

TO THE EDITOR:

As a PhD economist who specializes in the areas of health economics and health services research, I read with great interest the recent article "Cost-Effectiveness of Chiropractic Care in a Managed Care Setting" by Mosley and colleagues,¹ in which the authors concluded that chiropractic care for the treatment of back and neck pain yields equivalent surgical outcomes and levels of patient satisfaction relative to non-chiropractic care, yet the costs of chiropractic care were substantially lower.

In this era of managed care, analyses that compare alternative treatment protocols for specific health conditions in terms of costs, outcomes, and satisfaction can provide valuable information for insurers and consumers. While this study attempts to make such comparisons between chiropractic care and alternative treatment protocols for either back or neck pain, the research design and analyses have some inherent flaws. The shortcomings of this study are enumerated in turn.

The major flaw is that the simple comparisons of means for the two groups are probably invalid due to the existence of potentially severe selection bias. In describing the research design, the authors state that since patients are free to seek treatment from either a primary care physician or a chiropractor, this choice eliminated any physician bias against referral to a chiropractor. Nonetheless, patients were aware that referral to a specialist, for either physical therapy, CT, or MRI requires precertification by the primary care physician and the HMO. For chiropractic treatment, precertification was required by the HMO for care beyond six visits. These differences in precertification requirements undoubtedly influenced the patients' choice of provider. In particular, it seems likely that patients with less severe back or neck pain would seek care from a chiropractor because they perceive their ailments could be treated in a few visits. On the other hand, patients with more severe back and neck problems would be predisposed to obtain care from the primary care physician in order to have ready access to specialists' services. The failure to recognize such differences in casemix/severity means that the authors have compared apples and oranges. The authors acknowledge this point, although indirectly, in the conclusion when they state that the number of visits to chiropractors was fewer than previously reported elsewhere. They attribute such utilization differences to the precertification requirements.

While the authors ignore the existence of selection bias, it is difficult to assess the extent of the bias linked to differences in casemix/severity of health status between the two groups for several reasons. First, the authors present no information on mean visits to the chiropractor for those who sought chiropractic care versus mean visits for

those who obtained care from a physician. Second, although all patients were identified as having one or more paid claims with a diagnosis of either back or neck pain, it is widely acknowledged that this disease classification system represents a crude attempt to control for underlying differences in casemix. Third, simple comparisons of means do not control for other confounding factors such as gender, age, underlying health status, education, and income that may also be important determinants of treatment choice, costs, and outcomes. Regression analysis should be employed to hold constant the effects of other potentially confounding factors and thereby isolate the impact of provider (chiropractor versus physician) on utilization, costs, and outcomes. Fourth, the criteria used to construct episodes is ad hoc. The authors state that the data represents only single episodes of care because the benefit structure requires precertification of chiropractic visits in excess of six visits, and physical therapy is a 60-day treatment per condition limit. This statement leads one to believe that all episodes with more than six chiropractic visits have been excluded from the analyses. The authors should be more explicit about the exclusion/inclusion criteria and develop an algorithm in order to correctly construct episodes of care.

In summary, this study is hampered by potentially serious problems arising from sample selection and a flawed research design. In light of these considerations, the comparisons of chiropractic versus non-chiropractic care for the treatment of either back or neck pain with respect to cost, outcomes, and satisfaction presented in the study are of questionable validity.

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1. Mosley CD, Cohen IG, Arnold RM. Cost-effectiveness of chiropractic care in a managed care setting. *Am J Man Care* 1996;2:280-282.

AUTHOR'S REPLY:

First, Dr. Mitchell intimates that only patients with minor or less severe pain would seek chiropractic care since those with severe disease would require specialty consultation. This suggestion contains two erroneous assumptions: That severity of pain correlates with severity of disease, which it in no way does; and that patients are capable of determining their own severity of illness, which

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they cannot. The ultimate measure of back pain is degree of disability and need for surgical intervention, both of which were identical in our study groups.

Second, Dr. Mitchell raises the issue of casemix/severity bias between the two groups. As we clearly stated in our article, "...we believe that no substantial underlying illnesses in either group may have contributed to a difference in comorbidities, chronic illnesses, and severity of illness."¹ This conclusion was based on overall utilization of health-care services' frequency and cost during the study period. Chronically ill patients visit physicians more often, are hospitalized more frequently, and incur more costs than healthy patients. Yet, in our two study groups there were no differences in these parameters.

Third, Dr. Mitchell indicates our statement concerning precertification of more than six visits for chiropractic to be misleading. In retrospect, she is probably correct. The mean number of chiropractic visits for our study group was 5.1 with a range of 2 to 21 visits. The key point was that ongoing medical necessity was a requirement for more than six chiropractic visits to be approved.

In summary, we do not concur with Dr. Mitchell's assessment of our study comparing the cost and patient outcomes of back and neck pain in patients treated with chiropractic and those treated conventionally. We made every effort to ensure that there were no demographic differences or variations in comorbidities in the two populations. Both populations rated their satisfaction with results equally and the surgical rates were identical. The principal difference was the lower cost of patients treated with chiropractic care.

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1. Mosley CD, Cohen IG, Arnold RM. Cost-effectiveness of chiropractic care in a managed care setting. *Am J Man Care* 1996;2:280-282.