

Family Physicians Believe the Placebo Effect Is Therapeutic But Often Use Real Drugs as Placebos

Rachel Kermen, MD; John Hickner, MD, MSc; Howard Brody, MD, PhD; Irma Hasham

Background and Objectives: Few national data exist on physicians' use of and beliefs about placebos in routine health care. **Methods:** We mailed a 22-question, confidential survey about placebo use and beliefs to a random sample of 1,000 members of the American Academy of Family Physicians. **Results:** A total of 412 of 970 (43%) eligible physicians responded, and 56% of respondents said they had used a placebo in clinical practice. Forty percent of respondents had used an antibiotic as a placebo, and 11% had used inert substances. The most common reason for prescribing placebos was "after unjustified demand for medication." Eighty-five percent of respondents believed placebos can have both psychological and physical benefits. The majority (61%) recommended a placebo over offering no treatment, while 8% said clinical placebo use should be categorically prohibited. Nearly all respondents believed a number of routine clinical practices promote the placebo effect. **Conclusions:** Many US family physicians use placebos and generally believe the placebo effect has both psychological and physical benefits. Physicians recognize the broader application of the placebo effect but they commonly use active medication as placebos. The responses to this survey raise important questions about the appropriate use of placebos and the therapeutic value of the placebo effect in clinical practice.

(Fam Med 2010;42(9):636-42.)

The therapeutic value of placebos is a topic of research and debate. One review of more than 100 clinical trials that included a placebo group, a no-treatment group, and an active-treatment group "found little evidence that placebos in general have powerful effects."¹ Other researchers, however, have demonstrated clinically significant placebo effects in certain medical conditions, such as decreased perception of pain with associated production of endogenous opiates.^{2,3}

A conference on placebos in 1946 introduced the important distinction between "pure" versus "impure" placebos. A pure placebo refers to a substance with no pharmacologic potency, while an impure placebo has

a pharmacologic effect for a different indication or in a larger dose but is not used for its pharmacologic properties (such as antibiotics for viral illnesses).⁴

Impure placebos have practical importance because it is difficult for practitioners to obtain or administer pure placebos without a patient being aware. Further, some have studied a placebo in the form of a pill versus a sham procedure, behavior, or as a context of treatment, such as the effect of a supportive relationship with the care provider.^{5,6}

Little is known about how physicians view varying forms of placebos in clinical practice, nor if and how they use them in clinical practice. The first modern studies on placebo use by US physicians in clinical practice were published in 1979.^{7,8} In one study, a placebo effect was defined as "any effect attributable to a pill, potion, or procedure but not to its pharmacodynamic or specific properties." The majority of physicians responding (78%) had used placebos for pain relief, and most (60%) believed placebos were a tool to help determine if a patient's symptoms were real versus psychogenic.⁷ These studies did not address

From the Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine (Dr Kermen); Department of Family Medicine, The Cleveland Clinic (Dr Hickner); Institute for the Medical Humanities and Department of Family Medicine, University of Texas Medical Branch (Dr Brody); and Department of Family Medicine, University of Chicago (Ms Hasham).

the distinction between pure and impure placebos, and except for one study of internal medicine residents,⁹ no further studies of placebo use by American physicians were published until our recent research, which found that almost half (45%) of surveyed academic internists had used placebos in clinical practice, and almost all believed in their therapeutic potential.¹⁰ Further, the use of impure placebos, like antibiotics, was much more common than the use of pure placebos.

The practice of impure placebo use raises ethical concerns, because pharmacologically active substances may have adverse or undesired effects. Several months after our study was published, the American Medical Association (AMA) Council on Ethical and Judicial Affairs (CEJA) released a report on placebo use in clinical practice.¹¹ CEJA recognized the potential use of active medication as placebos but did not specifically comment on the ethical implications.¹²

A recent national survey of internists and rheumatologists found that approximately half of physicians use placebos in clinical practice for fibromyalgia. But, this study did not investigate physician motivations, beliefs about the efficacy of placebo treatments, or the range of circumstances in which they are used.¹³

The purpose of the survey of family physicians we report here was to gain a better understanding of the role of placebos in clinical practice on a national level. In addition to frequency of use, we asked physicians to report on the types of treatments used as placebos. We also explored the underlying motivations, circumstances, ethics, beliefs, and broader symbolic aspects that shape placebo use nationally.

Methods

Sample

A list of 1,000 randomly selected active physician members was obtained from the American Academy of Family Physicians (AAFP) database. InFocus Marketing Inc, the owner of AAFP and other national medical association lists, selected the random sample from a database of >60,000 active members.

Survey Procedures

Subjects received three survey mailings and two postcard reminders. Mailings were distributed in the spring and summer of 2008. An introductory letter explained the purpose of the study and guaranteed that no personally identifiable responses would be used in the results. Physicians who participated were also offered the chance to win a free Apple iPod and on the second survey mailing were offered a \$2 bill incentive for survey completion.

Survey Instrument

The questionnaire asked physicians, for the purposes of the survey, to assume a single definition for placebo

and the placebo effect. A placebo was defined as “a substance with no known specific pharmacological activity against the condition being treated,” the same definition recently posed by the AMA.¹¹ The placebo effect was defined as “the therapeutic effects of a patient’s expectations or beliefs.”

The survey consisted of 22 questions related to use of placebos in routine clinical practice, including frequency of use, types of treatments (including pharmacologically active medication for non-indicated purposes) used and their clinical contexts, information given to patients prior to use, and ethical stances. The questions on types of treatments, frequency of use, or any others in which we use the term *placebo* to describe results also directly used the term *placebo* in the survey question.

Outside of the question on the types of treatments used, questions referring to placebo use did not specifically distinguish between pharmacologically active and inert placebos. Other questions addressed the perceived therapeutic potential of placebos in clinical practice, the perceived power of routine clinical practices and rituals to promote the placebo effect, and physician demographic characteristics.

While the majority of the questions were multiple choice, the questions on the types of placebos prescribed, situations of placebo use, information given to patients, ethical stances, type of physician practice, and physician race all included an “other” response category for participants to customize their responses in an open-ended format. The end of the survey also included an invited space for physicians to write any additional thoughts.

Several of the questions were adapted from other studies of physician placebo use and our prior study of academic internists.^{10,14,15} The study was approved by the University of Chicago Institutional Review Board. For a copy of the complete questionnaire, please contact the corresponding author.

Data Analysis

Our results consist largely of frequency distributions of responses. The frequency totals add up to more than 100% for several questions for which physicians were permitted to indicate more than one response. We classified substances such as antibiotics, pain pills, and vitamins as impure placebos.

In an exploratory analysis, we investigated associations between physician characteristics such as age and sex, frequency of placebo use, and beliefs regarding the therapeutic and ethical role of placebos in clinical practice using Pearson Chi Square, with a *P* value of less than .05 for statistical significance.

Results

Physician Respondent Characteristics

Of the 1,000 participants invited to participate, we excluded 30 subjects for reasons such as retirement and invalid mailing addresses. Of the remaining 970 physicians, 412 (43%) responded to the survey. A summary of the demographic and other characteristics of the responding family physicians is shown in Table 1.

Frequency of Placebo Use

Fifty-six percent of physicians reported prescribing or administering placebos in clinical practice (19% more than 10 times per year, 27% one to 10 times, 10% less than once per year). Twenty percent said they used placebos for more than 10 patients per year, 26% for one to 10 patients, and 10% for less than one patient per year. When asked about the behavior of their colleagues, 86% of physicians believed that other physicians, residents, and nurses have given placebo treatments to patients, at some point. Younger physicians were significantly more likely to prescribe placebos than older physicians (Table 2).

Types of Treatments Used as Placebos

Physicians used a variety of treatments as placebos. The most frequently used placebos were antibiotics for viral or other non-bacterial diagnoses (40%). Other

examples of placebos used are listed in Table 3, and open-ended responses are listed in Appendix 1.

Circumstances of Placebo Use

Physicians used placebos in a variety of situations. The most common reasons were after “unjustified demand for medication” (32%) and “to calm patients” (21%). Additional reasons are listed in Table 4, and open-ended responses are listed in Appendix 1.

Information Given to Patients

Physicians who reported using placebos in clinical practice introduced the intervention in a variety of ways. Thirty-one percent said, “It is a substance that may help and will not hurt.” Twenty-two percent said, “It is a medication,” 7% “Say nothing,” 3% said, “It is medicine with no specific effect,” and 2% said, “It is a placebo.” Seven percent of physicians offered other responses listed in Appendix 1.

Ethical Stance on Placebo Use

Of the respondents, 8% said that placebo use should be categorically prohibited. The rest of respondents said that placebos could be permitted in certain circumstances, including when the physician anticipated the placebo would benefit the patient (50%), if research supported its efficacy (32%), after notifying the patient he/she is receiving a placebo (16%), after the patient agrees to the possibility of receiving a placebo at some point in the future (13%), and if the experience of colleagues supported it (12%). Five percent of physicians offered additional comments; several are listed in Appendix 1.

Perceived Therapeutic Role of Placebos

Ninety-seven percent of physicians believe that placebos have therapeutic effects, and the majority (61%) of

Table 1

Demographics and Other Physician Characteristics

Gender	
Male	67%
Female	33%
Average Age	47
Minimum–maximum	(29–75)
Ethnic background	
Caucasian	79%
Asian or Pacific Islander	11%
Hispanic or Latino	5%
African American	3%
Other	3%
Average number of patients seen on a weekly basis	99
Minimum–maximum	(7–600)
Form of clinical practice	
Combination of outpatient and hospital-based care	54%
Outpatient care only	40%
Hospital-based care only	3%
Other	3%
Employer	
Medical school or family medicine residency program	13%
Other	87%

American Academy of Family Physicians membership comparison values: male 61%, female 39%

Table 2

Age Differences in Placebo Use and Attitudes

	Age > 51	Age < 50	Pearson's Chi-Square	P Value
Placebo use ≥ one time/year	36%	53%	16.6	.001
Placebo use ≥ one patient/year	36%	53%	19.4	.000
Support placebo use versus no treatment	55%	65%	3.9	.048
Placebos benefit certain medical conditions more	86%	94%	8.9	.003
Placebos have greater benefit for people with certain personality characteristics	86%	93%	4.9	.036

Table 3

Examples of Placebos Given

Category	Frequency
Antibiotics for viral or other non-bacterial diagnoses	40%
Vitamins	23%
Herbal supplements	12%
Sub-therapeutic dose of medication	10%
Ibuprofen or other pain medication for symptoms unrelated to pain	9%
Saline infusions or saline intramuscular injections	6%
Prepared placebo tablets	3%
Sugar or artificial sweetener pills	2%

physicians would, at some point, recommend a placebo treatment to a patient over offering no treatment. The placebo effect, according to 85% of physicians surveyed, can have both physical and psychological benefits. Physicians generally agreed that research exists to support the efficacy of placebos (17% said “rarely,” 54% said “sometimes,” 22% said “often”). However, more than 90% of physicians expressed a strong belief that the potential benefit of placebos depends on the type of disease and the personality characteristics of the patient treated. Table 5 further describes the perceived benefit of placebos for various medical conditions, and additional open responses are listed in Appendix 1.

The Process-of-Treatment Effect

Almost all physicians believe that certain physician rituals and behaviors, described in Table 6, promote

Table 5

Potential Benefits of Placebos for Various Health Problems

Category	Psychological Benefit Only	Physiological Benefit Only	Both Psychological and Physiological Benefit	Neither
Pain	29%	1%	62%	8%
Mental or emotional disorders	31%	1%	62%	6%
Gastrointestinal disorders	23%	1%	59%	17%
Sexual dysfunction	29%	1%	58%	12%
Recovery from drug addiction	27%	2%	49%	23%
Neurological disorders	30%	2%	47%	20%
Rheumatological disorders	26%	2%	44%	28%
Immune problems or allergies	23%	2%	40%	35%
Cancer	31%	1%	38%	29%
Cardiovascular disorder	24%	3%	33%	40%
Infectious disease	26%	2%	31%	41%

Table 4

Circumstances of Placebo Use

Category	Frequency
After “unjustified” demand for medication	32%
To calm patient	21%
After all clinically indicated treatment possibilities were exhausted	20%
As supplemental treatment	19%
For non-specific complaints	15%
To get patient to stop complaining	15%
As a diagnostic tool (ie, to distinguish between psychogenic and organic causes of symptoms)	15%
To control pain	10%
To buy time before next regular dosage of medication	4%

the placebo effect, and the majority believed the effect occurred at least “sometimes” or “often.” This effect, which we refer to as the process-of-treatment effect, has also been referred to as the context effect.¹⁶ Additional open-ended comments regarding the process-of-treatment effect are listed in Appendix 1.

Discussion

Our national study shows that more than half (56%) of a random sample of US family physicians prescribe placebos, in comparison to our 2008 study of Chicago academic internists (45%)¹⁰ and the Tilbert study (46%–58%).¹³ Nearly all surveyed physicians believed in the therapeutic potential of placebos, which the majority (85%) believed could be both psychological and physical. Ninety-two percent supported the use of placebos in clinical practice, with the most common reason being “If I anticipate that it will be of benefit to the patient,” a reason endorsed by 50% of respondents. In contrast to reported beliefs, in practice, the most common situation in which physicians reported using placebos (32%) was “after ‘unjustified’ demand for medication.”

Our study describes the current clinical reality on a national level of using real drugs as placebos. The most common form of placebo treatment is an antibiotic, which raises ethical questions about the use of impure placebos in general and antibiotics in particular. Antibiotics have a significant incidence of undesirable side effects, such as clostridium difficile colitis, which

Table 6

Clinical Practices Physicians Believe Independently Promote the Placebo Effect

Practice	Placebo Effect*
Listening carefully and thoroughly to the patient's story	98%
Expressing true caring and concern for the patient	98%
Physical examination of a patient (independent of diagnostic purposes)	97%
Spending extra time with a patient	97%
Building doctor-patient rapport	97%
Writing a prescription for a patient (independent of the medication prescribed)	96%
Praying with a patient	94%
Wearing a white coat	89%

* Percent of physicians who believe the practice independently promotes the placebo effect.

can, in some cases, be life threatening. Further, their overuse contributes to antibiotic resistance, which is a serious health threat to individual and public health. Concern about the indiscriminate use of antibiotics has been raised by many, including the Centers for Disease Control and Prevention. In addition, other prescribed placebo therapies, such as vitamins, despite being commercially popular, are not necessarily benign.¹⁷ While not all therapies are proven, in cases where research evidence shows potential harm, their use as placebos is particularly concerning.¹⁸

Physicians rarely (2%) use the word "placebo" as part of their treatment description, which raises the question of whether explicit use of the term is necessary. Priscilla Ray, MD, chair of CEJA, suggests it is appropriate to refer to placebos as "medication" when obtaining informed consent.¹⁹ Whether patients feel it is appropriate for their health care providers to represent placebos as medication should perhaps be a topic of further inquiry. An alternative approach would have the patient agree to the possibility of receiving a "placebo" at some point during the course of patient care, preserving both informed consent and the power of suggestibility, similar to current practice in placebo-controlled research trials. In this context, as part of an n-of-1 single-blinded trial, physicians could have a commercially available pure placebo pill that could be prescribed to the patient. These pure placebo pills could be made by a drugstore company, which makes over-the-counter medication at a fraction of pharmaceutical company costs.

In 1979, Goodwin et al reported that the majority of the physicians they surveyed thought placebos could help determine if a patient's symptoms were real or

if the patient was faking.⁷ These findings suggested a mind-body dualism inconsistent with evidence in more recent neuroscience and clinical research.^{2,3,20} Today, by contrast, US family physicians overwhelmingly believe the placebo effect can have both psychological and physical benefits, supporting the idea of a tighter mind-body connection. Physicians also believe ritualistic and behavioral aspects of patient care can promote the placebo effect. For instance, the white coat was originally designed in a pre-hygienic 19th century era as a barrier to cross-contamination; it has evolved into a symbol of health care, even if its original purpose as a hygienic barrier is less valid. Consistent with physician perceptions, a 2005 study showed that patients attribute far more medical prowess to physicians who wear a professional white coat for patient encounters.²¹ Physicians also endorse the power of writing a prescription to promote patient expectations. Still, instead of prescribing real drugs as placebos, a safer practice could emphasize writing prescriptions for healthy lifestyle practices, such as exercise or meditation.

Limitations

We surveyed family physicians, whose opinions may differ from those of other medical specialties. Designing a questionnaire is hindered by the difficulty of developing a logically consistent as well as non-stigmatizing definition of a "placebo."²² Because the structure of the survey was largely multiple choice, focus groups or long interviews would better capture the nuances of physician beliefs regarding placebos. Finally, while the survey guaranteed confidentiality and aimed to eliminate reporting bias, some responses may be inaccurate due to recall bias. We do not know if nonrespondents differ from respondents, though the consistency of findings across the three recent placebo use studies among generalists supports the reliability of these findings.^{10,13}

Conclusions

Until recently, the extent of placebo use in current clinical practice was largely unknown. In our study, more than half of family physicians surveyed use placebo treatments for patient care. Beyond serving as experimental controls in research trials, physicians view placebos as therapeutic tools, either as a supplemental or an independent treatment modality. Physicians do not view the mind and body as distinct entities but largely endorse the power of patient expectation to influence both psychological and physical health. However, the rituals and treatments that physicians utilize as placebos can reinforce either healthy or dysfunctional patterns of patient care. On the one hand, physicians agree that certain health care rituals, such as the formation of a trusting and compassionate relationship with patients, can engender a powerful placebo effect. However, physicians commonly use active medication

to serve as placebos, which reinforces the perception that pharmacology and pill-taking behavior treats non-indicated conditions. Physicians' more sophisticated understanding of the mind-body connection has not translated into optimal clinical strategies for maximizing the placebo effect while avoiding harm.

Acknowledgments: Financial support was received from the University of Chicago Department of Family Medicine, Pritzker School of Medicine Fentress Research Award.

This study was presented at the Pritzker School of Medicine Senior Research Forum, May 8, 2008, Chicago, winning the award for best clinical research poster.

Corresponding Author: Address correspondence to Dr Kermen, 345 East Superior, Suite 1600, Chicago, IL 60611. rkermen@ric.org.

REFERENCES

- Hrobjartsson A, Gotzsche PC. Is the placebo powerless? An analysis of clinical trials comparing placebo with no treatment. *N Engl J Med* 2001;344(21):1594-602.
- Benedetti F, Amanzio M. The neurobiology of placebo analgesia: from endogenous opioids to cholecystokinin. *Prog Neurobiol* 1997; 52(2): 109-25.
- Benedetti F. Placebo effects: understanding the mechanisms in health and disease. New York: Oxford University Press, 2008.
- Wolff HG, Dubois EF, Gold H. Cornell conferences on therapy: use of placebos in therapy. *New York Journal of Medicine* 1946.
- Kaptchuk JM, Kelley J, Conboy L, et al. Components of placebo effect: randomized trial in patients with irritable bowel syndrome. *BMJ* 2008;336:999-1003.
- Street R, Makoul G, Neeraj A, et al. How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Educ Couns* 2009;74:295-301.
- Goodwin JS, Goodwin JM, Vogel AV. Knowledge and use of placebos by house officers and nurses. *Ann Intern Med* 1979;91(1):106-10.
- Goldberg RJ, Leigh H, Quinlan D. The current status of placebo in hospital practice. *Gen Hosp Psychiatry* 1979;1(3):196-201.
- Berger JT. Placebo medication use in patient care: a survey of medical interns. *West J Med* 1999;170:93-6.
- Sherman R, Hickner J. Academic physicians use placebos in clinical practice and believe in the mind-body connection. *J Gen Intern Med* 2008;23(1):7-10.
- Bostick N, Sade R, Levine M, et al. Placebo use in clinical practice: report of the American Medical Association Council on Ethical and Judicial Affairs. *J Clin Ethics* 2008;19(1):58-61.
- Sherman R, Hickner J. Placebos: current clinical realities. *J Clin Ethics* 2008;19(1):62-5.
- Tilburt J, Emanuel E, Kaptchuk T, et al. Prescribing "placebo treatments:" results of a national survey of internists and rheumatologists. *BMJ* 2008;337:a1938.
- Hrobjartsson A, Norup M. The use of placebo interventions in medical practice—a national questionnaire survey of Danish clinicians. *Eval Health Prof* 2003;26(2):153-65.
- Nitzan U, Lichtenberg P. Questionnaire survey on use of placebo. *BMJ* 2004;329(7472):944-6.
- Di Blasi Z, Harkness E, Ernst E, et al. The influence of context effects on health outcomes: a systematic review. *Lancet* 2001;357(9258):757-62.
- Bjelakovic G, Nikolova D, Gluud LL, et al. Mortality in randomized trials of antioxidant supplements for primary and secondary prevention: systematic review and meta-analysis. *JAMA* 2007;297(8):842-57.
- Cabot R. The physician's responsibility for the nostrum evil. *California State Journal of Medicine* 1907;5(1).
- Ray P [internet interview]. www.medpagetoday.com/MeetingCoverage/AMA/3555. June 16, 2006.
- Astin A, Shapiro S, Eisenberg D, et al. Mind-body medicine: state of the science, implications for practice. *J Am Board Fam Pract* 2003;16(2):131-47.
- Rehman SU, Nietert PJ, Cope DW, Kilpatrick AO. What to wear today? Effect of doctor's attire on the trust and confidence of patients. *Am J Med* 2005;118(11):1279-86.
- Kirsch I. Unsuccessful redefinitions of the term 'placebo.' *American Psychologist* 1986;41:844-5.

Appendix 1

Open-ended Physician Responses

Types of Treatments Used as Placebos
“Always amoxicillin, if no allergy.”
“[It’s the] nature of urgent care. Antibiotic may be given indiscriminately.”
“I have worked full time ER for years and admit to many times prescribing antibiotics when I am confident the illness is viral—some patients just don’t understand the role of antibiotics and continue to return until prescribed because they ‘needed it last time.’”
Circumstances of Placebo Use
“When there is not a valid Western medicine answer.”
“To calm teachers who are demanding that kids be placed on ‘medication’ for ADD/ADHD.”
“As [a] blinded trial over three weeks with one week placebo to determine response...”
Information Given to Patients When Prescribing a Placebo
“It is for ‘x’ symptom.”
“I don’t think it will help but I am willing to prescribe it because he/she wants it.”
“It depends.”
Ethical Stances on Placebo Use
“The use of placebos is appropriate in hypochondriac patients.”
“Placebo is an arbitrary term used to define something with no known benefit. Unless it is known to be harmful there should be no prohibitions.”
“While placebo’s use may have some benefit to the patient in the short term, the cost in terms of lost trust and therapeutic relationship when its use is discovered/realized likely far outweighs this benefit.”
Perceived Therapeutic Value of Placebos
“I practice holistic medicine and I firmly believe that what a physician says to a patient (both positive and negative) and what a patient believes about their disease (both positive and negative) has a HUGE effect on their outcomes.”
“We have long recognized that placebos have an effect on EVERY aspect of medical care outcomes. Otherwise why give placebos in our controlled studies. We DO NOT compare the interventions with the absence of treatment because the placebo does have an impact. Otherwise the very concept of the double blind study is faulty.”
“I believe the placebo effect is large—that is why drugs should exceed this effect to be determined beneficial.”
The Process-of-Treatment Effect
“I believe true healing has a shamanic component to it.”
“Prescribing a placebo would propagate our society’s belief that a ‘pill’ exists for every problem. We over-prescribe as it is. The drug companies would support placebos to continue symptom-related prescribing and ‘syndrome’-directed medicines. It may also continue to erode into the patients’ responsibilities for their own health in terms of lifestyle. It’s easy to write a prescription. It’s hard to do the right thing.”
“I personally found feeling my doctors had my best interest in mind helped me more than anything.”
End-of-the-survey Comments
“I think that all biologically active treatments also utilize a placebo effect.”
“I still believe that the art of healing should still be an integral part of a physician in treating patients.”
“American expectations for any condition are increasingly a prescription.”