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Original Publication Citation

Baesler, E. J., & Ladd, K. (2009). Exploring prayer contexts and health outcomes: From the chair to the pew. *Journal of Communication & Religion*, 32(2), 347-374.

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Exploring Prayer Contexts and Health Outcomes: From the Chair to the Pew¹

E. James Baesler and Kevin Ladd

*Prayer in personal, interpersonal, small, and large group contexts is described in relationship to physical, psychological, and spiritual health. A sample of college and middle-aged adults (N = 189) completed cross-sectional surveys. Quantitative analyses revealed that prayer in all contexts predicted higher levels of spiritual health, and that the strongest prayer predictors of health were: large group prayer for mental health, and private and large group prayer for spiritual health. Qualitative results revealed that prayers for physical health in close personal relationships, and table blessing prayers among family members, were two of the most common types of prayer. Suggestions for future research include investigating the relational outcomes of prayer, developing an inventory of prayer, and examining the bi-directional nature of the prayer-health relationship. **Key words:** prayer, health, religion, spirituality*

Several decades of research depict two distinct contexts of prayer in the U.S.: the institutionalized practice of large group prayer (prayer in the pew) typically measured by frequency of attendance at religious services, and personal prayer (prayer in the chair) often measured as frequency of private prayer.¹ Prayer, the spiritual communication between a believer and God (Baesler, 2003), also includes two mid-range relational contexts: interpersonal prayer between two individuals, and small group prayer. Together, these four contexts² described by the Relational Prayer Theory (RPT)(Baesler, 2003) provide the most comprehensive communication perspective of an individual's prayer life to date.

In terms of theoretical development, the original RPT described functions of Christian prayer in the private/personal

context including prayers of adoration, petition, and thanksgiving (Baesler, 1997). Later, other functions of prayer in the private/personal context were added, for example meditation and contemplation (Baesler, 1999). Eventually, RPT expanded beyond the private/personal prayer context to include other relational contexts like interpersonal and small group (Baesler, 2003, 2005). In the current version of the theory, the same functions of prayer are described *across* relational contexts. For instance, prayers that function as adoration/worship may occur in personal, interpersonal or group contexts.

Recently, an interdisciplinary approach to understanding prayer in the interpersonal health context was advocated (Baesler, 2008). This approach discusses the prayer-health connection from a variety of academic perspectives including: communication, psychology, and sociology. The addition of health outcomes to the theoretical development of RPT remains preliminary, that is, the influence of relational prayer contexts *relative to each other* for specific health outcomes is not at the stage of a formal propositional framework, but is speculative. For example, within the framework of RPT, prayer in a close personal relationship might lead one or both participants to experience a closer relationship with God (an indicator of spiritual health) when compared to prayer within a large group of acquaintances where the intimacy levels between prayer participants may be lower. Alternatively, RPT suggests that a large group of people praying for an individual with an illness may foster greater levels of belief in the “power of prayer” to heal a physical illness when compared to the prayer of two individuals praying in the interpersonal context. Some researchers have empirically explored the prayer-health relationship (see reviews by Larson & Larson, 2003, & McCullough, 1995), but these studies are limited to the personal/private prayer context and do not account for other relational prayer contexts as suggested by RPT. In sum, at this stage in the theoretical development of the RPT, there are clearly delineated functions of prayer that individuals use across different relational contexts, but the impact of various prayer contexts on specific health outcomes is underdeveloped, suggesting the

need for exploratory research to investigate the potential connection between prayer contexts and health outcomes.

The relationship between health and prayer is of interest to many. Most people of faith pray in times of illness to cope with life (Pargament, 1997; Pargament, Koenig, Tarakeshwar, & Hahn, 2004), and an increasing number of insurance providers and health care practitioners are interested in exploring religious/spiritual (RS) practices like prayer to offset the skyrocketing costs of health care (Hale & Koenig, 2003). Previous research suggests that prayer can assist in: promoting health wellness, coping with chronic health problems, preventing some illnesses, alleviating some types of mental suffering, and reducing the impact of particular diseases like hypertension (Koenig, McCullough, & Larson, 2001). Together, these health outcomes provide a holistic framework for conceptualizing prayer, one that describes a matrix of inter-relationships between prayer and the physical, psychological, and spiritual spheres of life.

Holistic health has traditionally been framed as a mind-body-spirit connection (Dossey, 1993; MacNutt, 1999; Weil, 1997). Scholarly activity in the fields of medicine, psychology, and communication indicate a growing awareness that health is more than the absence of physical, mental, or social disease. Health involves the whole person: body, mind, and spirit. This view of holistic health raises the question: is there a relationship between prayer contexts and holistic health outcomes? Currently, no study has investigated the relationship between multiple prayer contexts and multiple health outcomes. However, there is research demonstrating empirical relationships between particular prayer contexts and specific health outcomes, thereby warranting the inclusion of these prayer contexts as viable candidates for exploring the relationship between prayer and health in this study. A sample of the prayer-health research for each communication context follows.

Prayer Contexts and Health Outcomes

Private Prayer. There is ample support for the empirical relationship between personal prayer and health outcomes. Some

representative findings based on programmatic lines of research include: greater longevity for those engaging in private religious activity defined as meditation, prayer, or Bible study (Helm, Hays, Flint, Koenig, and Blazer, 2000), a positive correlation between frequency of prayer and mental health (Meisenhelder and Chandler, 2000, 2002), positive relationships between frequency of meditative prayer and life satisfaction, existential well being, and happiness (Peacock and Poloma, 1999; Poloma, 2004; Poloma and Gallup, 1991; Poloma and Pendleton, 1991), and a positive relationship between frequency and duration of prayer and physical health outcomes. The relationship between private prayer and spiritual health is perhaps the most obvious since prayer, being a R/S activity, typically results in a closer relationship with God, and this closeness to God is one sign of spiritual health. The relationship between prayer and physical/mental health reflects the work of Benson and colleagues (1975, 2003) on the relaxation response/faith factor which has been discussed as a type of private/personal prayer within RPT (Baesler, 2001). Over the course of 30 years of research, Benson and colleagues have demonstrated that practicing the relaxation response/faith factor, in which one mentally repeats a faith charged word or short phrase, results in better physical health as measured by lower blood pressure, decreased rate of breathing, lower heart rate, more prominent and slower brain waves, and an overall reduction in the speed of the body's metabolism. In addition, MacGeorge, Bodie, Sietman, Geddes, Faris, and Samter (2007) developed a factor based typology of individual prayer about personal problems, finding that college students focus more on prayers for mental health (factor one was labeled coping assistance and included items like, "I ask God for: help to endure, strength to get through, the ability to cope") than spiritual health (factor five was labeled enlightenment and included items such as, "I ask God: for an explanation for the problem, help in making sense of the problem).

Overall, this body of research suggests that several factors may play a role in predicting a positive prayer-health relationship, including: frequency of praying, physical relaxation ac-

companying certain kinds of prayer like mentally repeating a R/S word or phrase, feelings of support gained by petitioning God for assistance, and the process of disclosing and “working through a problem” with God through prayer. This latter explanation is consistent with a line of research on the benefits of secular and R/S written self-disclosure processes (Bennett, 2005; Pennebaker, 1990; VandeCreek, Janus, Pennebaker, & Binau, 2002). For example, writing a series of letters to God about a traumatic experience as a form of prayer can aid in producing a coherent and integrated “life-story” about the traumatic event that allows for some degree of psychological closure.

Interpersonal Prayer. Few empirical studies examine health effects of face-to-face prayer between two individuals while a host of studies examine effects of distant intercessory prayer (this later category is outside our interest in face-to-face personal relationships and therefore not reviewed). Interpersonal prayer between couples served as a “softening event” for reconciliation and problem solving (Butler, Gardner, Brandt, Bird, & Mark, 1998). In a study of older adults, Krause (2003) found that there is some physical health benefit to praying for others, specifically praying for others reduces the effects of financial strain on the health of the person praying. On the receiving side of prayer, “in-person laying on of hands intercessory prayer” for patients with rheumatoid arthritis significantly improved their grip strength, pain level, and functional impairment (Matthews, Marlowe, and MacNutt, 2000). These three studies provide some empirical support for a positive relationship between face-to-face interpersonal prayer and mental and physical health. Possible explanations for these prayer-health relationships in the interpersonal context include: perceived concern for another in the act of praying together (the softening effect), gaining an “other-centered” perspective from mutual disclosures during prayer, distraction from one’s personal problems in the act of praying for the problems of another, and the physical/emotional comfort accompanying laying on hands type of prayer.

Small Group Prayer. Small groups consist of 3 to 12 individuals who know each other personally, think of themselves

as an interdependent group, and communicate by managing messages to create meaning (Socha, 1997). Small group prayer with family and friends positively correlates with life satisfaction, existential well being, happiness, and closeness to God (Poloma and Pendleton, 1991), and Wuthnow's (1994) research indicates that most support groups have a spiritual dimension, 69 percent praying together, and 44 percent describing their group as a "prayer fellowship." The most frequent type of prayer in these small groups is a request for the needs of individual members, and prayer is reported to be one of the things members liked best about the group. These studies demonstrate a positive relationship between small group prayer and mental and spiritual health. Explanations for the prayer-health linkage in the small group context include: greater group cohesiveness from mutual disclosure of needs during prayer, feelings of care and concern from other group members (social support), and accountability and conformity to R/S group values that promote a healthy lifestyle.

Large Group Prayer. There is an assumption that "religious attendance" in large groups is usually accompanied by one or more types of prayer, but no research that we are aware of has tested this claim by documenting different types/functions of prayer during religious services, thus there is only indirect evidence that prayer via religious attendance may influence health. Examples of this line of research include: religious attendance (more than weekly vs. never) predicted lower 12-year mortality (Lutgendorf, Russell, Ullrich, Harris, and Wallace, 2004), church attendance positively correlated with life satisfaction, existential well being, happiness, and closeness to God (Poloma, 2004; Poloma and associates, 1991, 1999). Overall, these studies indicate a positive relationship between larger group prayer and physical, mental, and spiritual health. Explanations vary for why large (and small) group prayer is linked to health. Possible explanations summarized by Levin (2001) include: (a) religious affiliation/membership promotes healthy lifestyle, (b) religious fellowship offers a support buffer to stress and social isolation, (c) participation in worship and prayer produces physiologic

effects of positive emotions, (d) simple faith, thoughts of hope, optimism, and positive expectations lead to a positive outlook on life, (e) mystical experience that activates a healing bioenergy field, life force, and or altered state of consciousness, and (f) paranormal, super-empirical, and or divine intervention.

Rationale and Research Questions

Previous research on the prayer-health relationship is limited to one (sometimes two) health outcomes in a given study. The present investigation builds on that base by conceptualizing health more broadly, incorporating measures of physical, mental, and spiritual health in the same study. Similarly, previous prayer-health research is limited to one (sometimes two) prayer contexts in a given study. The present work offers an expanded view of prayer, incorporating different prayer contexts within the same study. Overall, the current investigation provides a larger and more coherent framework of prayer and health variables based on RPT to systematically assess potential prayer-health relationships by examining each prayer context in relationship to multiple health outcomes. In sum, *research question one* is: Which prayer contexts (personal, interpersonal, small group, and/or large group) are associated with health outcomes (physical, mental, and/or spiritual), and if there are statistically significant associations between prayer and health, which prayer contexts are the strongest predictors of health outcomes?

There are relatively few qualitative studies of prayer and health. Some notable exceptions are Schneider and Kastenbaum's (1993) work in a hospice setting, and Bade and Cook's (2008) exploration of the functions of prayer, but both of these studies are limited to the personal/private prayer context. In addition, the problem with relying solely on quantitative measures, like the common measure for frequency of private prayer in large data-based studies, is that the content of prayer remains unknown. For example, a low frequency but sincere prayer of contrition may inspire an individual to enter a rehabilitation program that eventually results in overcoming an unhealthy addiction whereas a high frequency rote type of prayer performed as a "necessary

obligation” may not have as strong an impact on health. Without knowledge of prayer content, it is difficult to specify if prayer in different contexts is related to one or more health outcomes. To address these limitations in previous research, the content of prayer in multiple contexts will be assessed by asking individuals to describe their most recent prayer experience for each context that they pray in. To determine if the content of each prayer context corresponds to one or more health outcomes, a *second research question* is proposed: Does the content of prayer in different communication contexts reveal content relevant to physical, mental, and/or spiritual health? Since research in the interpersonal prayer context is underrepresented compared to other prayer contexts, an additional question about interpersonal prayer will be included to explore a *final research question*: What types of personal relationships are represented in the interpersonal prayer context?

Method

Participants

A snowball sampling method employed undergraduate communication students to complete a survey and recruit individuals aged 35+ not currently attending college to complete an additional survey outside of class. These surveys were returned in one week's time in separate sealed envelopes in exchange for extra credit ($N = 189$). The majority of participants identified themselves as Christian (82%, $N = 155$, 69% female, age 19-77, $M = 36$, $sd = 14$). All analyses were conducted on the Christian sub-sample (other religious affiliations had sample sizes of less than 10% precluding any comparisons). Statistical power based on the size of the Christian sub-sample is estimated at 60 percent to detect an effect size of .20, with $\alpha = .01$ (Kraemer and Thiemann, 1987). Due to the exploratory nature of the study, the level of statistical significance was set conservatively at $p < .01$ to reduce the possibility of type 1 error due multiple statistical tests.

Predictor Variables: Prayer Contexts

Prayer contexts are defined as follows. One person praying to/with God was labeled *private/personal prayer*. Two people praying to/with God was designated *interpersonal prayer*. Two items measured interpersonal prayer for others (“I offered prayer for another” and “another individual asked me to pray for them”) and were summed based on a correlation of .88, $p < .01$. Three to twelve individuals praying to/with God was labeled *small group prayer*. Two types of small groups were assessed: prayer in the immediate family, and prayer in small groups other than immediate family.³ Attendance at religious services was defined as *large group prayer* since most religious services are attended by more than 12 individuals, and since this is one of the most common conceptualizations of prayer in the literature. Prayer in each context measured how many times (0–5+) participants prayed in that context during the previous week (see Table 1 for descriptive statistics).⁴ Lastly, a cumulative prayer index was created by summing all prayer contexts.

Qualitative assessments of prayer content were obtained by inserting a blank line after the quantitative question for each prayer context, asking participants to briefly describe their most recent prayer experience if they had prayed in that particular context during the previous week. Responses were transcribed verbatim into “prayer units” based on methods similar to Krippendorff (2004). If two or more different prayers were mentioned in a given response, then those responses were transcribed as separate prayer units.

Criterion Variables: Physical, Mental, and Spiritual Health

Assessments of overall health were phrased: “Compared to other people my age, my ___ [insert the word: physical or mental or spiritual] health this past month has been...” followed by a seven point Likert scale (1 = poor, 7 = excellent). Krause (2003) successfully employed this wording to assess physical health. It is unknown if this type of wording will be equally effective in assessing mental and spiritual health. Secondary empirical

indicators were created for each health domain: Number of doctors visits for a “medical problem” during the past six months (recoded so that higher numbers represent less doctor visits) for physical health, amount of “mental stress” for mental health (1 – 7 = high stress; recoded so that higher numbers indicate less stress), and perceived “closeness to God” for spiritual health (1 – 7 = very close). Similar empirical measures are used by other researchers (e.g., Pennebaker, 1990; Poloma and Gallup, 1991). Secondary empirical indicators were combined with the overall health measures to create summative health indexes for each health domain based on significant correlations between secondary and overall measures (r 's were .23 for mental, .48 for physical, and .73 for spiritual health, $p < .01$). Finally, all health domains were summed to create a holistic health index.

Results

Quantitative

The overall relationship between prayer (sum of five prayer contexts) and health (sum of three health domains) was positive, $r(154) = .39$, $p < .01$. To determine which prayer contexts are associated with particular health outcomes, a correlation matrix was computed between five prayer contexts and three health outcomes (See Table 2). Seven correlations between prayer and health were significant at $p < .01$. Specifically, there were no significant correlations ($p < .01$) between prayer and physical health (but there was a trend for a positive relationship between small group prayer and physical health, $p < .052$), two positive correlations between mental health and family and large group prayer, and prayer in all contexts yielded positive correlations with spiritual health. To test the relative merit of different prayer contexts in predicting mental and spiritual health outcomes, two regression analyses were conducted with age and sex as covariates (prior research shows that age and sex are related to health outcomes, Koenig, McCullough, & Larson, 2001; Pargament, 1997). Prayer in the family, small, and large group contexts was entered as one block of predictor variables with mental health as the criterion

for the first regression analysis, while all five prayer contexts were entered as a block of predictors with spiritual health as the criterion for the second analysis. Results showed that prayer in the large group context, and age, accounted for 10% of the variance (adjusted R^2) in mental health, $F(2, 152) = 9.54, p < .01$. There was a positive relationship between praying in a large group and mental health, Standardized Beta (SB) = .19, $p < .01$. For spiritual health, results indicated that prayer in the private and large group contexts, and age, accounted for 31% of the variance, $F(3, 151) = 24.32, p < .01$. Praying in private ($SB = .34$) and large group ($SB = .30$) contexts predicted higher levels of spiritual health, $p < .01$. In sum, research question one, which queried the relationship between praying in different contexts and health outcomes, shows strongest support for spiritual health, modest support for mental health, and marginal support for physical health.

Qualitative

Overall, qualitative results indicate that prayer content in different communication contexts are associated with three types of health (research question two; see Table 3); and, interpersonal prayers for health occur more frequently in close personal relationships than in other types of interpersonal relationships (research question three).

Of the 535 responses transcribed into prayer units, 33% represent interpersonal prayers, 29% private, 16% large group, 13% family, and 9% small group (other than family) prayers. Interpersonal prayers comprise the largest category of prayers since participants were asked two questions about interpersonal prayer compared to one question each for the other prayer contexts. To address the research questions about prayer content (RQ2) and type of relationship in the interpersonal context (RQ3), qualitative responses were categorized into one of three health categories or an "other" category, and by type of relationship based on a modified version of Knapp and Vangelisti's (2000) relational categories (stranger, acquaintance, and close personal relationships). Random samples of 10 percent of interpersonal prayers were independently coded by two individuals and com-

Table 1
Descriptive Statistics for Prayer Contexts and Health Outcomes

<i>Predictor Variables:</i> <i>Prayer Contexts</i>		<i>Criterion Variables:</i> <i>Health Outcomes</i>	
Private	3.2 (1.9)	Physical	8.8 (2.4)
Interpersonal	2.3 (2.5)	Mental	9.3 (2.5)
Group		Spiritual	10.1 (3.0)
Family	1.4 (1.7)		
Small	0.6 (1.2)		
Large	0.7 (1.0)		

Note. N = 155. Means for prayer contexts represent recall of prayer behavior during the past week while means for health outcomes represent the summation of two health measures on 1-7 Likert type scales (with the exception of 6 month recall of number of doctor visits for physical health which was recoded prior to summing). Numbers in parentheses are standard deviations.

Table 2
Pearson Product Moment Correlation Coefficients between Predictor and Criterion Variables

<i>Predictor Variables:</i> <i>Prayer Contexts</i>	<i>Criterion Variables:</i> <i>Health Outcomes</i>		
	Physical	Mental	Spiritual
Private	.03	.09	.42**
Interpersonal	.06	.07	.41**
Group			
Family	.02	.19**	.37**
Small	.13 [†]	.16*	.29**
Large	.09	.22**	.42**

Note. N = 155., [†] p < .052 (trend), * p < .02, ** p < .01.

pared to the first author's coding, resulting in inter-coder reliability (Phi coefficient, Scott, 1955) of .93 for content of prayer and 1.0 (100% agreement) for type of relationship.

The majority of interpersonal prayers reflected physical/mental health issues in close personal relationships. Specifically, of the 74% of interpersonal prayer responses that provided information on the type of relationship, 84% were categorized as close personal relationships (family, relatives, and friends), 14% acquaintances (e.g., church members and co-workers), and 2% strangers. Content areas dealing with spiritual health comprised 4% of the interpersonal prayers (e.g., blessings, spiritual growth, closer relationship with God), mental health 10% (e.g., relational problems, stress, and specific types of mental illness like depression), and physical health 50% (e.g., illness/sickness, surgery, and specific health conditions like cancer; the only positively phrased prayers dealt with pregnancy and the birth of a child) while the remaining 36% were too generic (e.g., place of prayer, or method of prayer) to be classified.

To determine if the content of prayer in the remaining contexts (other than interpersonal) are relevant to physical, mental, and/or spiritual health, responses were categorized into one of the three health domains, or the category "other." A random sample 10 percent of these prayers were independently coded by two individuals and compared to first author's coding, resulting in an inter-coder reliability coefficient of .82 (Scott, 1955). Overall, percentage of prayers associated with health concerns ranged from 0 to 32 percent. Prayers for physical and spiritual health were on average higher than those reported for mental health. Generally, the pattern of responses show greater similarity within health domains than across prayer contexts, that is, prayer for a particular type of health showed common responses across the prayer contexts whereas prayers within a particular context showed more differences across health domains. Prayers associated with *physical health* comprised 15 percent or less of the responses across the contexts with the exception of interpersonal at 50 percent. The most common type of prayer for physical health was for those that are ill/sick or about to undergo

surgery. Percentage of prayers for *mental health* was the lowest of all health categories, ranging from zero to ten percent across prayer contexts. The most common prayers for mental health dealt with stress, and emotional and relational problems. For *spiritual health*, percentage of prayers ranged from 4 to 32 with the largest percent in the family context (the majority of these were table blessing and bedtime prayers), followed by private prayer (e.g., guidance, wisdom, strength), and large (e.g., praise, worship, stations of the cross, rosary, benediction) and small group prayer (the majority of these prayers were associated with mealtime). Finally, the “other” category contained the largest percentage of responses across all but the interpersonal prayer context (ranging from 36 to 87 percent). The most common prayers in the “other” category included information about time of day (usually bedtime), occasion (e.g., mealtime, or church), or type of relationship (e.g., family and friends).

Table 3
Percentage of Qualitative Responses by
Prayer Context and Health Outcome

<i>Prayer Contexts</i>	<i>Health Outcomes</i>				Total Percent of all Prayers
	Physical	Mental	Spiritual	Other	
Private	15	5	22	58	29
Interpersonal	50	10	4	36	33
Family	6	1	32	61	13
Small Group	5	0	7	37	9
Large Group	1	0	12	87	16

Note. Percentages, based on 535 responses to the phrase “briefly describe your most recent prayer experience” in the _____ prayer context during the past week,” are calculated *within* each prayer context with the exception of “total percent of all prayers.” “Other” prayer category includes responses that were too general to classify (e.g., time of day, place, and method of prayer).

Discussion

Praying in particular communication contexts predicted unique health outcomes. While best prayer predictors of health included large group prayer for mental health, and private and large group prayer for spiritual health, *prayer in all contexts predicted better spiritual health*, and none of the prayer contexts predicted physical health with the exception of a positive trend for small group prayer. In the following sections, limitations and suggestions for future research serve as frames for interpreting quantitative and qualitative findings. Lastly, the complexity of prayer-health relationships is explored.

Limitations and Future Research

First, the exploratory findings are limited to the micro level of analysis, that is, all findings are based on the health status of particular individuals. There are other macro levels of analysis involving relational health outcomes that could be considered in future research, for example, the relationship between prayer and the health status of: interpersonal relationships, family systems, small support groups, and larger faith communities. Second, the present investigation focused on the production side of the prayer process, that is, *prayers for* self or others in different communication contexts. It would be beneficial to expand the communicative scope of prayer to include *prayers received* from others in the interpersonal, family, small and large group contexts as this might reveal differential health outcomes. For instance, prayers received from others might initially indicate that the person being prayed for has one or more health issues, suggesting a negative correlation between prayer and health. However, if prayers received extended over a period of time, health may improve for some illnesses, changing the relationship between prayer and health from negative to positive. A more ambitious project might examine the interplay, and influence on health outcomes, of prayers *given and received* over a period of time for a sample of individuals that have a specific illness. Third, since the prayer-health relationships in this study are

correlational and not causal, several rival hypotheses are possible including: religious involvement, social and psychological resources, and socio-demographic variables other than age and gender (Levin, 2001). Adding measures for these confounding variables while adopting a longitudinal design might clarify the directional nature of prayer-health relationship. One possibility for such research would be to conduct a month long prayer workshop where participants complete daily and/or weekly prayer assignments/assessments of prayer and health.

Alternatively, one might employ an Experience Sampling Method (Csikszentmihalyi, 1997) of data collection which uses a pager or programmable device to signal people at random two hour intervals from early morning to late evening to complete information about frequency and duration of prayer in different contexts along with simple measures for assessing physical, mental, and spiritual health. This type of methodology would provide more valid and reliable measures of prayer behavior in the context of everyday life. Finally, future research might investigate developmental variables, like the influence of communication sources (e.g., the modeling influence of parents and media), that might account for why individuals pray in different contexts.

Quantitative Results and Future Research

Prayer Contexts and Spiritual Health. The specific mechanism(s) that account for why private and large group prayer predicts better spiritual health remain speculative. Possible explanations might include the following. The environment of solitude, quiet, and peace of private prayer can facilitate contemplative/receptive prayer experiences. The contemplative prayer factor has been associated with an advanced prayer life and a close relationship with God (Baesler, 2003) both of which contribute to better spiritual health. In comparison, the active ingredient(s) in large group prayer contributing to better spiritual health may be more varied than private prayer as contemplation. For example, large group prayer services may include lively periods of praise and worship, and periods of quiet prayer. Moreover, the physical, emotional, and spiritual impact of the presence of others in a

large group reciting a common prayer aloud is a qualitatively different experience than praying the same prayer alone in private. Future research needs to investigate the variables operative in private and large group prayer contexts to determine how these and other factors contribute to spiritual health. In addition, the predictive power of private and large group prayers may have dampened the statistical impact of interpersonal, small and family group prayers to predict spiritual health in the regression analyses as prayers in these later contexts yielded statistically significant individual correlations with spiritual health. Future research should also explore factors present in interpersonal, family, and small group prayer contexts that may influence spiritual health. Finally, the present measure of spirituality may not be broad enough to capture the *social* dimension of spiritual health, those communal aspects of life motivated by spiritual values (e.g., acts of social justice or social service). The lack of a measure for the social aspect of spiritual health may have limited the predictive power of interpersonal, family and small group prayers that are inherently social. Future research might use a more comprehensive measure of spiritual health that includes a social dimension, for example, the horizontal dimension of the Faith Maturity Scale (Benson, Donahue, and Erickson, 1993) which includes items like: "I am active in efforts to promote social justice," "I try to apply my faith to political and social issues," and "I go out of my way to show love to people I meet."

Small Group Prayer and Physical/Mental Health. Prior research provides ample evidence that small group prayers predict physical and mental health (e.g., George, Larson, Koenig, and McCullough, 2000; Wuthnow, 1994), thus it was surprising that these relationships were not replicated in this study. There are several possible explanations. First, as an exploratory study with multiple statistical tests, alpha for significance was conservatively set at $p < .01$, meaning that the study is somewhat underpowered with a 60 percent chance to detect a .20 effect size. Small group prayer did show a positive relationship with mental health at $p < .02$, and a positive relationship with physical health at $p < .052$. With a larger sample size that increases statistical power, perhaps

these trends would become significant at the more conservative alpha level. Second, measuring prayer frequency within the past week may miss some small groups that meet once or twice a month to support each other with prayer, thus underestimating their influence. Third, descriptive statistics reveal a mostly healthy middle-aged sample. Research might employ a comparable sample of middle-aged adults with poorer physical health to increase the range of participants' health status, thus providing a broader test of the prayer-health relationship in the small group context.

Large Group Prayer and Health. Prayer during religious services, the large group prayer context, predicted better mental and spiritual health, but not better physical health. Why large group prayer did not predict better physical health in this study is *inconsistent* with a program of research that shows a positive linkage between attendance at religious services and better physical health (e.g., Powell, Shahabi, and Thoresen, 2003). Perhaps the current measures of physical health were not sensitive enough to capture dimensions of physical health demonstrated in other studies that use more elaborate protocols to measure physical health. Operationalization and measurement of the large group prayer context is another issue to consider. Although religious attendance is the most common measure of large group prayer in the literature, using religious attendance as a measure of prayer in large groups is problematic for several reasons. Religious traditions differ in the way they incorporate prayer into their religious services (e.g., formal/informal prayers, short/long prayers, spontaneous/liturgical prayers). Also, attending a religious service does not describe the mental, emotional, or spiritual engagement in prayer of the participant during the service (this might range from states of low mindfulness to intense mystical contemplation). Thus, future research might begin to unpack the religious attendance variable as an indicator of prayer in large groups by measuring types of prayers and levels of engagement in prayer during religious services.

Qualitative Results and Future Research

Across the prayer contexts, the largest number of prayers related to health issues were prayers for spiritual concerns followed by

prayers for mental and physical health (with the exception of prayers in the interpersonal context which showed the opposite pattern). In general, the percentage of prayers reported by context and health must be viewed cautiously since the largest number of prayers reported for all contexts (except interpersonal) was classified as "other," that is, these prayers were too general to classify into one of the health categories, or did not relate to a health issue. In addition, the qualitative findings are based on the most recent prayer experience that participants could recall for a particular context within the past week, thus results represent a narrow bandwidth of the full spectrum of possible prayers for a given context. To remedy this situation, future research could develop an inventory of prayer, asking participants to describe the topic of their prayer, where they prayed, who they were praying with, what they experienced while they prayed, what the outcome of their prayer was, and so forth for each prayer context. Bearing in mind the preceding limitations, interpretations of the qualitative data for each of the prayer contexts are offered with the goal of improving future research.

Private Prayer. Qualitative responses for private prayers provide insight into possible explanations for the quantitative finding of a positive relationship between private prayer and spiritual health. The most common response to praying in private during the past week for spiritual health were prayers of thanksgiving/gratitude, followed by a number of prayers for positive R/S virtues like guidance, wisdom, patience, forgiveness, and peace. Thanksgiving and gratitude have been linked to positive health outcomes like greater subjective well-being, increases in sense of connection with others, and less negative affect (Emmons & McCullough, 2003). Private prayers that enhance these and other positive virtues found in this study could have a number of health benefits according to the literature on character strengths and virtues in positive psychology (Peterson, & Seligman, 2004). It would be valuable to move beyond self-reports to assessments of spiritual health by others (like a close friend or family member, and/or a R/S person in the community) to avoid the mono-method bias of self-report in the present study.

Interpersonal Prayer. The large percentage of interpersonal prayers associated with physical health suggests the import of prayers for physical health in personal relationships, yet the quantitative data did not indicate a statistically reliable relationship between interpersonal prayer and physical health. A longitudinal design that tracks interpersonal prayers for physical health is needed to better assess this potential relationship. The low percentage of prayers for mental health in the interpersonal context, and the overall low percentage of prayers for mental health in other public contexts like family, small and large group, may be due to a social stigma (Goffman, 1986) associated with disclosing information about mental health. For instance, asking others to pray for a family member with a mental illness is not as socially acceptable as asking others to pray for a family member with the flu. Thus, the “other” category may contain some prayers related to mental health but are masked by the generic phrasing of the response due to the stigma associated with mental health disclosures. Finally, about a third of all petitionary prayers in the interpersonal context dealt with physical health issues occurring in a close personal relationship versus less than two percent of petitionary prayers for strangers. This is a striking contrast when compared to the widespread conceptualization and operationalization of interpersonal prayer as remote/distant intercessory prayer between *strangers* (see reviews by Francis and Astley, 2001; McCullough and Larson, 1999) evidenced in the widely publicized study by Benson and colleagues (2006). Given these considerations, prayer researchers might benefit from a more balanced research agenda, one that devotes more attention to understanding prayer in the context of ongoing *personal* relationships (interpersonal, small group, and larger faith communities) and less effort in pursuing distant/remote forms of interpersonal prayer.

Group Prayer. Mealtime blessings were the most common type of family prayer reported. Perhaps asking individuals to recall the most recent family prayer within the last week is too broad to uncover the potential diversity of family prayer, and an in-depth interview or diary approach might better represent family prayers. For example, research might create prompts to

explore how families teach children prayers of table blessings, petition, and forgiveness especially in light of research suggesting the beneficial influence of forgiveness (Worthington, 2005) and gratitude (Emmons and McCullough, 2003) on health. As for small group prayer other than family, and large group prayer, the qualitative data do not provide much insight into the quantitative correlations for small and large group prayer with mental and spiritual health due to the large number of prayers categorized as "other." Most of the "other" prayers in the small and large group contexts were simply described as "church" or referenced a particular person being prayed for without describing the specific prayer content. Future research might prompt individuals to describe their small and large group prayer experiences in greater detail to explore the reasons for the quantitative findings that suggest a positive relationship between prayer in group contexts and mental and spiritual health.

Prayer, Health, and the Prayer-Health Relationship

A more comprehensive theory of prayer and health is needed. The present study provides empirical starting points for which prayer contexts are related to specific health outcomes. Still unknown is: how praying in one context might influence praying in another context (correlations between prayer contexts ranged from .27 to .66, $p < .01$ in the present study), how changes in one health domain might influence other health outcomes (correlations among health domains ranged from .33 to .37, $p < .01$), and the directional nature of the relationship between prayer and health. For heuristic purposes, we briefly explore these possibilities.

Within prayer contexts, praying with others (interpersonally or in groups) may lead to a renewed interest in personal private prayer, or conversely, a lack of praying with others (e.g., home-bound individuals) could be compensated by increased periods of private prayer. Alternatively, if intensively introspective private prayer leads to contact with deeper unconscious levels that threaten the ego, the individual may experience more security/comfort by praying in the company of others. In each of these examples, prayer in a particular context led to increased

prayer in a different context, but for different reasons. A well-developed theory of prayer would account for how praying in one context might influence prayer in other contexts.

Within the physical, mental, and spiritual health domains, each might influence the other two: better spiritual health (e.g., a general sense of connection with life) may lead to better mental (e.g., a specific sense of connection with others) and physical health (e.g., a spiritual connection with animals may lead to vegetarian diet which in turn can lead to better physical health). Similarly, enhanced physical health (e.g., increased endorphins from a runner's high) might lead to a better mental (renewed sense of well-being) and spiritual health (e.g., the entrainment of body and mind during physical exercise can produce a sense of spiritual unity). Finally, better mental health (e.g., an optimistic outlook on life) may lead to better physical health (e.g., optimism can foster a sense of openness, which may lead to exploring alternative forms of physical exercise) and better spiritual health (e.g., optimism can lead to spiritual reconciliation with others). In each of these illustrations we have focused on the positive influence of improved health, but the converse is also possible, that decline in one health domain leads to decline in other health domains. Further, these examples do not explain the curious situation where a person experiences high levels of spiritual health but reports poor physical and/or mental health, or the person who maintains optimal levels of physical and/or mental health but reports low or no R/S affiliation.

In considering the nature of the relationship *between prayer and health*, prayer may influence health either by improving health or by making it worse. For example, sustained periods of regular meditative prayer may induce a relaxation response that is associated with several health benefits (Benson, 1975; Benson and Proctor, 2003), but health may also influence frequency of prayer. For instance, if physical health declines, then an individual may pray for a speedy recovery, pray to die in order to experience release from pain, or simply pray for peace no matter what the outcome. These examples suggest that there is a bi-directional relationship between prayer and health.

Conclusion

One challenge for future research is building/refining theoretical explanations for the prayer-health relationship, and in designing creative studies that assess the bi-directional nature of prayer and health. This study expands the boundaries of what it means to pray by describing reports of praying in personal, interpersonal, family, and small and large group contexts, and by relating these prayer contexts to a holistic conceptualization of health that includes physical, mental, and spiritual dimensions. It is our hope that the specific suggestions for future research on prayer in on-going personal relationships, especially in the contexts of interpersonal prayers for physical health, family prayers of blessing, and prayers of contemplation and praise/worship in large group assemblies, will provide ferment in the field of religion/spirituality for some time to come.

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Endnotes

¹ The term “pew” is based on the imagery associated with the long rows of wooden pews found in some older Christian churches. These pews metaphorically represent the commonplace institutionalized practice of large group prayer. The term “chair” refers to personal private prayer since sitting in a chair is the most common posture for the practice of private prayer in western traditions. The prayer contexts between “the chair and the pew” refer to interpersonal and small group prayers.

² The contextual approach to prayer is borrowed from the field of Human Communication where many theories of communication are classified by context like interpersonal, small group, public, and so

forth (e.g., Griffin, 2006). However, in Christian theology, prayer even in the “personal private context”, is inherently relational by nature (Keating, 1994). Thus, “private” prayer takes place in an “interpersonal” prayer relationship with God, and what is normally considered “interpersonal prayer” between two individuals is actually “small group prayer” where God is considered the third part of a triad of relationships. In this study, to avoid confusion, we have opted for the more traditional nomenclature of prayer contexts as private, interpersonal, and small and large groups. See Baesler (2003) for further arguments that compare/contrast traditional and theological nomenclature for the distinction between interpersonal communication and interpersonal prayer. See Ladd & Spilka (2002, 2006) for a more cognitive theoretical conceptualization of prayer as inward, outward, and upward connectivity.

³We recognize that there are families with less than three members, such as a married couple or a single parent with one child. These later family systems would fall under the interpersonal prayer context and reflect a limitation in the designation of “family” as small group. However, many of the unique communication dynamics that differentiate interpersonal and small group communication, such as clique formation, conflict patterns, and levels of disclosure begin to emerge when there are three or more individuals acting as a group. Thus, we opted to retain the distinction between interpersonal and small group contexts.

⁴ Visual inspection of the distribution of scores for four of the five prayer contexts showed positive skew, and these deviations from normality were confirmed by the Kolmogorov Smirnov (KS) test which tests the null hypothesis that the population is normally distributed (Mertler & Vannatta, 2005). Transformations on the predictor variables were computed using the square root function. Similarly, visual inspection and KS tests showed deviations from normality for the two of the three health variables: negative skew for physical health and positive skew for spiritual health. Similar transformations were performed for these variables. Two correlation matrixes of predictor (five prayer contexts) by criterion (three health outcomes) variables were computed, one matrix for the transformed data, and a second matrix for the original data, resulting in 16 significant correlations for the original untransformed variables, and 16 significant correlations for the transformed variables, $p < .01$. All 16 significant correlations were associated with the same pairs of variables, and were in the same direction, for both the original and transformed data sets. Given the high level of redundancy in the correlation matrixes, all of the results reported are based on the original untransformed data.

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