

# EXPLORING PATIENT SATISFACTION: A SECONDARY ANALYSIS OF A RANDOMIZED CLINICAL TRIAL OF SPINAL MANIPULATION, HOME EXERCISE, AND MEDICATION FOR ACUTE AND SUBACUTE NECK PAIN

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## ABSTRACT

**Objective:** The purpose of this study was to assess satisfaction with specific aspects of care for acute neck pain and explore the relationship between satisfaction with care, neck pain, and global satisfaction.

**Methods:** This study was a secondary analysis of patient satisfaction from a randomized trial of spinal manipulation therapy (SMT) delivered by doctors of chiropractic, home exercise and advice (HEA) delivered by exercise therapists, and medication (MED) prescribed by a medical doctors for acute/subacute neck pain. Differences in satisfaction with specific aspects of care were analyzed using a linear mixed model. The relationship between specific aspects of care and (1) change in neck pain (primary outcome of the randomized trial) and (2) global satisfaction were assessed using Pearson's correlation and multiple linear regression.

**Results:** Individuals receiving SMT or HEA were more satisfied with the information and general care received than MED group participants. Spinal manipulation therapy and HEA groups reported similar satisfaction with information provided during treatment; however, the SMT group was more satisfied with general care. Satisfaction with general care ( $r = -0.75$  to  $-0.77$ ;  $R^2 = 0.55-0.56$ ) had a stronger relationship with global satisfaction compared with satisfaction with information provided ( $r = -0.65$  to  $0.67$ ;  $R^2 = 0.39-0.46$ ). The relationship between satisfaction with care and neck pain was weak ( $r = 0.17-0.38$ ;  $R^2 = 0.08-0.21$ ).

**Conclusions:** Individuals with acute/subacute neck pain were more satisfied with specific aspects of care received during spinal manipulation therapy or home exercise interventions compared to receiving medication. The relationship between neck pain and satisfaction with care was weak. (*J Manipulative Physiol Ther* 2014;xx:1-9)

**Key Indexing Terms:** Neck Pain; Patient Satisfaction; Musculoskeletal Manipulations; Exercise Therapy; Pharmaceutical Preparations; Clinical Trial; Chiropractic

Neck pain is one of the most commonly reported health complaints in primary care settings.<sup>1,2</sup> As concern for costs and side effects related to treating spinal pain conditions continues to grow, the search for effective, patient-centered treatments has become paramount. Patient satisfaction has become a widely advocated means for measuring patients' preferences and views related to treatment quality in clinical practice.<sup>3</sup> Furthermore, it is recommended as

a core outcome domain for chronic pain clinical trials by the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials group.<sup>4</sup>

A large percentage of health care visits are made to medical doctors, doctors of chiropractic, and physical therapists, who use a range of interventions to manage neck complaints.<sup>5</sup> Although commonly used for the management of acute or subacute neck pain, systematic reviews have found only

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limited to low-quality evidence for spinal manipulation, exercise, and medications.<sup>6-8</sup> Recently, in one of the first large randomized trials investigating spinal manipulation therapy (SMT) for acute and subacute neck pain, our group found that patients receiving SMT experienced significantly greater reductions in pain than those receiving medication in the short and long terms.<sup>9</sup> No significant group differences were found between SMT and home exercise for most outcomes, including pain. An exception was global satisfaction, with the SMT group significantly more satisfied compared with the home exercise and medication groups, and the home exercise group more satisfied than those who received medication. The satisfaction-related findings, while secondary, are potentially important, especially given the lack of research that is currently available examining patient satisfaction in the existing acute neck pain literature.<sup>6</sup> Furthermore, it is not known if there were specific aspects of care that informed patients' global satisfaction and if these differed by treatment. Such insights may provide important information that can affect the implementation of research findings into clinical practice and the design of future patient-centered research.

Although satisfaction outcomes are growing in popularity, recent studies and commentaries have questioned the interpretation of patient satisfaction and its utility in both health care and clinical research settings.<sup>10,11</sup> Fenton et al<sup>10</sup> examined the relationship between patient satisfaction, health care expenditures, and health using the Medical Expenditures Panel Survey. Surprisingly, they found that increased satisfaction is associated with higher medical expenditures and mortality. Similar but less extreme findings are emerging in the spinal pain literature, which find improved patient satisfaction with increased diagnostic tests and treatment, regardless of clinical outcomes.<sup>12,13</sup>

In light of the emerging questions about utility of satisfaction as an outcome measure and findings from our recent study,<sup>9</sup> we sought to further explore the patient satisfaction domain. The purpose of this article was to assess (1) treatment group differences in satisfaction with specific aspects of care in acute neck pain patients receiving SMT, home exercise, and medication as measured by a multidimensional satisfaction questionnaire and (2) the relationship between specific aspects of satisfaction with care and both change in neck pain (primary outcome measure in parent randomized clinical trial) and global satisfaction (secondary outcome).

## METHODS

This study used patient satisfaction outcomes collected during a randomized clinical trial conducted from 2001 to 2007 in Minneapolis, Minnesota. A more thorough description of the study population, methodology, and primary results has previously been published.<sup>9</sup> A brief description of the clinical trial is provided here. The institutional review boards at Northwestern Health Sciences University and Hennepin County

Medical Center approved the study, and all subjects provided written informed consent before participation. The study was funded by the National Institutes of Health's National Center for Complementary and Alternative Medicine (R01 AT000707) and is registered with ClinicalTrials.gov (NCT00029770).

## Population

Participants were 18 to 65 years of age with mechanical, nonspecific neck pain (Grade I or II according to the Bone and Joint Decade Task Force on Neck Pain's classification<sup>14</sup>) of 2 to 12 weeks duration. Participants with health conditions not amenable to study treatments or severe disabling health problems were excluded.

## Randomization

Participants were randomly assigned to treatment using permuted blocks of different sizes. The allocation sequence was prepared off-site by the study statistician before enrollment and was concealed from investigators, treatment providers, and other study staff by using consecutively numbered, sealed, opaque envelopes.

## Interventions

Spinal manipulation therapy was provided by licensed doctors of chiropractic with a minimum of 5 years of clinical experience at a university-associated research clinic. Treatment visits lasted 15 to 20 minutes and primarily consisted of high-velocity, low-amplitude joint manipulation (Diversified technique). Low-velocity joint mobilization was also allowed if indicated. Other therapies including light soft tissue massage and assisted stretching and heat or cold packs were used as necessary to facilitate the SMT. The specific areas of treatment and number of visits were determined by the treating doctor of chiropractic over a 12-week treatment phase. Advice to stay active or modify activity was provided as needed.

Medication (MED) was provided by a licensed medical doctor at a pain management clinic and consisted of nonsteroidal anti-inflammatory drugs, acetaminophen, or both as a first line of therapy. Narcotic medications and muscle relaxants were prescribed to participants who failed to respond to initial treatment. The number of visits and choice of medication were at the physician's discretion over the 12-week treatment period. Advice to stay active or modify activity was provided as needed.

Home exercise and advice (HEA) was provided by exercise therapists at a university-affiliated research clinic. Participants attended two 1-hour visits focusing on self-mobilization exercises for the neck and shoulders over a 2-week period. Participants were instructed to perform 5 to 10 repetitions of the exercises at home 6 to 8 times per day. The home exercises were supplemented with information and advice on neck pain prognosis and ergonomic advice.<sup>15</sup>

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