

ORIGINAL ARTICLE

Satisfaction Outcomes of Physiotherapy Programs in Elderly Patients with Cervical Spondylosis at The University Teaching Hospital, Adult Hospital, Lusaka.

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ABSTRACT

Background: A person's age, career, lifestyle, and many other factors may contribute to the rapid rise in spine-related illnesses. Medication used after early discovery can help lower the disease's risk. However, the majority of data on the effectiveness of rehabilitation and physiotherapy programs for older individuals with cervical spondylosis can only be traced to other nations. As the existing data does not provide a comprehensive picture of cervical spondylosis experiences across the nation, Zambia finds it difficult to work within this constraint. The University Teaching Hospital is the country's highest referral hospital, catering to numerous referrals from all ten provinces of Zambia. The goal of this study, therefore, was to provide a clear picture of the satisfaction outcomes by describing the results of physiotherapy programs for senior patients at the University Teaching Hospital who have cervical spondylosis.

Objective: To ascertain the satisfaction outcomes of physiotherapy programs in elderly patients with cervical spondylosis at the University Teaching Hospital (UTH), Zambia.

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Methodology: This was a cross-sectional study. Data processing and analysis were done using SPSS version 20.0 for Windows. A chi-square statistical test was used to determine the association of variables, and the significance level was set at 0.05.

Results: Respondents who took part in the study included 20 females (55.6%) and 16 males (44.4%), with the most participants having cervical spondylosis (CS) for less than a year (36.1%), followed by those who had cervical spondylosis for more than 5 years (27.7%).

Conclusion: The positive outcomes underscore the importance of continued investment in physiotherapy services, emphasizing patient-centered approaches and accessibility. By addressing the limitations and exploring future research avenues, healthcare providers can further enhance the quality of care and patient experiences.

INTRODUCTION

A **chronic**, persistent spinal disorder that causes the spine to harden and eventually become entirely immobile, progressively. Cervical spondylosis (CS) compresses the spinal cord and nerve roots as a result of arthritic changes in the osseocartilaginous

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components of the cervical spine. It is characterized by neck pain, radiculopathy, or myelopathy. About 90% of occurrences of cervical spondylosis occur in people over the age of 50. It is a prevalent disorder that is thought to be responsible for the degenerative alterations in the cervical spine¹. In older individuals, cervical spondylosis is the most common cause of myelopathy and is commonly observed in them. As there is currently no technology available to detect the disease in its early stages, early diagnosis is challenging and can lead to medication delays². Patients are often diagnosed very late in the course of their illness when irreversible changes and progressive neurological deterioration have already occurred. This may also be due to inadequate suspicion on the part of the caretakers.

Compression of the spinal cord and/or nerve roots results in arthritic changes in the osseocartilaginous components of the cervical spine, characterized by neck pain, radiculopathy, or myelopathy. According to population-based studies, by the age of 50, 80–90% of people have abnormalities in their magnetic resonance imaging that are indicative of disc degeneration. The number of patients with symptomatic radiculopathy (approximately 83 per 100,000) and myelopathy (about 4 per 100,000) is significantly lower³. Cervical pain is particularly significant because it affects adults older than 30, which suggests that there are many problems associated with the region, including reduced quality of life and huge costs to the healthcare system⁴. Studies show that 50% of adults suffer from some form of persistent neck discomfort each year, accounting for 14.6% of all musculoskeletal disorders. The most common cause of mechanical neck discomfort is cervical spondylosis. The cervical and lumbar vertebrae joints are where spondylosis most frequently occurs⁵. Due to the frequent need for expensive surgery, cervical spondylosis not only lowers quality of life but also increases the financial burden. Cervical spondylosis may thus become a public health issue⁶. According to the 2013 global burden of disease survey, neck pain ranked among the top 10 causes of years lived with

disability in 188 countries across 301 acute and chronic diseases and injuries. Comparatively, it came in second in China and fourth overall. In Africa, the prevalence of the condition seems to be similar to that of other continents, but patients may manifest early because of their lifestyles. Otherwise, treatment outcomes are similar. The different options for managing the clinical problems can broadly be divided into conservative and surgical methods. Milder clinical conditions and those who cannot tolerate surgery are treated conservatively, and those who are not responsive to the medical treatments and those with disabling neurological syndromes are treated surgically. While decompressive surgery is the sole treatment available for a purely structural, degenerative condition that starts with gradual osteophyte production and disc collapse, it can lead to worsening symptomatology. An estimated 1.6 persons per 100,000 are diagnosed with cervical spondylosis and undergo surgical decompression⁷.

Although various studies on the satisfaction outcomes of physiotherapy interventions among the elderly with cervical spondylosis have been done internationally, there is limited data on it in the Zambian setting. Physiotherapy, which aims to reduce discomfort, increase mobility, and stop further deterioration, is frequently a critical part of addressing cervical spondylosis. An extensive assessment of physiotherapy programs specifically designed to address the needs of senior people is important due to the global aging population. A crucial component of patient-centered care is patient satisfaction. Determining their level of satisfaction with physiotherapy treatments can assist in determining how well these interventions are working to improve their day-to-day functioning. From the viewpoint of the patients receiving therapy, evaluating patient satisfaction offers important information about the efficacy of these interventions. Senior citizens may have particular requirements and difficulties in managing their cervical spondylosis, and healthcare professionals may be able to better adapt treatment plans to these

unique needs by researching patients' satisfaction levels with physiotherapy. This could result in more individualized and efficient care in Zambia.

METHODOLOGY

Study design and population: The study was quantitative and a cross-sectional study design in nature. The University Teaching Hospital (UTH) physiotherapy outpatient department, which is a tertiary and top referral facility in Zambia, was used for the study execution. The study population consisted of all elderly patients who had undergone physiotherapy care for cervical spondylosis at the University Teaching Hospital's physiotherapy outpatient department.

Sample size: The total number of patients with cervical spondylosis who reported to the Physiotherapy department at UTH during the data collection period (2 weeks) was 42, and the participants were conveniently sampled. The sample size was determined using Slovin's formula⁸, as follows:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{42}{1 + 46(0.05^2)}$$

$$n = \frac{42}{1 + 0.115}$$

$$n = \frac{42}{1.115}$$

$$n = 37.6681614$$

$$n = 38 \text{ patients}$$

Where n is the sample size, N is the population size, and e is the margin of error at a 95% confidence level (0.05).

Data collection: The data was collected by using an adapted structured questionnaire, tailored and modified from a similar questionnaire⁹. The Turkish validity and reliability study of the scale was conducted¹⁰. The questionnaire was culturally adapted by translating it into Bemba and Nyanja for participants conversant in the languages, and then back-translated into English to ensure accuracy. It

was also adapted to fit local cultural norms and values to ensure relevance and comprehension.

Bias minimization: During the data collection, some participants might not have been able to participate due to their emotions being triggered because of the condition. Some participants also might not have been able to answer the questionnaire due to their advanced age, and patients with comorbid conditions (i.e., stroke, Parkinson's disease, Multiple Sclerosis, respiratory, cardiovascular, and psychiatric conditions) did not take part as the study was solely focused on patients with cervical spondylosis. All potential biases were acknowledged in this study. Firstly, information, recall, and measurement biases were reduced by the use of a standardized, validated questionnaire. Social desirability bias was reduced by ensuring confidentiality, anonymity, and the use of neutral language in the questionnaire. Non-response bias was reduced by educating the patients about the importance of their feedback for improving physiotherapy services, multiple follow-up attempts and ensuring the questionnaire was concise and easy to understand to minimize burden on respondents. Analyst blinding bias was reduced by ensuring that analysts were blinded to patient identifiers and by use of a standardized, validated questionnaire. Lastly, researcher bias was reduced by using blinded data collection methods.

Data analysis: Data was entered and managed using SPSS software version 20.0 for Windows. A chi-square statistical test was used to determine the association of variables, and the significance level was set at 0.05.

Ethical consideration: It was ensured that participation in the study and withdrawal from it were entirely voluntary for all participants. The informed consent was signed by each of them before participation, and they all had the choice to withdraw from the exercise at any point. Ethical clearance was obtained from the University of Zambia Health Sciences Research Ethics Committee (UZAHSREC). The medical records were handled

with utmost care and confidentiality. Permission to conduct the study at the aforementioned hospital was sought from the hospital heads, respectively. The identity of participants was concealed by initially using file numbers to retrieve files from the registry and later serial codes on data collection sheets. The data entry sheets were secured in a lockable cabinet, and all electronic entries were password-protected on the researcher's computer.

RESULTS

Demographic characteristics of the participants

Table 4.1 summarizes the demographics of the elderly patients receiving treatment for cervical spondylosis in the physiotherapy outpatient department. A total number of 36 participants out of a calculated sample size of 38 participated in the study, as 2 individuals did not voluntarily consent to taking part in the study. The majority of participants were between 60 and 75 years old, suggesting that this age group is most affected by cervical spondylosis, and males represented 55.65% of the participants, while females represented 44.4%.

Table 1: Respondents' Demographic Characteristics (n=36)

Demographic Variable	Frequency (n)	Percentage (%)
Age (Years)		
60-70	15	41.7
71 -75	10	27.8
76-80	8	22.2
81 and above	3	8.3
Gender		
Male	16	55.6
Female	20	44.4

Duration of symptoms and physiotherapy rehabilitation

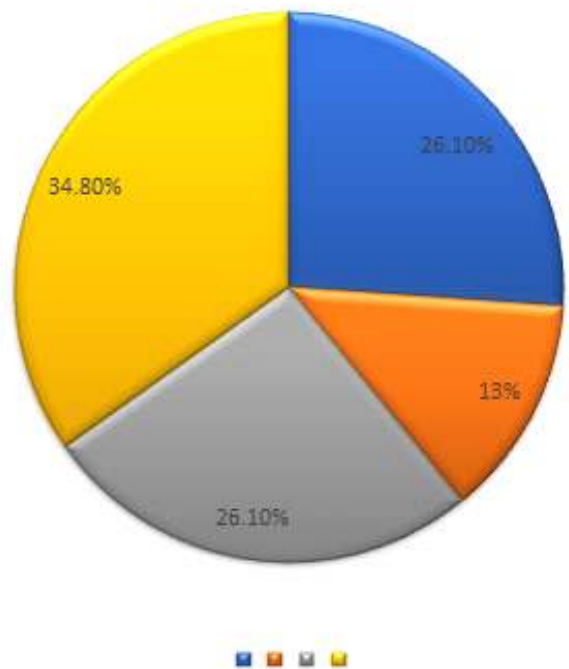
Table 2 illustrates the duration of symptoms in months:

Table 2: Duration of symptoms (months)

Months	Frequency	Percentage
0-12	13	36.1%
13-36	9	25%
37-60	4	11.1%
60+	10	27.7%

Figure 1 illustrates the duration of physiotherapy or rehabilitation. 34.8% being the significant number of patients with CS for less than a month and 13% being the least number of respondents had been going for physiotherapy for more than six months.

Figure 1: Duration of physiotherapy program or rehabilitation



Treatment satisfaction levels

Table 3 presents the levels of satisfaction regarding various aspects of the physiotherapy program. The mean percentage of satisfaction was derived from a 5-Point Likert scale, ranging from very dissatisfied to very satisfied.

Table 3: Treatment satisfaction levels

Satisfaction Item	Mean Score (±SD)	Mean percentage of Satisfaction (%)
Overall satisfaction with treatment	4.2 (±0.7)	83.3
Improvement in pain	4.1 (±0.8)	80.6
Improvement in mobility	3.9 (±0.9)	75.0
Quality of interaction with therapists	4.5 (±0.6)	88.9

Effectiveness of treatment

The effectiveness of the physiotherapy program can be assessed through objective measures, as presented in Table 4.

Table 4: Effectiveness of treatment

Outcome Measures	Pre-Treatment Mean ± SD	Post-Treatment Mean ± SD	Mean Difference (95% CI)	p-value
Pain Scale (0-10)	7.5 ± 1.5	3.0 ± 1.2	-4.5 (-5.1, -3.9)	<0.001
Range of Motion (degrees)	30 ± 10	60 ± 15	30 (22, 38)	<0.001
Functional Mobility Score	45 ± 12	75 ± 10	30 (24,36)	<0.001

DISCUSSION

Patient satisfaction is a multifaceted construct that reflects the perceived quality of care, effectiveness of treatment, and overall experience with healthcare services. The largest number of respondents, represented by 36.1% had cervical spondylosis for less than one year, while 26.1% represented those who had had it for one to five years, and 8.7% represented those patients who had had cervical spondylosis for more than five years. A significant number of participants had experienced symptoms for less than 1 year, indicating early intervention.

The findings from this study revealed high satisfaction levels across various criteria. Most participants reported significant pain reduction after treatment. Patients noted an enhanced ability to perform daily activities and engage in social interactions. Furthermore, positive relationships with therapists were cited as crucial for satisfaction, emphasizing the importance of communication and empathy. Most patients said they were either extremely satisfied (30%) or satisfied (50%) with their care. The majority of patients reported notable progress, with 45% being satisfied and 25% being extremely satisfied. Regarding the standard of care

obtained throughout therapy, high levels of satisfaction were also noted.

The data indicated that 80% of participants reported being satisfied or very satisfied with their overall treatment. This high satisfaction rate could be attributed to several factors, including the skill of the physiotherapists, the tailored nature of the treatment plans, and the supportive environment of the outpatient department. This implies that high satisfaction levels are critical as they often correlate with better adherence to treatment and improved health outcomes. This finding underscores the importance of maintaining high-quality physiotherapy services.

Studies report that symptoms of cervical spondylosis tend to resolve over time with appropriate non-surgical treatment. A significant percentage of patients experience reduced pain levels and improved neck function after engaging in a structured physical therapy program¹¹. With 70% of patients reporting satisfaction regarding symptom improvement, the results highlighted the effectiveness of the physiotherapy programs. The combination of manual therapy, exercise regimens, and education on self-management likely contributed to this perceived improvement. Therefore, this study reaffirmed the efficacy of physiotherapeutic interventions in managing chronic pain conditions.

A significant 75% of participants rated the quality of care as satisfactory or very satisfactory. This aspect of satisfaction is crucial, as it encompasses factors such as staff professionalism, communication clarity, and the overall treatment environment. Ensuring a high quality of care not only enhances patient satisfaction but also fosters a therapeutic alliance between patients and physiotherapists, which is critical for successful rehabilitation improvements in symptoms, not only enhancing physical function but also contributing positively to the overall quality of life for elderly patients. While a majority of patients expressed satisfaction regarding accessibility, 10% reported

dissatisfaction. This highlighted barriers to care in Zambia, such as scheduling challenges, access to higher referral facilities, and transportation issues, among others. With that said, this research recommends that future interventions could focus on improving accessibility by offering flexible scheduling, telehealth options, or community outreach programs to increase awareness and accessibility of services for elderly patients.

The clinical effectiveness of the physiotherapy programs was evaluated through objective measures, revealing substantial improvements post-treatment. The significant reduction in pain levels from an average of 7.5 to 3.0 on a 0-10 scale ($p < 0.001$) illustrates the efficacy of the physiotherapy interventions. This reduction aligned with other studies that have documented the impact of physiotherapy on pain relief in patients with cervical spondylosis. The reduction in pain can be attributed to various factors, including the use of manual therapy techniques, therapeutic exercises, and education about pain management strategies. Exercise training may increase the physiologic reserve and reduce the risk of functional dependency in older adults with joint disease¹². There are limited studies examining the number of sessions needed for better results after using physiotherapy treatments. The increase in the range of motion from an average of 30 degrees to 60 degrees ($p < 0.001$) indicated significant improvement in functional mobility. This outcome suggested that the physiotherapy program successfully addressed stiffness and restricted movement commonly associated with cervical spondylosis. This finding implied that an improved range of motion not only enhances physical function but also contributes to overall quality of life, enabling patients to engage in daily activities more freely.

The goals of an exercise program should be directed toward increasing flexibility, muscle strength, endurance, and cardiovascular fitness. An exercise training program that is tailored specifically to an older adult's physical limitations may achieve these

goals, and optimizing patient safety leads to improved long-term exercise compliance. The notable improvement in the functional mobility score, from 45 to 75 ($p < 0.001$), demonstrates the program's effectiveness in enhancing overall mobility and independence. This outcome is particularly important for elderly patients, as it directly impacts their ability to perform activities of daily living. Enhanced functional mobility can reduce the risk of falls, improve self-esteem, and increase social engagement, thereby promoting a better quality of life. The findings were consistent with a non-randomized controlled study conducted with 88 patients (44 in the intervention group, and 44 in the control group) in which the clinical outcomes, including Neck Disability Index (NDI), pain score (VAS), Self-Efficacy for Managing Chronic Disease 6-item Scale (SECD-6), and 12-item Short-Form Health Survey (SF-12) score were assessed at the time of discharge, 24–72 h, 1 month, and 3 months post-discharge¹³. The complications, patient satisfaction, and economic indicators were assessed at the final follow-up (3 months). Patients who received contracted follow-up showed greater improvement in neck dysfunction at 24–72 h, 1 month, and 3 months after discharge compared to those who received routine follow-up.

The high levels of reported satisfaction and the extent of clinical improvements underscore the specific strengths of the physiotherapy program at UTH. Collaborative care involving physiotherapists, physicians, and other healthcare professionals can optimize treatment outcomes for patients with cervical spondylosis. The emphasis on patient-centered care in the physiotherapy program likely contributed to the positive outcomes observed. Engaging patients in their treatment plans, providing education, and fostering a supportive environment can significantly enhance satisfaction and effectiveness. Future research could explore the impact of such multidisciplinary approaches on patient satisfaction and clinical effectiveness.

CONCLUSION

The results of this study highlight the effectiveness and high satisfaction levels associated with physiotherapy programs for elderly patients with cervical spondylosis. The positive outcomes underscore the importance of continued investment in physiotherapy services, emphasizing patient-centered approaches and accessibility. By addressing the limitations and exploring future research avenues, healthcare providers can further enhance the quality of care and patient experiences. Future studies should examine how the duration of symptoms impacts patient satisfaction and treatment outcomes, as longer durations may correlate with more severe impairment.

Study limitations

While this study provides valuable insights, several limitations were acknowledged.

Study Design: A cross-sectional design was appropriate for assessing satisfaction at a single point in time, although it limits causal inference. A prospective cohort would strengthen future work.

Sample Size: The sample size may limit the generalizability of the findings. Future studies could benefit from larger, more diverse samples to enhance external validity.

Short-Term Follow-Up: The study focused on short-term outcomes. Longitudinal studies examining long-term satisfaction and clinical effectiveness would provide a more comprehensive understanding of the impact of physiotherapy.

Subjectivity of Satisfaction: Satisfaction is inherently subjective and may be influenced by individual expectations, cultural factors, and previous experiences with healthcare.

Recall bias: Patients may have overestimated or underestimated their satisfaction with physiotherapy programs due to their current health status or expectations. A prospective study design would allow for data to be collected prospectively, at regular intervals, to reduce reliance on patient recall.

Recommendations

Future research should aim to address the identified limitations while exploring additional dimensions of satisfaction and effectiveness, such as;

Qualitative Research: Incorporating qualitative methods, such as interviews or focus groups, could provide deeper insights into patient experiences and factors influencing satisfaction.

Long-Term Outcomes: Longitudinal studies could evaluate the sustainability of treatment effects and satisfaction over time.

Exploration of Barriers: Research focused on identifying and addressing barriers to care for elderly patients could enhance accessibility and satisfaction.

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Competing interest

The authors affirm that there are no competing interests.

Authors' contributions

The manuscript was written by M. Musonda, and P. D. C. Phiri supervised and made significant contributions to the research.

REFERENCES

1. Wang C, Tian F, Zhou Y, He W, Cai Z. The incidence of cervical spondylosis decreases with aging in the elderly, and increases with aging in the young and adult population: a hospital-based clinical analysis. *Clinical Interventions in Aging*. 2016;11:47–53. DOI: 10.2147/CIA.S93118.
2. Sreeraj M, Joy J, Jose M, Varghese M, Rejoice TJ. Comparative analysis of Machine Learning approaches for early stage Cervical Spondylosis detection. *Journal of King Saud University - Computer and Information Sciences*. 2022;34(6). DOI: 10.1016/j.jksuci.2020.08.010.
3. Huang T, Zhong W, Lu C, Zhang C, Deng Z, Zhou R, et al. Visualized Analysis of Global Studies on Cervical Spondylosis Surgery: A Bibliometric Study Based on Web of Science Database and VOSviewer. *Indian Journal of Orthopaedics*. 2022;56(6). DOI: 10.1007/s43465-021-00581-5.
4. Azemi A, Gashi AI, Zivkovic V, Gontarev S. THE EFFECT OF DYNAMIC EXERCISES IN THE TREATMENT OF CERVICAL SPONDYLOSIS. *Research in Physical Education, Sport and Health*. 2018;7(2).
5. Sadeghi A, Rostami M, Ameri S, Karimi Moghaddam A, Karimi Moghaddam Z, Zeraatchi A. Effectiveness of isometric exercises on disability and pain of cervical spondylosis: a randomized controlled trial. *BMC Sports Science, Medicine and Rehabilitation*. 2022;14(1). DOI: 10.1186/s13102-022-00500-7.
6. Lv Y, Tian W, Chen D, Liu Y, Wang L, Duan F. The prevalence and associated factors of symptomatic cervical Spondylosis in Chinese adults: A community-based cross-sectional study. *BMC Musculoskeletal Disorders*. 2018;19(1). DOI: 10.1186/s12891-018-2234-0.
7. Puvanesarajah V, Jain A, Shimer AL, Singla A, Shen F, Hassanzadeh H. Complications and mortality following one to two-level anterior cervical fusion for cervical spondylosis in patients above 80 years of age. *Spine*. 2017;42(9):E509–14. DOI: 10.1097/BRS.0000000000001876.
8. Anugraheni TD, Izzah L, Hadi MS. Increasing the students' speaking ability through role-playing with Slovin's Formula Sample Size. *Jurnal Studi Guru Dan Pembelajaran*. 2023;6(3):262–72. DOI: 10.30605/jsgp.6.3.2023.2825.

9. Akaltun MS, Kocyigit BF. Assessment of the responsiveness of four scales in geriatric patients with chronic neck pain. *Rheumatology International*. 2021 Oct;41(10):1825–1831. DOI: 10.1007/s00296-021-04957-6.
10. Bicer A, Yazici A, Camdeviren H, Erdogan C. Assessment of pain and disability in patients with chronic neck pain: reliability and construct validity of the Turkish version of the neck pain and disability scale. *Disability and Rehabilitation*. 2004 Aug 19;26(16):959–62. DOI: 10.1080/09638280410001696755.
11. Wilhelm M, Cleland J, Carroll A, Marinch M, Imhoff M, Severini N, et al. The combined effects of manual therapy and exercise on pain and related disability for individuals with nonspecific neck pain: A systematic review with meta-analysis. *Journal of Manual & Manipulative Therapy*. 2023 Nov 2 ; 3 1 (6) : 3 9 3 – 4 0 7 . DOI : 10.1080/10669817.2023.2202895.
12. Rodríguez-Romero B, Bello O, Vivas Costa J, Carballo-Costa L. A Therapeutic Exercise Program Improves Pain and Physical Dimension of Health-Related Quality of Life in Young Adults: A Randomized Controlled Trial. *American Journal of Physical Medicine & Rehabilitation*. 2019 May;98(5):392–8. DOI: 10.1097/PHM.0000000000001107.
13. Fu Z, Xie Y, Li P, Gao M, Chen J, Ning N. Assessing multidisciplinary follow-up pattern efficiency and cost in follow-up care for patients in cervical spondylosis surgery: a non-randomized controlled study. *Frontiers in Medicine*. 2024 Apr 3;11:1354483. DOI: 10.3389/fmed.2024.1354483.