American Pain Society
RESEARCH
EDUCATION
TREATMENT
ADVOCACY
PUBLISHED BY ELSEVIER

The Journal of Pain, Vol 16, No 11 (November), 2015: pp 1147-1162
Available online at www.jpain.org and www.sciencedirect.com

Out-Of-Pocket Expenditures on Complementary Health Approaches Associated With Painful Health Conditions in a Nationally Representative Adult Sample

Richard L. Nahin,* Barbara J. Stussman,* and Patricia M. Herman†

**National Center for Complementary and Integrative Health, National Institutes of Health, Bethesda, Maryland.*
†RAND Health, RAND Corporation, Santa Monica, California.

Abstract: **National surveys suggest that millions of adults in the United States use complementary health approaches such as acupuncture, chiropractic manipulation, and herbal medicines to manage painful conditions such as arthritis, back pain, and fibromyalgia. Yet, national and per person out-of-pocket (OOP) costs attributable to this condition-specific use are unknown. In the 2007 National Health Interview Survey, the use of complementary health approaches, the reasons for this use, and the associated OOP costs were captured in a nationally representative sample of 5,467 adults. Ordinary least square regression models that controlled for comorbid conditions were used to estimate aggregate and per person OOP costs associated with 14 painful health conditions. Individuals using complementary approaches spent a total of $14.9 billion (standard error [SE] = $.9 billion) on these approaches to manage these painful conditions. Total OOP expenditures by those using complementary approaches for their back pain ($8.7 billion, SE = $.8 billion) far outstripped OOP expenditures for any other condition; the majority of these costs ($4.7 billion, SE = $.4 billion) were for visits to complementary providers. Annual condition-specific per person OOP costs varied from a low of $568 (SE = $144) for regular headaches to a high of $895 (SE = $163) for fibromyalgia.**

Perspective: ***Adults in the United States spent $14.9 billion on complementary health approaches (eg, acupuncture, chiropractic manipulation, and herbal medicines) to manage painful conditions including back pain ($8.7 billion). This back pain estimate is almost one-third of the total conventional health care expenditure for back pain ($30.4 billion) and two-thirds higher than conventional OOP expenditures ($5.1 billion).***

Published by Elsevier Inc. on behalf of the American Pain Society

Key words: *Complementary and alternative medicine, out-of-pocket costs, expenditures, back pain, chronic pain.*

The continuing high use of complementary health approaches (eg, acupuncture, chiropractic manipulation, massage therapy, and herbal medicines) by adults (33.2%)[16] and children (11.6%)[9] in the United States has led to interest in identifying the costs associated with these approaches.[17,19-21,27,29,30,33,40] Although earlier estimates of total out-of-pocket (OOP) expenditures have been made,[20,21,33] to the best of our knowledge, none of these studies have provided nationally representative estimates of the average per person or total OOP expenditures made by individuals using these approaches to treat or manage health conditions associated with pain, despite the fact that these painful conditions are a primary driver of use.[5,6,13,20,21] Commenting on this lack of cost data, the Institute of Medicine[26] noted that although "people with chronic pain are frequent users" of these complementary approaches, "the costs of these services – which often must be paid, as least in part, out of pocket – are difficult to measure." The 2007 National Health Interview Survey (NHIS), a nationally representative dataset on complementary health approaches in the United States, provides a unique opportunity to help fill this void by providing the first nationally representative data on OOP expenditures for a variety of

Received March 11, 2015; Revised June 10, 2015; Accepted July 14, 2015. All authors performed their work as part of their official duties. No outside financial support was provided. All authors declare they have no competing interests.

Supplementary data accompanying this article are available online at www.jpain.org and www.sciencedirect.com.

Address reprint requests to Richard L. Nahin, PhD, MPH, National Center for Complementary and Integrative Health, National Institutes of Health, 6707 Democracy Blvd., Suite 401, Bethesda, MD 20892. E-mail: nahinr@mail.nih.gov

1526-5900/$36.00

Published by Elsevier Inc. on behalf of the American Pain Society

http://dx.doi.org/10.1016/j.jpain.2015.07.013

complementary health approaches used to treat or to manage specific health conditions. Although the 2012 NHIS survey included questions on expenditures for complementary health approaches, the design of that questionnaire only allowed for a nonrandom assessment of cost data associated with the use of complementary approaches to treat specific health conditions. Therefore, unbiased assessments of national expenditures are not possible using the 2012 data.

Using data from the 2007 NHIS, we examine the financial impact of complementary health approaches in individuals with painful health conditions such as arthritis, back pain, and fibromyalgia to provide national estimates of all OOP expenditures on complementary health approaches to treat or to manage these specific diseases or conditions after accounting for other comorbid conditions. Such cost-of-treatment studies are necessary to describe the resources expended on these complementary approaches on a disease by disease basis. The literature suggests that most individuals do not have health insurance coverage for these approaches.[15,21] Even when health insurance coverage is available, it is generally limited such that individuals will still have to pay substantial amounts OOP.[21] Thus, the current data will help to provide information on accurate cost-of-illness studies, educate practitioners and policy makers regarding the extent of this use (and the implied value placed on that use), and portray more accurately the economic impact of these conditions and practices on both individuals and the nation.

Methods

The NHIS is an annual survey of the health of the U.S. civilian, noninstitutionalized population conducted by the National Center for Health Statistics, Centers for Disease Control and Prevention. The survey contains 4 main modules: Household, Family, Sample Child, and Sample Adult. The first 2 modules collect health and sociodemographic information on each member of all families residing within a sampled household. Within each family, additional information is collected from 1 randomly selected adult (the "sample adult") aged 18 years or over and from an adult knowledgeable about 1 randomly selected child (the "sample child") under age 18 years. The survey uses a multistage clustered sample design and oversamples black, Asian, and Hispanic populations.

For the 2007 interviewed sample, there were 29,266 households consisting of 75,764 persons in 29,915 families. The total household response rate was 87.1%. From the households interviewed, 23,393 adults completed core interviews, resulting in an overall sample adult response rate of 67.8%.

In 2007, a 15-minute supplement on complementary health approaches was added to the NHIS. The developmental processes for this supplement have been described previously.[45] The supplement contained questions on 36 types of complementary health approaches used in the United States, including practitioner-based approaches (see Supplementary Appendix A; eg, acupuncture, chiropractic and osteopathic manipulation, naturopathy, and so forth), and complementary health approaches for which the services of a practitioner are not necessary (see Supplementary Appendix A; eg, meditation, nonvitamin, nonmineral dietary supplements [NVNMDSs], yoga, and special diets).

Follow-up questions about OOP expenditures were only asked when a complementary health approach was used within the past 12 months, except for NVNMDSs for which a 30-day period was used. Cost questions in the NHIS supplement consisted of the number of visits to a complementary health provider, the number of purchases of complementary health

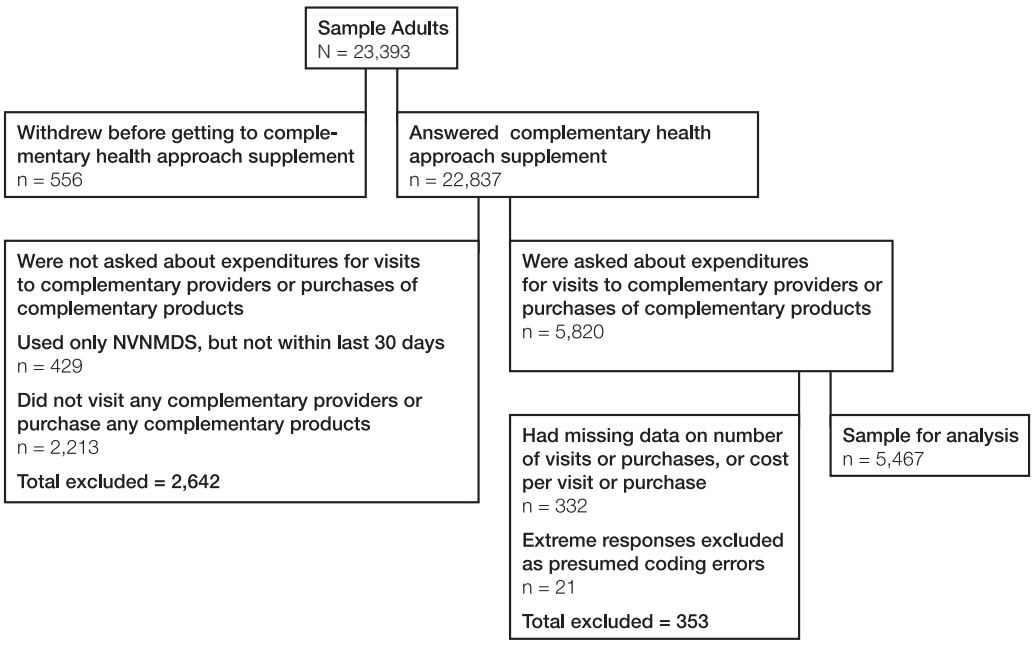

Figure 1. Sample selection of participants with OOP expenditures on complementary health approaches in the 2007 NHIS.