such practitioners may believe that the best available evidence currently supports the use of intercessory prayer as an intervention.

Thus, at this junction in time, the results might be considered inconclusive. Indeed, perhaps the most certain result stemming from this study is the following: The findings are unlikely to satisfy either proponents or opponents of intercessory prayer.

REFERENCES

Abbot, N. C. (2000). Healing as a therapy for human disease: A systematic review. *The Journal of Alternative and Complementary Medicine, 6*, 159-169.

APA Presidential Task Force on Evidence-based Practice. (2006). Evidence-based practice in psychology. *American Psychologist, 64*, 271-285.

Astin, J. A., Harkness, E., & Ernst, E. (2000). The efficacy of "distant healing": A systematic review of randomized trails. *Annals of Internal Medicine, 132*, 903-910.

Aviles, J. M., Whelan, E., Hernke, D. A., Williams, B. A., Kenny, K. E., O'Fallon, W. M., et al. (2001). Intercessory prayer and cardiovascular disease progression in a coronary care unit population: A randomized controlled trial. *Mayo Clinic Proceedings, 76*, 1192-1198.

Bareta, J. C., Larson, D. B., Lyons, J. S., & Zorc, J. J. (1990). A comparison of manual and MEDLARS reviews of the literature on consultation-liaison psychiatry. *American Journal of Psychiatry, 147*, 1040-1042.

Bell, R. A., Suerken, C., Quandt, S. A., Grzywacz, J. G., Lang, W., & Arcury, T. A. (2005). Prayer for health among U.S. adults: The 2002 national health interview survey. *Complementary Health Practices Review, 10*, 175-188.

Benson, H., Dusek, J. A., Sherwood, J. B., Lam, P., Bethea, C. F., Capenter, W., et al. (2006). Study of the therapeutic effects of intercessory prayer (STEP) in cardiac bypass patients: A multicenter randomized trial of uncertainty and certainty of receiving intercessory prayer. *American Heart Journal, 151*, 934-942.

Bernardi, L., Sleight, P., Bandinelli, G., Cencetti, S., Fattorini, L., Wdowczyc-Szulc, J., et al. (2001). Effect on rosary prayer and yoga mantras on autonomic cardiovascular rhythms: Comparative study. *British Medical Journal, 323,* 22-29.

Beutler, J. J., Attevelt, J. T. M., Schouten, S. A., Faber, J. A., Mees, E. J. D., & Geijskes, G. G. (1988). Paranormal healing and hypertension. *British Medical Journal, 296*(6635), 1491-1494.

Byrd, R. C. (1988). Positive therapeutic effects of intercessory prayer in a coronary care unit population. *Southern Medical Journal, 81*, 826-829.

Canda, E. R., & Furman, L. D. (1999). *Spiritual diversity in social work practice.* New York: Free Press.

Canda, E. R., Nakashima, M., & Furman, L. D. (2004). Ethical considerations about spirituality in social work: Insights from a national qualitative survey. *Families in Society, 85*, 27-35.

Carson, V., & Huss, K. (1979). Prayer: An effective therapeutic and teaching tool. *Journal of Psychiatric Nursing & Mental Health Services, 17*(3), 34-37.

Carvalho, M. M. (1995). A healing journey in Brazil: A case study in spiritual surgery. *Journal of the Society for Psychical Research, 60*(838), 161-167.

Cha, K. Y. (2004). Clarification: Influence on prayer on IVF-ET. *The Journal of Reproductive Medicine, 49*, 944-945.

Cha, K. Y., & Wirth, D. P. (2001). Does prayer influence the success of in vitro fertilization-embryo transfer? Report of a masked, randomized trial. *The Journal of Reproductive Medicine, 46*, 781-787.

Chambless, D. L., Babich, K., Christoph, P. C., Frank, E., Gilson, M., Montgomery, R., et al. (1995). Training in and dissemination of empirically-validated psychological treatments: Report and recommendations. *The Clinical Psychologist, 48*(1), 3-23.

Chambless, D. L., & Ollendick, T. H. (2001). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology, 52,* 685-716.

Collipp, P. J. (1969). The efficacy of prayer: A triple blind study. *Medical Times, 97*, 201-204.

Crisp, B. R. (2004). Evidence-based practice and the borders of data in the global information era. *Journal of Social Work Education, 40*, 73-86.

Ellison, C. G. (1993). Religious involvement and self-perception among Black Americans. *Social Forces, 71*, 1027-1055.

Fabbro, F., Muzur, A., Bellen, R., Calacione, R., & Bava, A. (1999). Effects of praying and a working memory task in participants trained in meditation and controls on the occurrence of spontaneous thoughts. *Perceptual and Motor Skills, 88,* 765-770.

Flamm, B. L. (2005). Prayer and the success of IVF. *The Journal of Reproductive Medicine, 50*, 71.

Furlow, L., & O'Quinn, J. L. (2002). Does prayer really help? *Journal of Christian Nursing, 19*(2), 31-34.

Halperin, E. C. (2001). Should academic medical centers conduct clinical trails of the efficacy of intercessory prayer? *Academic Medicine, 76*, 791-797.

Harris, A., Thoresen, C. E., McCullough, M. E., & Larson, D. B. (1999). Spiritually and religiously oriented health interventions. *Journal Health Psychology, 4*, 413-433.

Hendershot, G. E. (2003). Mobility limitations and complementary and alternative medicine: Are people with disabilities more likely to pray? *American Journal of Public Health, 93*, 1079-1080.

Heyman, J., Buchanan, R., Musgrave, B., & Menz, V. (2006). Social workers attention to clients' spirituality: Use of spiritual interventions in practice. *Arete, 30*(1), 78-89.

Higgins, J. P., & Green, S. (2005). Cochrane handbook for systematic reviews of interventions 4.2.5. In *The Cochrane Library* (Issue 3). Chichester, UK: Wiley.

Hodge, D. R. (2000). Spirituality: Towards a theoretical framework. *Social Thought, 19*(4), 1-20.

Hodge, D. R. (2006a). Spiritually modified cognitive therapy: A review of the literature. *Social Work, 51*(7), 157-166.

Hodge, D. R. (2006b). A template for spiritual assessment: A review of the JCAHO requirements and guidelines for implementation. *Social Work, 51*(4), 317-326.

Johnson, B. R. (2002). *Objective hope*. Philadelphia: Center for Research on Religion and Urban Civil Society.

Joyce, C. R. B., & Welldon, R. M. C. (1965). The objective efficacy of prayer: A double-blind clinical trail. *Journal of Chronic Diseases, 18*, 367-377.

Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of religion and health.* New York: Oxford University Press.

Kowey, P. R., Friehling, T. D., & Marinchak, R. A. (1986). Prayer-meeting cardioversion. *Annals of Internal Medicine, 104*, 727-728.

Krucoff, M. W., Crater, S. W., Gallup, D., Blankenship, J. C., Cuffe, M., Guarneri, M., et al. (2005). Music, imagery, touch, and prayer as adjuncts to interventional cardiac care: The Monitoring and Actualisation of Noetic Trainings (MANTRA) II randomised study. *The Lancet, 366*(9481), 211-217.

Krucoff, M. W., Crater, S. W., Green, C. L., Maas, A. C., Seskevich, J. E., Lane, J. D., et al. (2001). Integrative noetic therapies as adjuncts to precutaneous interventions during unstable coronary syndromes: Monitoring and actualization of noetic training (MANTRA) feasibility pilot. *American Heart Journal, 142*(5), 119-138.

Leder, D. (2005). "Spook actions at a distance": Physics, psi, and distant healing. *The Journal of Alternative and Complementary Medicine, 11*, 923-930.

Leibovici, L. (2001). Effects of remote, retroactive intercessory prayer on outcomes in patients with bloodstream infection: Randomized controlled trial. *British Medical Journal, 323,* 1450-1451.

Levin, J. S., & Taylor, R. J. (1997). Age differences in patterns and correlates of the frequency of prayer. *The Gerontologist, 37*, 75-88.

Lincoln, Y. S., & Guba, E. G. (2003). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The landscape of qualitative research: Theories and issues* (2nd ed., pp. 253-291). Thousand Oaks, CA: Sage.

Magaletta, P. R., & Brawer, P. A. (1998). Prayer in psychotherapy: A model for its use, ethical considerations, and guidelines for practice. *Journal of Psychology and Theology, 26*, 322-330.

Masters, K. S., Spielmans, G. I., & Goodson, J. T. (2006). Are there demonstrable effects of distant intercessory prayer? A meta-analytic review. *Annals of Behavioral Medicine, 32*, 21-26.

Mathai, J., & Bourne, A. (2004). Pilot study investigating the effect of intercessory prayer in the treatment of child psychiatric disorders. *Australasian Psychiatry, 12*, 386-389.

Matthews, D. A., Marlowe, S. M., & MacNutt, F. S. (2000). Effects of intercessory prayer on patients with rheumatoid arthritis. *Southern Medical Journal, 93*, 1177-1186.

Matthews, W. J., Conti, J. M., & Sireci, S. G. (2001). The effects of intercessory prayer, positive visualization, and expectancy on the well-being of kidney dialysis patients. *Alternative Therapies, 7*(5), 42-52.

McCaffrey, A. M., Eisenberg, D. M., Legedza, A. T. R., Davis, R. B., & Phillips, R. S. (2004). Prayer for health concerns: Results of a national survey on prevalence and patterns of use. *Archives of Internal Medicine, 164,* 858-862.

McCullough, M. E., & Larson, D. B. (1999). Prayer. In W. R. Miller (Ed.), *Integrating spirituality into treatment* (pp. 85-110). Washington, DC: American Psychological Association.

Murdock, V. (2004, February-March). *Religion and spirituality in gerontological social work practice: Results of a national survey.* Paper presented at the Council on Social Work Education, Anaheim, CA.

Nakashima, M. (2003). Beyond coping and adaption: Promoting a holistic perspective on dying. *Families in Society, 84*, 367-376.

NASW code of ethics. (1999). Retrieved July 28, 2003, from http://www.socialworkers.org/pubs/code/code.asp

O'Laoire, S. (1997). An experimental study of the effects of distant, intercessory prayer on self-esteem, anxiety, and depression. *Alternative Therapies, 3*(6), 38-53.

Pargament, K. I. (1997). *The psychology of religion and coping.* New York: Guilford.

Praglin, L. J. (2004). Spirituality, religion, and social work: An effort towards interdisciplinary conversation. *Journal for Religion and Spirituality in Social Work, 23*(4), 67-84.

Ramondetta, L. M., & Sills, D. (2004). Spirituality in gynecological oncology: A review. *International Journal of Gynecological Cancer, 14,* 183-201.

Roberts, L., Ahmed, I., & Hall, S. (2003). Intercessory prayer for the alleviation of ill health. *The Cochrane Library, 4.*

Rosen, A., Proctor, E. K., & Staudt, M. M. (1999). Social work research and the quest for effective practice. *Social Work Research, 23*, 4-14.

Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin, 86*, 638-641.

Sahlein, J. (2002). When religion enters the dialogue: A guide for practitioners. *Clinical Social Work Journal, 30*, 381-401.

Sajwaj, T., & Hedges, D. (1973). A note on the effects of saying grace on the behavior of an oppositional retarded boy. *Journal of Applied Behavioral Analysis, 6*, 711-712.

Seskevich, J. E., Crater, S. W., Lane, J. D., & Krucoff, M. W. (2004). Beneficial effects of noetic therapies on mood before percutaneous intervention for unstable coronary syndromes. *Nursing Research, 53*, 116-121.

Sicher, F., Targ, E., Moore, D., & Smith, H. S. (1998). A randomized double-blind study of the effects of distant healing in a population with advanced AIDS: Report from a small scale study. *The Western Journal of Medicine, 169*, 356-363.

Sistler, A., & Washington, K. S. (1999). Serenity for African American caregivers. *Social Work with Groups, 22*(1), 49-62.

Slife, B. D., & Gantt, E. E. (1999). Methodological pluralism: A framework for psychotherapy research. *Journal of Clinical Psychology, 55*, 1453-1465.

Slife, B. D., Hope, C., & Nebeker, R. S. (1999). Examining the relationship between religious spirituality and psychological science. *Journal of Humanistic Psychology, 39*, 51-85.

Slife, B. D., & Williams, R. N. (1995). *What's behind the research? Discovering the hidden assumptions in the behavioral sciences.* Thousand Oaks, CA: Sage.

Stewart, C., Koeske, G. F., & Koeske, R. D. (2006). Personal religiosity and spirituality associated with social work practitioners' use of religious-based intervention practices. *Journal of Religion and Spirituality in Social Work, 25*(1), 69-85.

Tangenberg, K. (2000). Marginalized epistemologies: A feminist approach to understanding the experiences of mothers with HIV. *Affilia, 15*(1), 31-48.

Targ, E. (2002). Research methodology for studies of prayer and distant healing. *Complementary Therapies in Nursing and Midwifery, 8*(1), 29-41.

Tloczynski, J., & Fritzsch, S. (2002). Intercessory prayer in psychological well-being: Using a multiple-baseline, across-subjects design. *Psychological Reports, 91,* 731-741.

Tolson, C. L., & Koenig, H. (2003). *The healing power of prayer.* Grand Rapids, MI: Baker Books.

Townsend, M., Kladder, V., Ayele, H., & Mulligan, T. (2002). Systematic review of clinical trials examining the effects of religion on health. *Southern Medical Journal, 95*, 1429-1434.

Tucker, E. W., & Potocky-Tripodi, M. (2006). Changing heterosexuals' attitudes toward homosexuals: A systematic review of the empirical literature. *Research on Social Work Practice, 16*, 176-190.

Vaughn, M. G., & Howard, M. O. (2004). Adolescent substance abuse treatment: A synthesis of controlled evaluations. *Research on Social Work Practice, 14*, 325-335.

Walker, S. (2001). Tracing the contours of postmodern social work. *British Journal of Social Work, 31,* 29-39.

Walker, S. R., Tonigan, J. S., Miller, W. R., Comer, S., & Kahlich, L. (1997). Intercessory prayer in the treatment of alcohol abuse and dependence: A pilot investigation. *Alternative Therapies, 3*(6), 79-86.

Weber, E. J., Callaham, M. L., Wears, R. L., Barton, C., & Young, G. (1998). Unpublished research from a medical specialty meeting: Why investigators fail to publish. *Journal of the American Medical Association, 280*, 257-259.