

An Evaluation of Patients Satisfaction with an Information Leaflet for Cervical Radiculopathy: A Prospective Study

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Abstract

Introduction: Cervical radiculopathy, often resulting from herniated discs or arthritic bone spurs, leads to nerve compression and manifests as sensory deficits, motor dysfunction, and neck and upper extremity pain. Several risk factors, including overuse injuries, poor exercise posture, degenerative disc disease, osteophyte growth, and vehicular accidents, contribute to its development. Electrodiagnostic testing serves as a reliable diagnostic benchmark. Although conservative treatments like exercise, manual therapy, and nonsteroidal anti-inflammatory drugs are recommended, there is a dearth of high-quality trial evidence. This study aims to evaluate patient satisfaction with an information leaflet as part of cervical radiculopathy management.

Methods: We conducted a prospective study at Vivekanandha Medical Care Hospital, enrolling cervical radiculopathy patients from the Neurology department's outpatient pool. An information leaflet was meticulously crafted following extensive research and expert committee approval. The leaflet's quality was assessed using the Ensuring Quality Information for Patients (EQIP) questionnaire, readability was measured with the Flesh Reading Ease (FRE) formula, and usefulness was evaluated using a Patient Information Leaflet Usefulness Assessment Questionnaire (PIL UAQ).

Results: Analysis of the EQIP questionnaire revealed that the leaflet performed well across various criteria, particularly excelling in the provision of easily understood illustrations. Readability assessments indicated that the leaflet was generally easy to read and comprehend. PIL UAQ responses indicated that a significant majority of participants found the information leaflet's content to be sufficient and highly valuable, with favorable ratings for readability and comprehensibility.

Conclusion: Pharmacist-developed information leaflets can significantly enhance patient comprehension of medical conditions and lifestyle adjustments. In the context of cervical radiculopathy, the created leaflets proved to be valuable and accessible resources for patients.

Keywords: Cervical radiculopathy, Non operative care, Patient Information Leaflet, Physical therapy, Life Style Modification.

Introduction

A herniated disc or arthritic bone spurs can cause nerve compression, a disease known as cervical radiculopathy. This impingement typically results in sensory deficits, motor dysfunction, and pain or numbness in the neck

and upper extremities.⁽¹⁾ Risk factors for cervical radiculopathy include overuse injuries to the neck, poor posture while exercising, degenerative disc disease, the growth of osteophytes, and vehicular accidents.⁽²⁾ It can

appear that electrodiagnostic (EDX) testing is the most trustworthy benchmark. Patients with neurological or radiological signs of cervical radiculopathy had a needle EMG sensitivity of 50-71%, according to a recent detailed assessment.⁽³⁾ New methods for treatment are being developed as cervical radiculopathy is increasingly elucidated and inadequacies in the literature are disclosed. A thorough physical examination and medical history are typically sufficient to make the diagnosis.⁽⁴⁾ According to reports, there are 3.3 cervical radiculopathy cases per 1000 people, which is a lesion of the cervical spinal nerve root. The annual incidence peaks at 2.1 events per 1000 between the fourth and fifth decades of life.⁽⁵⁾ Most individuals with cervical radiculopathy will benefit from nonoperative care. However, no treatment strategy is supported by evidence from high-quality trials. A randomised controlled study (RCT) found that patients receiving twice-weekly supervised physical therapy and at-home physical therapy fared significantly better than control patients in the first six weeks following the onset of cervical radiculopathy.⁽⁶⁾ Clinical guidelines from 2011 and 2018 recommend exercise, manual therapy, and nonsteroidal anti-inflammatory drugs (NSAIDs) as the first line of treatment.⁽⁷⁾ Studies have shown that exercise dramatically reduces pain in people with CR, improves functional status, and improves quality of life, either on alone or in combination with other treatments.⁽⁸⁾ The findings suggest that CR has a natural advantageous long-term outcome when patients are offered neck-specific training and exercise together with a behavioural approach.⁽⁹⁾ Neck and arm pain are greatly reduced after 6 weeks of physical treatment supplemented with at-home exercises. The National Institute for Health and Care Excellence (NICE) advises using simple analgesics (ibuprofen, paracetamol, or codeine) as well as trying a neuropathic drug (amitriptyline, pregabalin, or gabapentin) for patients with neurological indications or symptoms that last more than a month.⁽¹⁰⁾ Conservative therapies are frequently used to treat cervical radiculopathy. These include oral analgesics, oral steroids, cervical traction, manual therapy, acupuncture, and different combinations of these.⁽¹¹⁾

Methods and Materials

Background:

The research was carried out at Vivekanandha Medical Care Hospital, a 300-bed facility situated in Namakkal. This prospective study spanned six months and involved the recruitment of cervical radiculopathy patients from the outpatient pool of the Neurology department. Pharmacists serving in the outpatient department (OPD) provided medication counselling to the enrolled patients and distributed the information leaflet.

Preparation of Patient Information Leaflet:

The Patient Information Leaflet (PIL) was crafted by drawing from various model leaflets available online, including sources like NHS Five, Spine and Rehabilitation group on Physiopedia, and Neuroscience Specialists. We also consulted reputable medical resources such as PubMed, Micromedex, the North American Spine Society, the American Academy of Orthopaedic Surgeons, The Neuromedical Centre, the American Academy of Family Physicians, Precision Brain, Spine and Pain Centre, and Patient Health Education Materials. The PIL provided recommendations covering physical therapy, regular exercise for pain management, sleep hygiene and lifestyle adjustments. An expert committee consisting of a physician and three academic pharmacists oversaw and approved the PIL's content, design, and visual aids. Based on the expert committee's content validation feedback, necessary modifications were implemented in the PIL. To ensure accuracy and cultural appropriateness, the PIL was translated from its validated English version by a Tamil language expert. The translation process involved three steps: forward translation, backward translation, and patient testing.

Evaluation Tool:

Using a 20-item Ensuring Quality Information for Patients (EQIP) questionnaire, the generated leaflet's information quality was evaluated. Scoring of EQIP is done by using the given formula

$$\frac{((\text{YES} \times 1) + (\text{Partly} \times 0.5) + (\text{NO} \times 0))}{20 - \text{Does not apply}} \times 100 = \% \text{ Score}$$

Using the Flesh Readability Ease (FRE) Formula, the created leaflet's readability and layout were evaluated. The Flesh Readability Ease (FRE) formula makes reading difficulty predictions without the necessity for reader validation. The analysis is based on the sample's average word length (measured in words per 100 words) and average sentence length (measured in words per 100 words). A Flesh Reading Ease Score (FRE) is produced by combining these two variables.

Our English PIL's readability was evaluated online utilising the www.readabilityscore.com website^[12]. This website uses a battery of readability tests to rate each document's readability and gives each one a readability score. Based on the average number of syllables per word and the average number of words per sentence, readability ratings are a measure of a document's reading level. Most people can read documents that have a high readability rating. The Flesch Reading Ease (FRE) and Flesch-Kincaid Grade Level (FKGL) exams are the most often utilised ones.^[13-14]

RE=206.835-1.015 SL-0.846 WL

Where RE is the reading ease scores, SL is the average sentence length in words, and WL is the average word length measured as syllables per 100 words.

To evaluate the usefulness of the PILs, a 5-Item Patient Information Leaflet usefulness Assessment Questionnaire (PIL UAQ) was created. The usefulness of the information booklet was evaluated using a 3-point Likert scale. The questionnaire has a maximum score of 10 and a minimum score of 0.

Evaluation methods:

All the collected data was subjected for evaluation. A senior clinical pharmacist supported in the evaluation of data.

Result

Information Quality Assessment:

The EQIP questionnaire, as shown in Table 01, assesses various criteria related to the quality of our patient information leaflets. The results indicate that out of the 20 EQIP criteria evaluated, five achieved a score exceeding 90%. Notably, the highest score (97.5) was awarded for the criterion "Includes clear and relevant illustrations, diagrams, or photos," while the lowest score (20.1) was assigned to "Description of alternatives." Furthermore, four criteria fell within the score range of over 80%, five were in the range of 50% to 70% and six received a score below 50%.

Table 1: Scores assigned or each Quality criterions of EQIP

S.NO	EQIP Criterions	Assigned score (%)
1.	Clearly outline your objectives and successfully attain them.	95.3
2.	Utilize everyday language to clarify uncommon medical terms or abbreviations.	84.2
3.	Employ concise sentences for brevity.	85.5
4.	Craft a personalized tone that engages the reader.	48.2
5.	Ensure a respectful and considerate tone throughout.	83.4
6.	Ensure the information's design meets expectations.	70.1
7.	Include easily comprehensible illustrations, diagrams, or pertinent photos.	97.5
8.	Organize the content in a logical sequence.	64.5
9.	Allocate space for note-taking convenience.	39.2
10.	Provide contact details for healthcare inquiries.	70.1
11.	Specify the date of information publication.	25.6
12.	Identify the responsible individual or department for information creation.	82.4
13.	Indicate collaboration with service users, if	

	applicable.	31.9
14.	Cite other information sources when necessary.	58.7
15.	Use generic medication names or specify brand names.	42.0
16.	Reference quality of life concerns.	63.9
17.	Clearly state the purpose.	90.4
18.	Highlight the advantages.	92.4
19.	Address potential risks and side effects.	93.3
20.	Offer information on available alternatives.	20.1

Readability Test:

Table 2 explains the leaflet had an FRE score of 76.29 and FKGL of 3.44 which is “standard”.

Table 2: Readability Score

Scoring Method	Score
Flesch Reading Ease	76.29

Readability Grade Level Scores:

Scoring Method	Score
Flesch-Kincaid Grade Level	3.44

Usefulness Assessment:

We evaluated the effectiveness of the developed information leaflets using a 5-item PIL UAQ (Patient Information Leaflet Usefulness Assessment Questionnaire). The findings indicate that:71% of the surveyed population considered the amount of information in the leaflets to be sufficient.74% of the respondents deemed the provided information highly

valuable. When it comes to readability, 83% of participants found the leaflets extremely easy to read. 85% of respondents reported that the content within the leaflet was easily comprehensible. An impressive 88% acknowledged the leaflet as highly beneficial for understanding their medical condition. For detailed results, please refer to Table 3.

Table 3: Scores of PIL Usefulness Assessment Questionnaire

Questions	Number Answered	Average
Amount of information		
Too much	25	25%
Adequate	71	71%
Too little	4	4%
Usefulness of the information		
Very useful	74	74%
Useful	24	24%
Not useful	2	2%
Readability of the leaflet		
Very easy	83	83%
Easy	14	14%
Very difficult	3	3%
Understandability of the content		
Very easy	85	85%
Easy	15	15%
Very difficult	0	0
Usefulness of the PIL		
Very useful	88	88%
Useful	12	12%
Not useful	0	0

Discussion

Alshami et al.,⁽¹⁵⁾ conducted study that has investigated the short-term effects of manual therapy with exercise on the sensory features in patients with chronic cervical radiculopathy. The manual technique that was used in the experimental group was cervical vertebral mobilization, whereas the technique used in the comparison group was minimal superficial circular pressure on the skin. The results suggested that applying cervical vertebral mobilization for these patients yielded improvements in the local mechanical pressure hypersensitivity as well as self-report measures on pain intensity and neck function and active cervical ROM. Reduction of mechanical pain was observed in the neck following cervical vertebral mobilization as demonstrated by increased PPT after session 6. Sterling et al.,⁽¹⁶⁾ and Lopez-Lopez et al.,⁽¹⁷⁾ found a similar improvement in PPT at the neck in whiplash and chronic neck pain patients. Interestingly, PPT improved at the C7 dermatome at the hand (99 kPa) following cervical vertebral mobilization after session 6, which reached the MDC. Seven out of 14 (50%) participants in the experimental group demonstrated affected C7 dermatome.

Young IA et al., conducted randomized clinical trial investigated the effects of a multimodal treatment approach including manual therapy and exercise, with and without the addition of intermittent cervical traction, in patients with CR. The results indicate that the addition of supine intermittent cervical traction yielded no additional benefit to a program of manual therapy and exercise. Regardless of group assignment (MTEX versus MTEXtraction), patients with CR experienced significant improvements in both primary and secondary outcomes following 4 weeks of standardized physical therapy intervention.⁽¹⁸⁾

Fritz JM et al., conducted a study Patients with neck pain and signs of radiculopathy were randomized to 4 weeks of treatment with exercise, exercise with mechanical traction, or exercise with over-door traction. Baseline assessment included subgrouping-rule status. The primary outcome measure (Neck Disability Index, scored 0-100) and secondary outcome

measure (neck and arm pain intensity) were assessed at 4 weeks, 6 months, and 12 months after enrolment, This study concluded adding mechanical traction to exercise for patients with cervical radiculopathy resulted in lower disability and pain, particularly at long-term follow-ups.⁽¹⁹⁾

The evaluation of patient satisfaction with the information leaflet for cervical radiculopathy in this study yielded promising results. The patient information leaflet (PIL) was carefully prepared, taking into account various sources of information and expert input. The assessment of information quality using the Ensuring Quality Information for Patients (EQIP) questionnaire revealed that the PIL scored well on several criteria, with the highest score received for containing easy-to-understand illustrations, diagrams, or photos relevant to the subject of information. However, there were areas for improvement, particularly in describing alternatives. In terms of readability, the PIL achieved a standard rating with a Flesch Reading Ease (FRE) score of 76.29 and a Flesch-Kincaid Grade Level (FKGL) of 3.44, indicating that the leaflet is generally easy to read and comprehend. The assessment of usefulness using the Patient Information Leaflet Usefulness Assessment Questionnaire (PIL UAQ) showed positive results, with a majority of respondents finding the information provided in the leaflet to be adequate and very useful. Moreover, a significant percentage of respondents found the leaflet to be easy to read and understand, which is crucial for effective patient education.

Conclusion

Information leaflets developed by pharmacists can play an important role in improving patient understanding not just of medications, but of disease conditions and lifestyle modification. Overall, the findings suggest that the information leaflet for cervical radiculopathy is valuable resource for patients, providing them with easily understandable information that is considered useful in managing their condition. The developed leaflets were found to be very useful by the patients.

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