CHIROPRACTIC USE AND CHANGES IN HEALTH AMONG OLDER MEDICARE BENEFICIARIES: A COMPARATIVE EFFECTIVENESS OBSERVATIONAL STUDY

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ABSTRACT

Objective: The purpose of this study was to investigate the effect of chiropractic on 5 outcomes among Medicare beneficiaries: increased difficulties performing activities of daily living (ADLs), instrumental ADLs (IADLs), and lower body functions, as well as lower self-rated health and increased depressive symptoms.

Methods: Among all beneficiaries, we estimated the effect of chiropractic use on changes in health outcomes among those who used chiropractic compared with those who did not, and among beneficiaries with back conditions, we estimated the effect of chiropractic use relative to medical care, both during a 2- to 15-year period. Two analytic approaches were used—one assumed no selection bias, whereas the other adjusted for potential selection bias using propensity score methods.

Results: Among all beneficiaries, propensity score analyses indicated that chiropractic use led to comparable outcomes for ADLs, IADLs, and depressive symptoms, although there were increased risks associated with chiropractic for declines in lower body function and self-rated health. Propensity score analyses among beneficiaries with back conditions indicated that chiropractic use led to comparable outcomes for ADLs, IADLs, lower body function, and depressive symptoms, although there was an increased risk associated with chiropractic use for declines in self-rated health.

Conclusion: The evidence in this study suggests that chiropractic treatment has comparable effects on functional outcomes when compared with medical treatment for all Medicare beneficiaries, but increased risk for declines in self-rated health among beneficiaries with back conditions. (J Manipulative Physiol Ther 2013;36:572-584)

Key Indexing terms: *Chiropractic; Medicare; Aged; Activities of Daily Living*

Chiropractic services were added as Medicare benefits in 1972 under amendments to the Social Security Act.[1] The amendments authorized spinal manipulation treatments by doctors of chiropractic (DC) to correct spinal subluxations that cause significant neuromusculoskeletal health problems.[2] Within the context of Medicare policy, subluxation is defined as "a motion segment, in which alignment, movement integrity, and/or physiological function of the spine are altered although contact between join surfaces remains intact."[2] Chiropractic therapy is expected to arrest the progression of functional decline or in the case of acute subluxations, restore, and possibly improve patient function. Medicare coverage includes chiropractic services as treatment options for beneficiaries with spine-related health conditions under the proviso that such treatment is covered only if and as long as chiropractic therapy is expected to reduce disability and/or preserve function. Although Medicare expenditures for chiropractic services were $1.6 billion between 2009 and 2011 alone,[3-5] no study of which we are aware has investigated whether chiropractic has had the intended effect on health outcomes.

Policies that target the functional health of older adults have important and far-reaching effects on other health priorities, including quality of life and healthcare spending.

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Although several studies document older persons' preferences for home and community-based care vs institutional settings for their long-term care needs,[6-8] placement in institutional settings like nursing homes is often determined by a person's degree of disability.[9,10] Functional disability is reflected by a person's capacity to perform everyday tasks, typically in community based settings, and is routinely measured by difficulties performing activities of daily living (ADLs),[11,12] instrumental ADLs (IADLs),[13] and lower body mobility (because it affects ADLs and IADLs). In a thorough review of the risks associated with nursing home placement, Miller and Weissert[14] found that greater difficulties with ADLs, IADLs, and lower body mobility were significantly and consistently associated with the risk of institutionalization. Thus, intervening early with therapies that slow functional decline may enable individuals to maintain their autonomy and reduce their risk of institutionalization.

In addition, research on the relationships between functional health, self-rated health, and depressive symptoms in older adults paints a complex picture of their etiologic pathways. Activity restriction and functional disability have been shown to contribute to depressive symptoms and lower self-rated health, whereas increasing levels of depressive symptoms have been shown to predict greater decline in physical performance.[15-22] These studies conclude that reducing functional difficulties may alleviate depressive symptoms and enhance self-rated health. Thus, chiropractic may have an indirect beneficial effect on self-rated health and depressive symptoms through its direct therapeutic impact on physical symptoms and function.

Just as greater levels of ADL and IADL difficulty predict nursing home placement, these same functional difficulties also predict higher Medicare-covered health services use, including paid home care, physician services, and hospital care.[10,14,23] Moreover, as the primary insurer for long-term care services and supports, Medicaid uses functional impairment as an eligibility criterion for the provision of home and community-based services, as well as for nursing home placement. With Medicaid long-term care services and supports expenditures exceeding $123 billion in 2010, two-thirds of which[24] was spent on beneficiaries older than 65 years, policy makers have a financial incentive to encourage the use of interventions that slow the rate of functional decline in older persons.

Back-related musculoskeletal problems are a major source of functional and mobility limitations in older adults and are one of the most common health complaints presented to health care providers.[25] Among older adults, prevalence estimates for back-related musculoskeletal problems range from 23% to 33%.[26-28] There is a large body of research demonstrating evidence of chiropractic effectiveness in the general population,[29-37] and chiropractic is recommended by the American College of Physicians and the American Pain Society for patients with back conditions that do not improve after self-care.[38] The American College of Physicians and the American Pain Society evidence-based guidelines endorsing chiropractic for nonspecific back conditions notwithstanding, pharmacologic, imaging, and interventional treatments for these conditions have doubled over the past 15 years with no appreciable improvement in health outcomes.[25] To promote the optimal use of health care resources, it is necessary to objectively determine which everyday-practice therapies result in better benefits reflected in functional abilities, self-rated health, and depressive symptoms.

Although the literature on chiropractic provides good evidence of its efficacy, there are limitations. Although some studies have characterized chiropractic use patterns, risk factors for use, and regional variation among Medicare beneficiaries,[39-44] only a few studies have examined chiropractic effectiveness among older beneficiaries (>70 years).[45-48] Older adults are an important population because they have a relatively high prevalence of back-related indications and thus are at increased risk for disability and because Medicare benefits are primarily available for older adults. Furthermore, given the obstacles to randomizing patients to treatment options, few clinical trials have been conducted that compare chiropractic to traditional medical therapies. Moreover, among clinical trials that have made such comparisons, the follow-up periods have been quite short (eg, <24 weeks) and the study populations have been relatively healthy.[37] Among the observational studies that compare chiropractic to medical therapies, few have tried to remediate the potential for selection bias (because of the lack of randomizing chiropractic use), which weakens the internal validity of the study results. Finally, we are aware of no studies of older adults seeking care in real-world practice settings that have examined the effects of chiropractic on functional outcomes for more than 1 year, or included self-rated health and/or depressive symptoms.

Because spinal manipulation therapy addresses spinal subluxations (as defined by Medicare) that cause neuromusculoskeletal conditions, we hypothesize that chiropractic care, when compared with no chiropractic use and other medical services, corrects underlying mechanical dysfunctions that consequently confer protection against declines in function, self-rated health, and against increases in depressive symptoms.

The purpose of this study is to determine whether chiropractic performs better, about the same, or worse than no use or other medical care in preserving or improving function and well-being among Medicare beneficiaries for 2 to 15 years. We conducted 2 analyses to investigate this objective: first, among all Medicare beneficiaries in a nationally representative sample of community dwelling older adults, we investigated the impact of chiropractic use compared with no use on declines in functional status, self-rated health, and depressive symptoms. This yields the