CHANGES IN QUALITY OF LIFE IN FOUR OLDER ADULT PATIENTS RECEIVING MANUAL CHIROPRACTIC CARE FOR THE CORRECTION OF VERTEBRAL SUBLUXATION: A CASE SERIES

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ABSTRACT

Objective: The purpose of this case series is to report the symptomatic and quality of life (QoL) improvements in 4 older adults receiving manual chiropractic care for the correction of vertebral subluxation.
Clinical features: Four older adult patients under chiropractic care with one student intern at a teaching clinic in Auckland, New Zealand. Patients were included if they were 60 years or older, receiving manual chiropractic care and had completed at least two QoL (SF-36) assessments. The patients, aged 61-65 years, initially presented for care for a variety of musculoskeletal complaints.
Intervention & Outcomes: Chiropractic care using Diversified or Gonstead technique systems was provided for the correction of vertebral subluxations. Most patients reported improvements in their presenting complaints. Each patient demonstrated clinical improvements in their RAND 36-Item Short Form Health Survey (SF-36) results. The average improvement in measured QoL was 7.23 points for the physical and 9.21 points for the mental components.
Conclusion: This case series describes improvement in QoL as measured by the SF-36 as well as subjective reported improvements for 4 older adult patients receiving manual chiropractic care. (*Chiropr J Australia 2018;46:186-194*)

Key Indexing Terms: Older Adult; Aged; SF-36; Chiropractic; Quality of Life

INTRODUCTION

The population in developed nations is ageing faster than previously in history. (1,2) In New Zealand alone the older adult population is anticipated to increase by 19% by 2021. (1) It is projected that globally the older adult population, those aged 60 years and above, will reach 21.1% of the total population by 2050, more than doubling current numbers to exceed 2 billion. (2) Surrounding this are a number of important implications that effect the older adult population that have a major impact on the economy and society, both in New Zealand and western world in general. (3-5) Of concern for the older adult population is their impact on the health care system and their continued quality of life. (3,5)

Quality of life (QoL) measures are commonly used in determining the overall change of an individual's health and wellbeing within the healthcare system. (6,7) QoL seems to decline with advancing age. (8) It is vital to have accurate measures that compares the ability of a person to participate in activities of daily living (ADLs), as these contribute to positively enhance physical, social and mental wellbeing. (9) This in turn positively influence society. (9) Correlation has been shown between QoL measures and people's ability to remain independent and perform ADLs, which may result in positive economic and social effects. (10,11)

There is a growing body of evidence reporting chiropractic care positively enhances health and QoL in a variety of population groups. (12-25) Two recent studies, a clinical trial and a case series, reported positive effects of chiropractic care on the QoL of older adult patients, measured with the RAND 36-Item Short Form Health Survey (SF-36). (16,21)

The primary objective of chiropractic care is to improve spinal function in order to either improve nervous system function and general health and/or prevent or manage neuromusculoskeletal conditions. (26-28) Chiropractors achieve this through assessment and correction of areas of the spine that have been traditionally referred to as vertebral subluxation (also referred to as spinal dysfunction some chiropractic literature). (29-31) The Australian Spinal Research Foundation

developed a conceptual definition of vertebral subluxation that states "*A vertebral subluxation is a diminished state of being, comprising of a state of reduced coherence, altered biomechanical function, altered neurological function and altered adaptability."* (32) Vertebral subluxation has been reported as being a central segmental motor control problem that involves a joint, such as a vertebral motion segment, that is not moving appropriately, resulting in ongoing maladaptive neural plastic changes that interfere with the central nervous system. (33)

Assessment and correction of vertebral subluxation is achieved by employing a variety of primarily manual techniques. Primarily manual palpation techniques are used for assessment, (30,31,34) and manual chiropractic adjustments are used to bring about a correction of vertebral subluxation. (26-28)

At present, there are still very few studies that chronicle QoL improvements in older adults undergoing chiropractic care, and fewer reporting the effects of manual chiropractic care on this population. The purpose of this case series is to present QoL outcomes in 4 older adult patients receiving manual chiropractic care in a chiropractic teaching clinic in Auckland, New Zealand.

CASE SERIES

As part of their training, chiropractic interns at the New Zealand College of Chiropractic (NZCC) must manage public patients. This case series reports on public patients over 60 years of age managed by 1 student intern during their 18-month internship in the NZCC teaching clinic. Inclusion criteria also included patients who initially presented with clinical spinal findings, (30,31,34) who received only manual chiropractic adjustments (Diversified or Gonstead technique) throughout their care and had completed 2 or more SF-36 assessments. None of the patients received external care or additional lifestyle and home care advice during the course of their chiropractic care.

The patients were initially seen 1 to 2 times per week, following a unique initial program of care ranging from 4 to 6 weeks. Progress assessments were completed between the 8th or 12th visits with each patient completing a follow-up SF-36 assessment for comparison to the pre-chiropractic care assessment. All patients reported continued improvements in their QoL post the 1st progress exam and chose ongoing care past the initial care plan. The duration of ongoing care ranged from 18 to 30 weeks. Subjective statements, verbally presented by the patient, were recorded at each visit.

Outcome Measures

The SF-36 measures self-reported physical and mental health status. The instrument comprises of 36 questions designed to evaluate 8 aspects of a patient's QoL. These are then further divided into 2 component summary scores: physical and mental health. The SF-36 has been shown to be a valid and reliable way to measure QoL in patients. (6,7,16,35) The physical and mental health scores are normalised to values out of 50, with a standard deviation of 10. Although there is some discrepancy, a change in physical and mental health scores of between 2 and 5 points is deemed to be a clinically significant finding. (6,16)

Chiropractic Management

Full spine chiropractic assessment and intervention was carried out at each visit where the entire spine and sacroiliac joints were assessed for vertebral subluxation and adjusted where deemed necessary by the student intern. The clinical indicators that were used to assess the function of the spine included; joint tenderness to palpation, restricted inter-segmental range of motion, asymmetric intervertebral muscle tension, abnormal spinal joint play, leg length inequality and cervical syndrome. All these indicators are known clinical markers of vertebral subluxation and intersegmental spinal dysfunction. (30,31,34,36-38)

Manual chiropractic adjustments, using either Diversified or Gonstead technique, were used to manage patients on each visit. Both techniques use high velocity low amplitude forces administered by hand. (39) Gonstead is a technique that uses motion palpation, x-ray analysis, and a specific measuring instrument called a Nervoscope to locate levels of vertebral subluxation, and focuses on manual adjusting through disc planes. (39) Diversified is the most widely used chiropractic technique and system of adjusting that uses primarily motion and static palpation to locate levels of vertebral subluxation, and focuses on the restoration of proper biomechanics within the spine. (39) Pre- and post-adjustment assessments of each level of vertebral subluxation were noted, as well as subjective statements made by the patient. These manual techniques and the force administered during a chiropractic adjustment were modified individually to a patient's size, frame and spinal integrity.

Patient Responses to Care

The 4 patients (2 female and 2 male), aged from 61 to 65 years (average:62.75 years), presented with a variety of neuro-musculoskeletal conditions. Each patient had a care plan developed to suit their specific needs and ranged from twice weekly for 4 to 6 weeks. Each visit, patients were assessed for vertebral subluxation using the appropriate technique systems indicators. (39)

On each visit a total of 0 to 3 adjustments was administered to the individual patient (an average of 1.12 to 2 adjustments) based on the technique systems protocol requirements. All 4 patients showed an improvement in overall perceived outcomes of their care with the average physical component score improving by 7.23 and the average mental component score improving by 9.21 (Table 1). All patients have provided consent for this information to be published.

Table 1. SF-36 Physical and Mental Component Summary Scores and Improvements of All 4 Cases (Initial to Progress examination)

Patient	Initial Physical Component Summary Score	Progress 1 Physical Component Summary Score	Physical Component Summary Score improvement	Initial Mental Component Summary Score	Progress 1 Mental Component Summary Score	Mental Component Summary Score Improvement
Case 1	22.82	30.55	**7.73**	20.62	47.27	**26.65**
Case 2	45.06	53.74	**8.68**	56.05	60.49	**4.44**
Case 3	51.35	52.75	**1.4**	45.64	49.20	**3.56**
Case 4	22.70	33.79	**11.09**	48.30	50.47	**2.17**
Average	35.48	42.71	**7.23**	42.65	51.86	**9.21**

Case 1

A 65-year-old female presented with hip pain following a fall the previous weekend. She reported experiencing left buttock pain and anterior left hip pain, rated 8/10, that was bad enough to stop her from walking in the past week. Mild osteoporosis and moderate to severe degeneration was found throughout the spine on x-ray. Initial SF-36 scores were measured at 22.82 and 20.62 for the physical and mental components, respectively.

An initial care plan of 2 visits weekly for 6 weeks was followed utilising the Diversified technique system. She received 0 to 2 adjustments each visit. After 2 visits, she noted a subjective improvement in symptomatology, and on the third visit reported that she was “feeling good”. At the progress examination she reported significant reduction in pain levels and being able to walk freely. At the same progress examination her SF-36 component scores had improved to 30.55 for physical and 47.27 for mental scores. She has continued chiropractic care and has sought chiropractic care for 29-weeks.

Case 2

A 61-year-old female presented with right shoulder and neck pain, rated 8/10 on a visual pain scale, and migraines. She stated that she had been suffering from migraines her whole life. Her neck and shoulder pain started after she was in a car accident that amputated her left arm and killed her son. Since she lost her left arm (which was amputated mid-humerus), she has had to compensate by using her right arm for daily activities. She reported right shoulder and arm fatigue from overuse. The emotional stress on her life after that accident also left her in a depressed

state. Initial SF-36 scores were measured at 45.06 and 56.05 for the physical and mental components, respectively.

An initial care plan of 2 visits weekly for 6 weeks was followed utilising the Gonstead technique system. She received 0 to 2 adjustments each visit. The patient noticed decrease in shoulder pain while driving, and that she could drive longer throughout the week without noticing symptoms in her arm. At the progress examination her SF-36 component scores had improved to 53.74 for physical and 60.49 for mental scores. She has continued chiropractic care and has sought chiropractic care for 18-weeks.

Case 3

A 63-year-old male presented with neck and shoulder pain. The patients reported that pain was felt in his lower cervical spine with numbness and tingling experienced in the fingers. Secondary complaints include fatigue and low back pain. His occupation consisted of manual labour and for recreational activities he would play golf regularly. X-ray revealed mild degenerative disc disease from C4 to C7 and T5 to T12, along with mild to moderate degeneration from L1 to S1. Initial SF-36 scores were measured at 51.35 and 45.64 for the physical and mental component scores, respectively.

An initial care plan of 2 visits weekly for 4 weeks was followed utilising the Gonstead technique system. He received 0 to 2 adjustments each visit. On the 3rd visit, he noted a decrease in numbness and tingling and reported that his neck pain was “much better”, and had almost disappeared. At the 6th visit, he noted that his sleeping had improved and his low back pain had started to feel better. At the progress examination the numbness and tingling was reported as resolved with significant decrease in neck pain. Additionally, his SF-36 component scores had improved to 52.75 for physical and 49.20 for mental scores. He has continued chiropractic care and has sought chiropractic care for 19-weeks.

Case 4

A 62-year-old male presented with low back pain. He reported having a 56-year history of playing football. As a child his medical doctor informed him that he had a scoliosis and has since noted a decrease in spinal function, and increased pain. X-rays revealed some postural alterations throughout the spine, but no scoliosis, and degenerative disc disease from C3 to C7, T7 to T12, and L1 to L5. Initial SF-36 scores were measured at 22.70 and 48.30 for the physical and mental component scores, respectively.

An initial care plan of 2 visits weekly for 6 weeks was followed utilising the Diversified technique system. He received 1 to 3 adjustments each visit. He noted no subjective changes throughout his care, but reported improvements in his ability to play football during the care period. At the progress examination his SF-36 component scores had improved to 33.79 for physical and 50.47 for mental scores. He has continued chiropractic care and has sought chiropractic care for 30-weeks.

DISCUSSION

This case series chronicles the QoL changes measured by the SF-36 scores of 4 older adult patients receiving chiropractic care using manual adjusting techniques. Each patient reported on in this case series, demonstrated clinically significant improvements in SF-36 physical and mental component scores, with the exception of case 3 who only demonstrated this in the mental component score. Additionally, all patients subjectively reported improvements in musculoskeletal symptoms and/or physical functioning. Overall, the average improvement in the physical component of SF-36 was 7.23 and the mental component scores was 9.21. Both of these values appear to be clinically significant findings. (6,7,16)

From previous research, we know that the ageing population is rising and this could cause an increased demand on our current health care system. (5,40) Though limited, current literature suggests that chiropractic care can support the older adult population to have improvements in QoL. (12,16,21,24,25,41,42) The findings from the current case series are congruent with previously reported studies investigating the effects of chiropractic care on QoL of older adults. (16,21,24) This study supports the use of chiropractic to promote improved QoL in the older adult population.

Limitations and Further Research

As with any case series there are a number of inherent limitations. These include but are not limited to: the validity of the measure SF-36 in NZ, the inability to completely control confounding factors such as alternative interventions, and the possibility of placebo effect. Although it has previously been reported that SF-36 is a valid measure of QoL, (6,7) there are certain limitations with every measure.

Each patient above presented for manual chiropractic care for relief of their musculoskeletal symptoms. Although all patients reported subjective improvements, the inability to define whether these improvements were due to natural progression, unreported home care and self-medication, or vertebral subluxation based manual chiropractic care makes these factors are limitations to the study and causal effect cannot be determined. It's impossible to discern whether or not the placebo effect played a role in improving the patient's QoL through manual chiropractic care in this case series. It's apparent further clinical research is required to evaluate the relationship between manual chiropractic care and the role chiropractors playing in improving the QoL in older adult patients.

CONCLUSION

This case series describes improvement in QoL as measured by the SF-36 as well as subjective reported improvements for 4 older adult patients receiving manual chiropractic care. Considering the projected population trends, further clinical research regarding the role of chiropractic care and its effect on the QoL for the ageing population is justified.

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