

## Livin' on a Prayer: An Analysis of Intercessory Prayer Studies

Savannah Vincent

Department of Biology; College of Arts and Sciences  
Abilene Christian University

**A meta-analysis of intercessory prayer studies was done. Current studies fail to account for the numerous variables and limitations posed by these studies; nevertheless, it is possible to reach the conclusion that the prospect of prayer as an alternative medicine is, at best, limited. The boundaries of faith and science need to be respected. The essential takeaway from this discussion is to look deeper into what sounds like simple and well-designed scientific studies on faith. These studies are often either inconclusive or have varying results when compared to similar studies.**

Tensions around the boundaries of religion and science have been prevalent for centuries. One way that religious believers and scientists have attempted to disrupt these boundaries is by conducting scientific studies examining the effectiveness of intercessory prayer. Intercessory prayer is defined simply as prayer said on behalf of someone else.<sup>1</sup> This practice is common among many religious traditions and cultures, which makes it “an ideal intervention to scientists because it is imagined to be pan-religious (and therefore inclusive).”<sup>2</sup> Intercessory prayer allows a study of science and religion that for the most part requires no particular equipment, leaders, physical space, training, or financial costs. Additionally, the distance between the intercessors and people being prayed for is not an issue.<sup>3</sup> There are fewer studies on direct, in-person prayers because these are impossible to test in any double-blind way.<sup>4</sup>

To experiment in a double-blind fashion would mean that it is done so that neither the people who are doing the experiment nor the people who are subjects of the experiment know which of the groups being studied is the control group and which

is the test group.<sup>5</sup> However, to narrow the large breadth of this topic, this analysis of prayer studies focuses on Christian intercessory prayer. Most of the studies discussed had intercessors offer prayers to a Judeo-Christian God rather than to an “intermediary such as Mary or one of the saints in the Catholic tradition or a bodhisattva of the Buddhist tradition.”<sup>6</sup>

### Importance of Studying Intercessory Prayer

Prayer studies have captured the interest of the public for many reasons including: the wide practice of intercessory prayer, the desire for healthcare professionals to care about patient spirituality, and the many studies that have been published in high-profile news outlets. One study showed that 98% of praying Americans pray for others.<sup>7</sup> Further, a survey of America’s east coast found that 75% of hospitalized patients believed that their doctor should be concerned about their spiritual welfare, and 50% wanted their physician to pray not only for them, but also with them.<sup>8</sup> It is understood that the results of these studies are not likely to influence

<sup>1</sup> Masters and Spielmans, 2007, 309

<sup>2</sup> Cadge, 2009, 323

<sup>3</sup> Cadge, 2009, 322

<sup>4</sup> G. Fung and C. Fung, 2009, 44

<sup>5</sup> Double-blind, 2015

<sup>6</sup> Cadge, 2009, 309

<sup>7</sup> Schafer, 2013, 35

<sup>8</sup> Mathai and Bourne, 2004, 387

how particular religious traditions are practiced, but rather, these attempts at ‘medicalizing’ traditional religious practices are intended to influence how practices are perceived in the public sphere. Added, some Protestants hope that science will confirm the existence of God.<sup>9,10</sup> High-profile newspapers such as *The New York Times* and reliable medical journals have published the findings of these studies, thereby increasing the interest and attention given to them.<sup>11</sup>

Research on intercessory prayer is primarily funded by personal research budgets, university resources, and grants from the National Institute of Health and other private foundations.<sup>12</sup> These studies attracted more popular attention than their numbers may have warranted over these 40 years. They also raised questions, among researchers and the public, about broader studies of health and religion, such as the investigation of the health effects of personal prayer or meditation.<sup>13</sup>

## History of Intercessory Prayer Studies

Interest in intercessory prayer studies began approximately 150 years ago, when in 1872, John Tyndall, a physicist, began the modern study of intercessory prayer by coming up with a hypothetical experiment in which a hospital would be made the focus of a national prayer for one day and mortality rates compared before and after the day of prayer. Although this particular experiment was never conducted, it did provoke a ‘prayer gauge’ debate and illustrated the frictions around the margins of religion and science in Victorian England, in addition to serving as a precursor to modern intercessory prayer studies.<sup>14</sup>

Soon after the proposed experiment by Tyndall, in 1873, English scientist Francis Galton published the first known studies on intercessory prayer. He found no statistical evidence that prayer prolonged life or reduced stillbirths (though his findings would not meet today’s criteria for a controlled prospective study).<sup>15</sup> Galton concluded that prayer might be a comfort to people regardless of his results.<sup>16</sup> Since Galton’s study there have been several other clinical attempts at examining prayer. Many of these have been based exclusively on Christian forms of prayer.

## The Studies and The Results

In the one hundred plus years of studying and discussing intercessory prayer, there have been conflicting results. The findings of prominent intercessory prayer studies have found positive correlations, negative correlations, and no correlation.

### Positive Correlation

A 1969 study on whether intercessory prayer influenced health was published by *Medical Times* and was centered on the survival of children with leukemia. The study used friends of Dr. Platon J. Collipp, chairman of the Department of Pediatrics at Meadowbrook Hospital in New York, to organize a prayer group of ten families through their Protestant church. The author of this study concluded, “our data does support the concept that prayers for the sick are efficacious’ and ‘the greater number of prayers the more likely they are to be answered.”<sup>17</sup>

Another well-known study conducted in 1988 by Randolph Byrd,

<sup>9</sup> Cadge, 2009, 301

<sup>10</sup> Cadge, 2009, 308

<sup>11</sup> Cadge, 2009, 324

<sup>12</sup> Cadge, 2009, 304

<sup>13</sup> Cadge, 2009, 324

<sup>14</sup> Cadge, 2009, 303

<sup>15</sup> G. Fung and C. Fung, 2009, 43

<sup>16</sup> Cadge, 2009, 303

<sup>17</sup> Cadge, 2009, 308

studied whether intercessory prayer to the Judeo-Christian God has a beneficial therapeutic effect in 393 patients admitted to the CCU [cardiac care unit] of San Francisco General Hospital for problems associated with heart attack or severe chest pain.<sup>18,19,20</sup> The findings of this study were positive in that they found prayer having an influence in a summary measure of health. They argued that patients who were prayed for did 10 percent better than others who were not prayed for in a summary measure of health.<sup>21</sup> Due to the subject population in this study being mostly religious, the authors noted that they were most likely studying the effects of supplementary intercessory prayer. Also, it is important to note that patients who were prayed for did not have a significant difference in the time that they stayed in the CCU and that this study has been under criticism for unintentional unblinding (research assistants knew which patients were in which groups) making his paper too murky to serve as evidence of God's direct activity in healing.<sup>22</sup>

That same year, a group of colleagues from the California Pacific Medical Center in San Francisco conducted a study of the effects of intercessory prayer on patients with advanced AIDS. Patients in that study who received prayer survived in greater numbers, got sick less often and recovered faster than those not receiving prayer.<sup>23</sup>

Over time studies have shown intercessory prayer to have positive health effects across a variety of disorders, including cardiovascular disease, acquired immune deficiency syndrome (AIDS), bloodstream infection, leukemia, and in

vitro fertilization and egg transfer.<sup>24</sup> Ten years ago, *Australasian Psychiatry* published results of a study that concluded that when bacteria are prayed for, they tend to grow faster; when seeds are prayed for, they tend to germinate quicker; when wounded mice are prayed for, they tend to heal faster.<sup>25</sup>

A unique study was done on the effectiveness of intercessory prayer on non-human primates. The idea behind this was this study lied in the belief that 'God wants all creatures healthy and whole.'<sup>26</sup> The scientists measured wound area change (caused from over-grooming) in primates and found in their evaluation that there was a greater reduction in wound area for the intercessory prayer group.<sup>27</sup> The more severe wounds in the intercessory prayer group had the greatest reductions. To be more specific, the intercessory prayer animals showed possible augmentation of oxygen-carrying capacity in increases in total number of red blood cells, hemoglobin, and hematocrit levels when compared to the no-prayer animals. In addition, there was a difference in monocyte levels in the intercessory prayer group after the study, which may have aided in their improvement.<sup>28</sup> These observations support the intercessory prayer-induced improvements in the healing of wounds.

### Negative/No Correlation

As mentioned previously, there have also been numerous studies that have shown no correlation between intercessory prayer and health. For example, the 1873 experiment by Galton on stillbirths showed no evidence of prayer prolonging life or

<sup>18</sup> G. Fung, and C. Fung, 2009, 43

<sup>19</sup> Cadge, 2009, 310

<sup>20</sup> Mathai and Bourne, 2004, 386

<sup>21</sup> Cadge, 2009, 314

<sup>22</sup> G. Fung and C. Fung, 2009, 43

<sup>23</sup> Mathai and Bourne, 2004, 386

<sup>24</sup> Lesniak, 2006, 42

<sup>25</sup> Mathai and Bourne, 2004, 386

<sup>26</sup> Lesniak, 2006, 43

<sup>27</sup> Lesniak, 2006, 44

<sup>28</sup> Lesniak, 2006, 47

reducing stillbirths.<sup>29</sup> This experiment would not meet today's criteria for a reliable study, however, there have been others that would.

One of the most renowned studies on intercessory prayer was performed in 2006. *The Study of the Therapeutic Effects of Intercessory Prayer* (STEP) was conducted under the auspices of Harvard Medical School. The study conformed to standard research protocols and required a large investment of resources (10 years in duration, \$2.4 million, and 1,802 patients) and was mainly underwritten by the John Templeton Foundation, a supporter of studies that explore the intercession between religion and science.<sup>30</sup> The study divided patients who were admitted for coronary bypass graft surgery into three randomized groups. Two of the groups received prayer from committed Christians with experience praying for the sick, but only one group knew that they were being prayed for. Interestingly, the group whose members knew they were being prayed for did worse in terms of post-operative complications than those members who were unsure if they were receiving prayer.<sup>31</sup> Knowledge of being prayed for seemed to actually show a negative effect on health. Even though this was a sizable study that was theoretically well designed, many have doubted the validity of the study because of the awareness that the patients had about the strangers prayers, which could have caused the patients a kind of performance anxiety.<sup>32</sup>

### **Brief Conclusions of the Studies**

The primary conclusion that can be drawn from the above experiments is that the results are inconclusive. There have been inconsistent results in studies around the world on this topic and many of the experiments that have been conducted have

not been repeated. Also, a number of scientists conducting these studies have admitted that their results may be purely psychological and physiological rather than divine. The hypotheses developed after reviewing these studies include: (1) Increased prayer could lead to improved psychological and physiological functioning that would be related to better well-being and potentially better health outcomes (positive relationship between prayer and beneficial health outcomes); (2) Individuals who decline in their health may be more likely to seek divine comfort and help in coping with their illness or healing their illness, which would show a negative relationship between frequency of prayer and beneficial health outcomes; (3) Those who pray or get prayed for during stressful times may focus on their stress while praying, resulting in a passive and potentially unhealthy coping strategy, which could also result in a negative relationship between frequency of prayer and beneficial health outcomes; (4) Some who pray or are prayed for during stressful times might focus on how divine purposes and plans will help them through their difficult situation and could lead to a positive relationship between frequency of prayer and beneficial health outcomes.<sup>33</sup>

The idea that intercessory prayer or prayer in general has positive effects physiologically and psychologically is discussed more between people of faith or who practice religion. However, for all the proposed beneficial outcomes it is also plausible to suggest that prayer could lead to increased anxiety, autonomic arousal, and poor health.<sup>34</sup> Research evidence exists that supports each of those hypotheses as well as a considerable number of other hypotheses in inconsistent ways.

<sup>29</sup> G. Fung and C. Fung, 2009, 43

<sup>30</sup> G. Fung and C. Fung, 2009, 43

<sup>31</sup> G. Fung and C. Fung, 2009, 43

<sup>32</sup> G. Fung and C. Fung, 2009, 44

<sup>33</sup> Masters and Spielmans, 2007, 322

<sup>34</sup> Masters and Spielmans, 2007, 322

## Are Scientific Studies of Prayer Valid?

Whether or not prayer studies are valid is another controversial matter. The more conservative scientists might argue that science and religion are completely separate and conducting studies on prayer degrades both science and faith. However, there are some scientific studies on prayer that more people are able to justify as reliable science. For example, there have been studies based on the separate types of prayer that is typically practiced by people and their general well-being. In these studies, researchers are able to be very specific in types of prayer that are practiced as well as what counts as evidence of well-being. Researchers tested four types of prayer: (1) petitionary- requesting that specific material needs are met for self and friends; (2) colloquial- ...incorporates petitionary elements but is less concrete and specific; (3) ritual prayer- a recitation of prepared prayers; (4) meditative prayer- concerned with intimacy and personal relationship with the divine.<sup>35</sup> They counted elements such as depression, loneliness, tension, and feelings of increased peace as evidence of well-being or ill-being.<sup>36</sup> There is not as much controversy over whether this type of experiment, where there are specifically defined variables and generally accepted evidence, is testable compared to the studies measuring the effectiveness of intercessory prayer.

## Variables/Limitations

One of the most obvious limitations, from a methodological perspective to the intercessory prayer studies is that it is nearly impossible to get enough subjects and guarantee that all of them are not receiving

prayers on their behalf by others outside of the study. This creates a barrier in having a true control group. It is possible to have a study where the research intercessors only pray for one group, but that is very different from having subjects who are not prayed for.<sup>37</sup> For example, in the STEP study, discussed previously, 96% of subjects reported having other people praying for them.<sup>38</sup> This means that it is not feasible to actually regulate the amount of prayer directed toward an individual.<sup>39</sup> Obviously, this causes people who are analyzing this research to question the study in its entirety. Another variable that has been suggested and is also nearly impossible to measure is spiritual maturity. Again, it is a rather controversial variable. Some religious people believe this to be an important component to achieving “successful” prayers, while others believe that when it comes to prayer we are all beginners, eliminating spiritual maturity as a variable. If spiritual maturity is a variable, it is still very challenging to define and develop a measure of it that is complete with evidence of discriminant validity.<sup>40</sup>

A limitation in conducting these studies is whether prayers from different religious traditions should be tested alongside each other. One fear in doing this is that it could be viewed as competitive.<sup>41</sup>

## How To Control For Placebo

One problem that arises in doing prayer studies is the placebo effect. The placebo effect is based around the power of suggestion or positive thinking.<sup>42</sup> For example, a study where direct prayer (i.e., “Laying on of hands”) was tested against intercessory prayer for patients with Rheumatoid Arthritis and the direct prayer

<sup>35</sup> Masters and Spielmans, 2007, 334

<sup>36</sup> Masters and Spielmans, 2007, 334

<sup>37</sup> Masters and Spielmans, 2007, 331

<sup>38</sup> G. Fung and C. Fung, 2009, 44

<sup>39</sup> Cadge, 2009, 323

<sup>40</sup> Masters and Spielmans, 2007, 335

<sup>41</sup> Cadge, 2009, 319

<sup>42</sup> Mathai and Bourne, 2004, 386

has “enhanced well-being.”<sup>43</sup> The question arises as to whether or not this improvement is due to the placebo effect and not to divine intervention.

In intercessory prayer studies, researchers have made a special effort to control and eliminate the placebo. They have done blinding, both double and triple, as well as used primate rather than human subjects. There have been multiple triple-blind studies, meaning that it is not known, to the researchers or to the patients, who is receiving prayer and who is not. The people doing the praying are also blind.<sup>44</sup> Some studies were actually designed so that neither the patient nor the treatment team even knew there was a study of any kind taking place.<sup>45</sup>

One study conducted by Karen Lesniak, PhD, an assistant professor in the Department of Psychology at Loma Linda University in California used a clever approach at reducing the placebo effect by using bush babies, a primate found throughout East Africa, instead of human subjects, endorsing the belief that God wants all creatures healthy and whole.<sup>46,47</sup> These animals had chronic self-injurious behavior (SIB), similar to obsessive compulsive disorder (OCD) in human beings. They measured improvements in wounds caused by the primates as evidence of improvement. They used this method because an animal model would satisfy several methodologic issues regarding human intercessory prayer confounds and provide controlled access to physiologic data.<sup>48</sup> The results of this study indicate that animal models may be an important genre to add to the body of intercessory prayer studies.<sup>49</sup>

## Is Intercessory Prayer A Valid Scientific Concept?

Although there are studies aiming to address the limitations and numerous variables of intercessory prayer studies, there still lies the question of whether intercessory prayer is a scientific concept. Due to the closer adherence to the norms of clinical trials and publication in mainstream medical journals, the controversy over whether intercessory prayer studies qualify as “science” and should be published in a medical journal is being more heavily debated.<sup>50</sup>

C.S. Lewis, took a hard stance on intercessory prayer not being a scientific concept by arguing that a scientific approach to prayer treats it “as if it were magic, or a machine – something that functions automatically” and he reminds people that “simply to say prayers is not to pray; otherwise a team of properly trained parrots would serve as well as men for our experiment.”<sup>51</sup> This accusation has been aimed at these intercessory prayer studies and other well-meaning attempts to measure the effects of prayer. When measuring whether prayers are answered in a way that responds to requests of physical healing could be considered trying to measure something more akin to magic than to real movement of God.<sup>52</sup>

C.S Lewis is not alone in believing that faith and science are to remain separate when it comes to attempting to measure matters of faith. *The Archives of Internal Medicine* published an article in 2001 that said that prayer is a tradition that “cannot be studied using the tools of medical science and that the epistemology that governs prayer (and all matters of faith) is separate

<sup>43</sup> Matthews and Marlowe, 2000, 1177

<sup>44</sup> Mathai and Bourne, 2004, 386

<sup>45</sup> Masters and Spielmans, 2007, 330

<sup>46</sup> Lesniak, 2006, 42

<sup>47</sup> Lesniak, 2006, 43

<sup>48</sup> Lesniak, 2006, 42

<sup>49</sup> Lesniak, 2006,47

<sup>50</sup> Cadge, 2009, 311

<sup>51</sup> G. Fung and C. Fung, 2009, 44

<sup>52</sup> G. Fung and C. Fung, 2009, 44

from that which governs nature.” They concluded by saying “We do not need science to validate our spiritual beliefs, as we would never use faith to validate scientific data.”<sup>53,54</sup> This perspective is compatible with the command in the Christian Bible to “not put the Lord your God to the test” declared in the books of Mathew, Luke, Exodus, Deuteronomy, and The Book of Psalms.<sup>55</sup>

## Prayer Conceptualized As An Alternative Medical Intervention

Based on these studies, it may seem unclear whether prayer should be conceptualized as an alternative medical intervention. The concept of prayer as an alternative medical intervention may seem trivial in a country like the United States, one of the most advanced countries in terms of medical treatment. However, in 2002, 62% of Americans reported using some type of alternative medicine. Of the 10 most often utilized alternative treatments in the United States, prayer for self and prayer for others are the two most commonly named therapies.<sup>56</sup> Prayers for health are common in several religions and there is evidence from several countries outside of the United States that prayer is the most commonly used health intervention.<sup>57</sup> Even in America there is a group called the Christian Scientists that rely solely on prayer in response to sickness. In contrast, the majority of religious people, including Randy Harris of Abilene Christian University, hold true to the saying “Pray and row for shore,” where prayer is not considered an alternative, but rather a supplement to receiving traditional medical care from a trained medical professional.<sup>58</sup>

## Relationship Between Perspective on God’s Will and Role of Intercessory Prayer in Prayer Life

In attempting to measure if intercessory prayers are answered, experiments typically test the intercessors request (i.e. in a study where intercessors pray that someone with advanced AIDS be sick less often, frequency of sickness would be tested), but what about God’s will? What if God’s will is separate from the requests of intercessors praying for physical or psychological healing?

There are conflicting perspectives on the will of God among people of faith. Some hold a “Clockmaker” idea about God, which asserts that God created the universe but is not actively involved in its operation, similarly to how a clockmaker makes a watch and then the clock acts independently. Some hold that God’s will is similar to a deck of playing cards, where the total outcome is not in doubt, but the details of the game are open. In this scenario, God is active in the physical world, and there is room for an intercessor to be involved.

Others hold a narrower perspective of God’s will, wherein God is actively engaged in every aspect of each human being’s life. For example, Psalm 104:14 declares, “The Lord causeth each green blade to spring and each ear to ripen; do but watch with opened eye and you shall see the Lord walking through the cornfields.”<sup>59</sup>

In a class survey among students in a senior level biology class at Abilene Christian University that asked for perspective on God’s will and also asked about the magnitude of intercessory prayer in the student’s prayer life, there seemed to

<sup>53</sup> Cadge, 2009, 320

<sup>54</sup> Cadge, 2009, 321

<sup>55</sup> Matthew 4:7, Luke 4:12, Exodus 17:2, Deuteronomy 6:16, Psalm 78 (New International Version)

<sup>56</sup> Masters and Spielmans, 2007, 329

<sup>57</sup> Masters and Spielmans, 2007, 330

<sup>58</sup> R. Harris, personal communication, October, 2015

<sup>59</sup> Spurgeon, 1881, 6

be a trend. Students who marked that God is actively engaged were more likely to have intercessory prayer play a larger part in their prayer life. Students and two professors who believe God's will to be similar to the "card game analogy" were more likely to have intercessory prayer play a smaller role. Students who said that they use intercessory prayer more often expressed that they felt God works in the physical world regularly and advocated for other students to use more intercessory prayer, not only for hope of divine intervention, but also because it has the ability to put someone else's needs (physical, psychological, or spiritual) on the intercessor's heart, so that they may be agents of change.

The students in the survey who said that they do not use intercessory prayer often in their prayer lives said that they prefer to pray, "God's will be done." Jesus taught us to pray "thy will be done," as he himself prayed all the way through Gethsemane.<sup>60</sup> There are people who participate in intercessory prayer and rather than expecting God to heal in a particular way...as assumed by these researchers, it

has been argued that people of faith "accept His [God's] will and His timetable and understand that the answer to their petition might be negative as part of God's greater providence."<sup>61</sup>

## Conclusion

Findings from intercessory prayer studies are not likely to lead physicians to prescribe intercessory prayer or stop people from religious groups from praying for the health of others.<sup>62</sup> With a further understanding of the history and intentions of intercessory prayer studies, knowledge of the current studies being done, combined with the awareness of the numerous variables and limitations posed by these studies, it is possible to have meaningful discussions about the role of intercessory prayer, the prospect of prayer as an alternative medicine, and the boundaries of faith and science. An essential takeaway from this discussion is to look deeper into what sounds like simple and well-designed scientific studies on faith. These studies are often either inconclusive or have varying results when compared to similar studies.

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<sup>60</sup> G. Fung and C. Fung, 2009, 44

<sup>61</sup> Cadge, 2009, 316

<sup>62</sup> Cadge, 2009, 323

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