

## **ON THE (NEAR) IMPOSSIBILITY OF STUDYING INTERCESSORY PRAYERS FOR HEALING**

*Abstract:* The most recent and, arguably, the most scientifically rigorous study of the healing power of intercessory prayer, the so-called “STEP” (“Study of the Therapeutic Effects of Prayer”) study involved over 1,800 subjects and roughly a decade of study. Though the results did little, if anything, to lend support to the idea that prayers really can heal the sick, religious believers might remain optimistic. Two main reasons for this optimism stem from, first, a crucial missing (though practically unavoidable) study control and, second, the warning that studying the effectiveness of prayer amounts to an (improper) attempt at quantifying God’s effects in the world. And few serious religious believers will want to say that we could ever pin God down in that way and, hence, that God, in order to maintain the importance of faith in religion, would have good reason to manipulate the results of an experiment on the effectiveness of prayer (even if prayer was *very* effective when *not* formally studied). But, then, the only evidence to which prayer proponents can appeal is *anecdotal*. The problems associated with anecdotal evidence as support for hypotheses is discussed here (generally, as well as with respect to intercessory prayer) and, I submit, the empirical case for the healing powers of prayer is weak.

### **I. PRAYERS FOR HEALING**

Polls have shown that most Americans pray every day,<sup>1</sup> that most believe that God answers their prayers some of the time,<sup>2</sup> that prayers for healing rank as the number one type of alternative medicine,<sup>3</sup> and that most people who pray believe that God answers prayers for healing.<sup>4</sup> And many of us have known someone who claimed to have evidence that God answers prayers for

healing. This author, for one, has known many people – students, colleagues, friends – who claim that a loved one, after a terrible illness, regained her health after many family members prayed for her. Furthermore, it is a common practice in many church services for the priest or pastor to ask members of the congregation to pray for an ill church member.

For Christians, none of this is surprising, for the Bible has a lot of positive things to say about prayer. From the first book of the Bible (Genesis 4:26) and all throughout the *New Testament*, the Bible tells people *why* they should pray (Zechariah 13:9, Matthew 26:41, Luke 18:1), *how* they should pray (2 Chronicles 7:14, Jeremiah 29:13, James 5:16) and, most important for our purpose, it tells us that if we are righteous, then our prayers will be answered, including our prayers for healing. James 5:15-16, for example, says explicitly that our prayers can heal the sick.

Many of us, however, are skeptical of the healing powers of prayer. Exactly to what evidence, the skeptic asks, can a believer in prayer appeal as support for the idea that praying heals the sick? “Oh,” the believer might respond, “because when we prayed for Aunt Bertie she got well!” This is unconvincing. *B following A* does not mean that A was the *cause* of B. But *post hoc* fallacies aside, Bertie’s illness might very well have been a member of the class of illnesses which take care of themselves as a matter of “nature taking its course” – as are such processes and events (most illness) which tend to regress towards the mean. In short, anecdotal evidence for the healing power of prayer is – as is anecdotal evidence generally – notoriously sketchy. More on that later.

Still, even the skeptic will admit that it is *possible* that prayers can heal the sick. Even the skeptic should admit that God might exist, and if God is anything like Christians say He is, then prayers for healing could get answered. And the best way to show that is by conducting an experiment. Certainly, it seems, if something is claimed to have great effects in the world – as believers in the healing power of prayer claim – then we should be able to actually observe those effects, and observe them in the systematic and rigorous way that only a controlled experiment can provide. And while there have been attempts to rigorously test the healing power of prayer, the results are mixed. Intercessory prayer appears to be beneficial in some studies,<sup>5</sup> but to have no effect in others.<sup>6</sup> Perhaps a new, more powerful and rigorous study is in order.

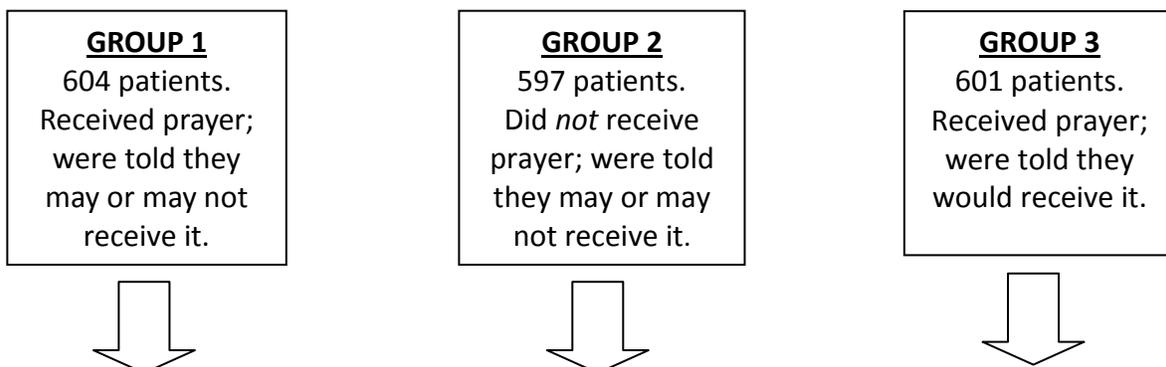
## II. THE ‘STEP’ STUDY

Each year, around 350,000 Americans have coronary artery bypass graft (CABG) surgery. The purpose of the surgery, which involves literally bypassing narrowed and clogged arteries with a patient’s own disease-free and normal arteries, is to improve the blood supply to the heart and, hence, reduce angina and the risk of death caused by atherosclerosis.<sup>7</sup> With so many potential study participants, and given that the post-surgical complication types and rates are well understood at this point, CABG patients would seem to be excellent subjects for a prayers-as-healing study. Indeed, the “STEP” (Study of the Therapeutic Effects of Intercessory Prayer) took advantage of this opportunity and set out to determine if intercessory prayer, prayer provided by others, is associated with a healthy recovery after CABG surgery.<sup>8</sup>

The STEP research group was composed of investigators at six major academic medical centers around the United States and included over 1,800 bypass patients.<sup>9</sup> Patients were randomly assigned to three different groups. In group 1 (n=604), the patients received intercessory prayer and were told they may or may not receive it; group 2 (n=597) did *not* receive intercessory prayer and were told they may or may not receive it; those in group 3 (n=601) received intercessory prayer and were told they would be prayed for.

The intercessors, those enlisted to do the praying, were selected from one Protestant and two Catholic groups. Those doing the praying were supplied the first name and last initial of the patient they were to pray for, and were asked to begin the prayer on the day before the surgery, and were instructed to pray for fourteen consecutive days after the surgery.<sup>10</sup> In an attempt to standardize the prayers as much as possible (an important goal since prayer is no doubt very individual and personal) prayer-givers were instructed to add to their normal prayers the phrase “for a successful surgery with a quick, healthy recovery and no complications.”<sup>11</sup>

The results of the study suggest that prayer is *not* effective at reducing post-CABG complications. Here’s the breakdown:



52% suffered  
post-surgical  
complications.

51% suffered  
post-surgical  
complications.

59% suffered  
post-surgical  
complications.

All things being equal, if prayers for healing really do work, then it would not be silly to expect to see a different outcome here. If prayers really can heal the sick, then why in the world would those who were prayed for do any *worse* than those who were not?

### III. OBJECTIONS TO THE STUDY

There is a serious methodological problem with this experiment. Notice that there is really no practical way to control for “background prayer” – the prayers made on behalf of the subjects by loved-ones (and other intercessors) *not* involved in the study. STEP researches pointed out that it would’ve been neither ethical nor practical to ask a patient’s family to withhold praying for their loved-ones for the duration of the study. And this is a problem for the study, as a quick analogy can illustrate. Imagine that I want to study the effectiveness of diet *and* exercise, for weight loss, versus diet alone. I compile and divide my study participants – 30 overweight middle-aged professionals – into two groups of 15. Each member of Group 1 consumes 1,200 calories a day for 30 days, and each from Group 2 consumes 1,200 calories a day *and* walks on a treadmill for 20 minutes a day for 30 days. Each member of each group eats their meals (x 3 at 400 calories each) at my research facility, and the members of Group 2 walk on treadmills there as well. At the end of the study, I am surprised to learn that those in Group 2 lost no more weight than those in Group 1. Does that support the idea that diet alone is just as good as diet plus exercise? No. Consider that I failed to control for the “background eating” of those in the

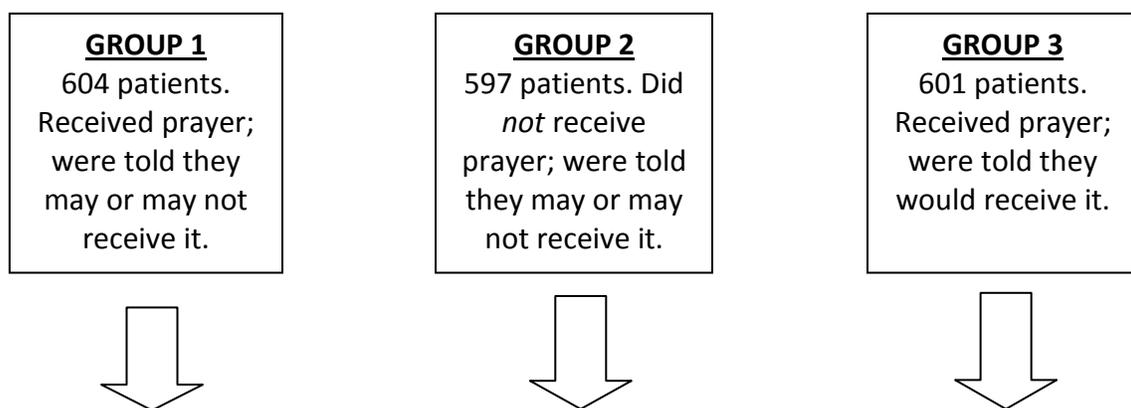
second group. Unbeknownst to me, those in Group 2 are *also* in an experiment running concurrent with mine – an experiment designed to discover just how fast ones cholesterol count increases when every meal comes from fast food burger joints! Of course, if I had *known* that these study participants were going to be eating much more high caloric and fatty foods than those in Group 1, I would have ruled them out as study candidates. Why? Because the two groups are not sufficiently *homogenous*, given the radical differences in diet – something that will obviously affect the outcome of the study.

Likewise, if those in one of the prayer groups were receiving more prayer than we could control – say those in Group 2 who did not receive prayer from any of our prayer groups but, for some reason, received more background prayer – then our results would be skewed, and we really would not know what effect our independent variable (prayer) has on our response variable (post-operative complications). As STEP study co-author Manoj Jain pointed out, “...with so many individuals receiving prayer from friends and family, as well as personal prayer, it may be impossible to disentangle the effects of study prayer from background prayer.”<sup>12</sup>

But methodological objections aside, there is a deeper concern, one concerning faith and belief in God. Since we are testing the efficacy of prayer, we are not ruling out the existence of God beforehand. We may even assume that God exists, as long as we are sure to not assume that we know very much about the way prayers work or how God responds to them. So, since it is possible that God exists and answers prayers – that’s the assumption prior to study, anyway – it is possible that God fudges the results, and for good reason. If God exists, then God might not want the numbers to show that prayer works!

Imagine that God decides to take a nap. Having worked tirelessly for billions of years – creating a universe, Earth, lakes, rivers, flora, fauna, etc... – God has decided it’s time for a short rest, say a 30-day nap. Now, God realizes that if He is “out of the office,” so to speak, for that long, then many good, pious, deserving people might pray for something important and legitimate – i.e., for something not immoral or otherwise harmful. So God decides that he will put the whole prayer/answer thing on auto-pilot. God decides that as long as anyone prays for something, and that something is not immoral or otherwise harmful, then that prayer will be answered (there are no doubt other *ceteris paribus* considerations but go with it for the time being).

Unbeknownst to God (and in this story, God is *near*-all- but not *all*-knowing and, obviously, subject to bouts of exhaustion) researchers at several large teaching hospitals have organized a major experiment to examine the effects of intercessory prayer – a study that will begin the day after God begins His nap and will end before God wakes up. Now since prayers are automatically answered as they come in, what will be the result of the study? Here’s the result of the STEP study in this fictional scenario:



**4%** suffered  
post-surgical  
complications.

**89%** suffered  
post-surgical  
complications.

**8%** suffered  
post-surgical  
complications.

Let's stipulate that there is nothing methodologically wrong with this experiment, that hordes of critics pored over every aspect of the design and implementation of this study and could find absolutely nothing wrong with it. What might these findings do to increase belief in God? Isn't it likely that many will cite them not *only* as proof of the healing power of prayer but as evidence that God exists? Perhaps, and we can probably predict that some agnostics riding the fence would, because of this study, become full-blown believers in God. For the sake of argument, let's assume that this study resulted in very many new religious converts.

Now, we might wonder how God would feel about someone coming to believe in Him because of the result of some double-blind, randomized clinical trial. Would that be something that God would welcome, or might God – as many religious believers like to point out – prefer believers to come to Him mainly through faith. As Pascal might say, the results of a successful clinical trial might convince the mind, but “It is the *heart* which experiences God, and not the reason. This, then, is faith: God felt by the heart, not by the reason.”<sup>13</sup> Indeed, a religious believer might see prayer experiments as *offensive* to religious belief, and this is a reason for thinking that prayer experiments would never show that prayers actually heal.

Furthermore one could argue, as David Myers does, that “Even for those who believe that God intervenes in response to prayer, there are practical reasons for expecting null effects:”

If the health outcomes of the prayed-for subjects turn out to be significantly better than for the others, the experimenter will have set up a situation in which God has, as it were, been made to show his (or her) hand.’ As C. S. Lewis said of any effort to prove prayer, the ‘impossibility of empirical proof is a spiritual necessity’ lest a person begin to ‘feel like a magician.’ Indeed, if this experiment were to show that numbers of intercessors matter – that distant strangers’ prayers boost recovery chances – might rich people not want, in hopes of gaining God’s attention, to pay others to pray for them?<sup>14</sup>

So assuming that God exists, God might have good reasons to skew the outcomes of the prayer study. God may be inclined to make it *appear* as if prayer is impotent, even if (when not studied formally) prayers for healing are very powerful.

Now, there is one other rigorous and objective way to study the efficacy of prayer without conducting an experiment, and that would be to study past spontaneous prayers and their effects. It seems that if we had a sufficient amount of data, for example of some particular person’s welfare being regularly prayed-for by many people, then we could determine, without setting up a formal experiment, whether or not those prayers were answered. This seemed to be Francis Galton’s idea in 1872 as he predicted that if prayer was effective, then we should expect the British Royal family to live longer, given that every Sunday thousands recite prayers from the Anglican *Book of Common Prayer*, and some of these prayers ask for the good health and longevity of the Royal family.<sup>15</sup> Galton compared the longevity of the Royal family with the general population and found hardly any difference between them.<sup>16</sup>

Assuming there is nothing wrong with Galton's statistical analysis, we may wonder how God could skew or manipulate the results of Galton's study so that it would appear that prayer is not effective. Well, assuming God's omnipotence, He certainly could manipulate Galton's statistical data on mortality rates of different groups in England at the time. But wouldn't someone notice that these mortality rates didn't reflect reality? That is, if the Royal family really did live longer than most because of all those prayers, then isn't that something we would notice? Not necessarily, since God could, if it was important enough, cause us to *misremember*. God *could* change everyone's memory of the longevity of the Royals, and He could, for example, remove all the actual newspaper headlines stating when a Royal died and cause us to forget that we read that newspaper, etc... Of course this all sounds quite silly, but the point is that it is possible that neither a formal experiment like STEP nor a study like Galton's will be allowed to show that intercessory prayer is effective, if God deems it necessary.

#### **IV. ANECDOTAL EVIDENCE AND THE INABILITY TO STUDY PRAYER**

But this is problematic and unsatisfying. It appears that we just cannot study prayer in any rigorous, objective way. Then what evidence do we have for the healing powers of intercessory prayer? Only anecdotal evidence, which was exactly where we started and which was the reason why we desire a more rigorous and objective study in the first place.

What's wrong with anecdotal evidence? Well, when your neighbor Ralph tells you that he believes that intercessory prayers do heal the sick, and you ask him what evidence he has for believing that, Ralph will say something along the lines of "Well, we prayed for Aunt Bertie and her illness went into remission. And she was really sick and not expected to make it!" This, of

course, is unconvincing for many reasons, and we are always quick to ask of Bertie's remission: might it have happened on its own anyway? Might it have been misdiagnosed in the first place?, etc... The main problem with anecdotal evidence, however, is that it is often *biased* in support of belief in the preferred hypothesis. Neighbor Ralph believes that prayer works, and he is able to marshal plenty of anecdotal evidence in support of that belief. But Ralph will often only register or notice the "hits" – when what was prayed for came true – and forget the "misses" – when what was prayed for did *not* come true. Maybe Ralph does this on purpose, maybe he does not. The problem is that if, in fact, the misses outnumber the hits, then Ralph is biasing his confirmation of the hypothesis that prayers heal. This "confirmation bias" is all too common. We tend to recognize only the evidence that confirms our views, and ignore evidence that does not. Of course, people constantly pray for things and sometimes the things prayed for actually happen. And this will count as confirming evidence for the idea that prayers heal. But what is not noticed is that people constantly pray for things and most times those things do not come true. But these disconfirming cases are often not remembered or registered.

It would be interesting to find out what would happen if all believers of prayer kept a prayer journal or diary. In this journal they would record what they prayed for and when, and whether or not they received what was prayed for. One might be shocked to discover that they receive what they pray for only, say, 30% of the time. But to be generous, let's assume that those who pray for something get it 50% of the time. Is this evidence that God answers prayers 50% of the time? Perhaps, but consider. Imagine that I flip a fair coin 100 times. Before each flip I pray to God for the coin to turn up heads. Imagine that the coin turns up heads 50 times. Should we conclude that God answered my prayers 50% of the time? If so, then what is the

difference between God answering my prayers half the time, and those events simply following the laws of probability? Similarly, when we are presented with anecdotal evidence for the healing powers of prayer, we must ask whether God is occasionally answering those prayers or that an equally compelling answer – i.e., chance – is sufficient to explain that evidence.

## **V. CONCLUDING REMARKS: HUME, MIRACLES, AND ANSWERED PRAYERS**

Since we are discussing the anecdotal evidence of miraculous cures due to intercessory prayer, it seems to be that we should not forget David Hume's powerful critique of the rationality of believing in miracles. If someone tells me that they believe in the power of prayer because they prayed for Aunt Bertie's awful illness to remiss, and the illness did remiss, then that person believes that God has performed a miracle in causing Bertie's disease to remiss. But, according to Hume, we are justified in believing that a miracle occurred only when either the naturalistic explanation of the so-called miracle would be *less probable* than that a genuine miracle occurred, or that the psychological/cognitive explanation of what went wrong when someone came to *believe* a miracle took place, even though it did not, would be *less probable* than that a genuine miracle occurred.<sup>17</sup> But, Hume argues, what is more likely, that a violation of some law of biology has occurred or (1) that Bertie's illness got better on its own (...notice that, like all illnesses, Bertie's was given an  $N\%$  chance of remission in  $N$  months...) or that (2) Bertie was misdiagnosed in the first place, had a mix up in her lab work, or with her X-rays, etc... Hume's objection to miracles is a powerful one, and it is worth repeating that an answered prayer for healing is a miracle and, therefore, that it's very hard to accept anecdotal stories of the healing powers of prayer.

## NOTES

1. Poll conducted by Newsweek and Beliefnet.com. Accessed Sept. 24, 2013 at <<http://www.beliefnet.com/News/2005/08/Newsweekbeliefnet-Poll-Results.aspx?p=2>>
2. K. L. Woodward, "Is God Listening?" Accessed Sept. 24, 2013 at <<http://www.thedailybeast.com/newsweek/1997/03/30/is-god-listening.html>>
3. P. Barnes, E. Powell-Griner, K. McFann, and R. Nahin, "Complementary and Alternative Medicine Use Among Adults: United States, 2002." CDC Advance Data Report #343. May 27, 2004.
4. Woodward, *op. cit.*
5. F. Sicher, E. Targ, D. Moore, H. S. Smith, "A Randomized Double-Blind Study of the Effect of Distant Healing in a Population With Advanced AIDS. Report of a small scale study." *The Western Journal of Medicine*, 169:6 (1998), pp. 356–63.
6. S. R. Walker, J. S. Tonigan, W. R. Miller, S. Comer, and L. Kahlich, "Intercessory Prayer in the Treatment of Alcohol Abuse and Dependence: A Pilot Investigation." *Alternative Therapies in Health And Medicine*, 3: 6 (Nov. 1997), pp. 79–86; J. M. Aviles, S. E. Whelan, D. A. Hernke, *et al.*, "Intercessory prayer and cardiovascular disease progression in a coronary care unit population: a randomized controlled trial." *Mayo Clinic Proceedings* 76:12 (Dec. 2001), pp. 1192–8

7. From MedlinePlus online encyclopedia entry "Heart Bypass Surgery" at <<http://www.nlm.nih.gov/medlineplus/ency/article/002946.htm>>

8. H. Benson, J. A. Dusek, J. B. Sherwood, et al., "Study of the Therapeutic Effects of Intercessory Prayer (STEP) in Cardiac Bypass Patients – A Multi-Center Randomized Trial of Uncertainty and Certainty of Receiving Intercessory Prayer." *American Heart Journal* 151: 4 (Apr. 2006), pp. 934-42.

9. The medical centers were Baptist Memorial Hospital in Memphis, TN; Beth Isreal Deaconess Medical Center in Boston, MA; Integris Baptist Medical Center in Oklahoma City, OK; Mayo Clinic in Rochester, MN; St. Joseph's Hospital in Tampa, FL; and Washington Hospital Center in Washington, DC.

10. Benson, et al., pp 5-6.

11. Ibid., 6

12. In interview with John Lacey, "Largest Study of Third-Party Prayer Suggests Such Prayer Not Effective in Reducing Complications Following Heart Surgery." Harvard Medical School Office of Public Affairs. March 31, 2006. Web. <[http://web.med.harvard.edu/sites/RELEASES/html/3\\_31STEP.html](http://web.med.harvard.edu/sites/RELEASES/html/3_31STEP.html)>

13. From Pascal's *Pensees*, in *Christian Apologetics Past and Present*, Vol. 2, eds. W. Edgar and K. S. Oliphant (Wheaton, IL: Crossway Publishing, 2001), p. 192.

14. D. G. Myers, "Is Prayer Clinically Effective?" (2000). *Reformed Review* 53:2 (2000), p. 97.

15. The *Book of Common Prayer* is the book of prayer used in Anglican churches. There are specific prayers for the health and longevity of the queen as well as for the royal family.

16. Francis Galton, "Statistical Inquiries into the Efficacy of Prayer." *Fortnightly Review* 12: 68 (1872), pp. 125–35.

17. David Hume, *An Enquiry Concerning Human Understanding*, L. A. Selby Bigge, ed. (Oxford: Clarendon Press, 1902), pp. 114-16.