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VALIDATION OF THE GUJARATI VERSION OF THE NORTHWICK PARK NECK PAIN QUESTIONNAIRE.

Physiotherapy

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ABSTRACT

Background: Neck pain is becoming increasingly common throughout the world. It has a considerable impact on individuals and their families, communities, health-care systems, and businesses. There is substantial heterogeneity between neck pain epidemiological studies, which makes it difficult to compare from different studies. The prevalence of neck pain in the general population ranges between 0.4% and 86.8% (mean: 23.1%); point prevalence ranges from 0.4% to 41.5% (mean: 14.4%); and 1 year prevalence ranges from 4.8% to 79.5% (mean: 25.8%). Northwick Park Neck Pain Questionnaire is one of the most commonly used scales that has been used by physical therapists worldwide. Also, it has already been translated into many languages such as Turkish, Indonesian, Spanish and Swedish. We would like to translate this scale into Gujarati language. Because it is more beneficial for the patient to understand the Gujarati scale and it is also helpful for the Gujarati physiotherapist. **Methodology:** The study was carried out on people aged more then 18 years in Gujarat, India. Those peoples who have knee injury.100 patients who fulfilled inclusion criteria were selected. Initially scale was translated to Gujarati by forward backward translation and patients were instructed to fill the scale at 1 week interval. **Result:** 100 patients participated. Gujarati version of The Northwick Park Neck Pain Questionnaire was given twice with 1- week interval to measure the test- retest reliability and validity. The results of the study showed moderate to high correlation in components of The Northwick Park Neck Pain Questionnaire Gujarati version (ICC =0.882) ($P<0.05$) and internal consistency (Cronbach's alpha =0.88). **Conclusions:** The Gujarati version of The Northwick Park Neck Pain Questionnaire was cross-culturally adapted and validated for use among the Gujarati- speaking populations. The translated version has acceptable reliability and internal consistency.

KEYWORDS

Northwick Park Neck Pain questionnaire, Cervical, Interclass correlation.

INTRODUCTION

Neck pain is becoming increasingly common throughout the world. It has a considerable impact on individuals and their families, communities, health-care systems, and businesses. There is substantial heterogeneity between neck pain epidemiological studies, which makes it difficult to compare or pool data from different studies.[1] The estimated 1 year incidence of neck pain from available studies ranges between 10.4% and 21.3% with a higher incidence noted in office and computer workers. While some studies report that between 33% and 65% of people have recovered from an episode of neck pain at 1 year, most cases run an episodic course over a person's lifetime and, thus, relapses are common.[2]

The overall prevalence of neck pain in the general population ranges between 0.4% and 86.8% (mean: 23.1%); point prevalence ranges from 0.4% to 41.5% (mean: 14.4%); and 1 year prevalence ranges from 4.8% to 79.5% (mean: 25.8%). Prevalence is generally higher in women, higher in high-income countries compared with low- and middle-income countries and higher in urban areas compared with rural areas. Many environmental and personal factors influence the onset and course of neck pain. Most studies indicate a higher incidence of neck pain among women and an increased risk of developing neck pain until the 35–49 year age group, after which the risk begins to decline.[3]

Pain scales usually are used in the assessment of patients with neck pain. However, the presence and severity of pain represent only a small part of the health outcome. Rainville et al suggested that pain scales correlate poorly with measures of physical function.[4] There is increasing recognition that patient perspectives are essential both in making medical decisions and in judging treatment outcomes. Questionnaires designed for completion by the patient are used increasingly as a convenient and reproducible measuring tool for assessing patients with musculoskeletal problems, especially those with low back pain. Among various disability indexes for low back pain, the Oswestry Index probably is the best index covering several distinct activities of daily living. However, only a few methods exist to assess the disability of patients with neck pain. Vernon and Mior modified the Oswestry Low Back Pain Index and produced a 10-item scaled questionnaire, namely the Neck Disability Index (NDI).[4] Offered as a self-reporting instrument for assessing activities of daily living for patients with neck pain, it was validated and found reliable. However, the sample size in some of the analyses was small, with only 10 patients in the concurrent validity study. Most of the patients (70%) had experienced “whiplash” injury. Leak et al again modified the Oswestry questionnaire and developed the self-administered Northwick Park Neck Pain Questionnaire (NPQ).[5] These authors converted some of the questions (walking, standing, and sex life items in the Oswestry questionnaire to cover many activities (carrying, reading/television, and work) likely to be affected by neck pain. The NPQ consists of nine five- part questions that assess the patient's symptoms, from which a score is obtained. Patients need to answer all the questions except the ninth one, which is an option for patients who drive. Each question is scored from 0 to 4. The responses to the questions are summed and converted to a score percentage, which ranges from 0% to 100%, with 0% representing the least disabled and100% the most severely disabled. In addition to questions 1 through 9, all follow-up questionnaires contained a 10th question asking patients how their pain compared with that reported the last time. The questionnaire was found to be valid, easy for patients to complete, and simple to score. It provides a reliable outcome measure for patients with acute or chronic neck pain.[6]

The Northwick Park Neck Pain Questionnaire is one of the most common scale that has been used by the physiotherapist all over the world. Also, it is already translated in many other languages like Turkish, Korean, Spanish, Indonesian etc. We want to translate this scale in our mother language i.e. Gujarati, because it will be more beneficial for patients to understand the scale in Gujarati and it will be helpful to physiotherapists also who are from Gujarat.

METHODOLOGY

Ethical Approval: Ethical approval for the study was taken from the institutional ethical committee
Study Design : Reliability and validity study.
Study Setting: Various committee of Gandhinagar city
Sampling Technique: Purposive Sampling
Population: Native Gujarati Patients with neck pain in North Gujarat.
Duration Of Study: 1 Year
Study Size : . N=100

Inclusion Criteria

- AGE : More than 18 years of age
- Patient diagnosed with neck pain

- Subjects willing to participate.

Exclusion Criteria

- Patients having neurological disorders
- Patient not able to read and write Guajarati
- Uncooperative patients

The Northwick Park Neck Pain Questionnaire was cross-culturally adapted into a Gujarati version in the following steps:

First stage, the English version of The Northwick Park Neck Pain Questionnaire was translated into Gujarati version through standardized procedure recommended by Beaton et al. with some modification. We translated and culturally adapted The Northwick Park Neck Pain Questionnaire according to Indian living standards to adapt/fit and use in Indian Gujarati speaking neck pain population for the evaluation of self-rated neck functional status., stage I was done by the first author with the help of online translation portal.

We skipped stages II and III recommended by Beaton et al. In stage IV, 08 experts (02 orthopaedicians, 02 rheumatologists, 02 English professors, and 02 Gujarati professors) were volunteered for the review of questionnaire developed in stage I. Overall, Gujarati professors simplified the language, whereas medical experts helped with the medical terminology used in the questionnaire.

In stage V, questionnaire developed at the end of stage IV was administered to 20 Gujarati speaking neck pain patients. All patients understood the questions and responded correctly; hence there was no modification of questionnaire at this stage.

Validation study: Experts and translators obtained face validity and content validity.

I. Test-retest reliability: The recruited patients with neck pain were asked to complete the Gujarati version of The Northwick Park Neck Pain Questionnaire twice with a one-week gap in between. As a result, that person will not copy the same data and will not forget. The readings were recorded in order to determine test-retest reliability.
II. Internal consistency: Cronbach's alpha (α), a statistic calculated from pair wise correlations measured between paired readings of the Gujarati version of The Northwick Park Neck Pain Questionnaire, was used to assess internal consistency.

After checking reliability and validity of this questionnaire, we have taken 100 individuals with neck pain.

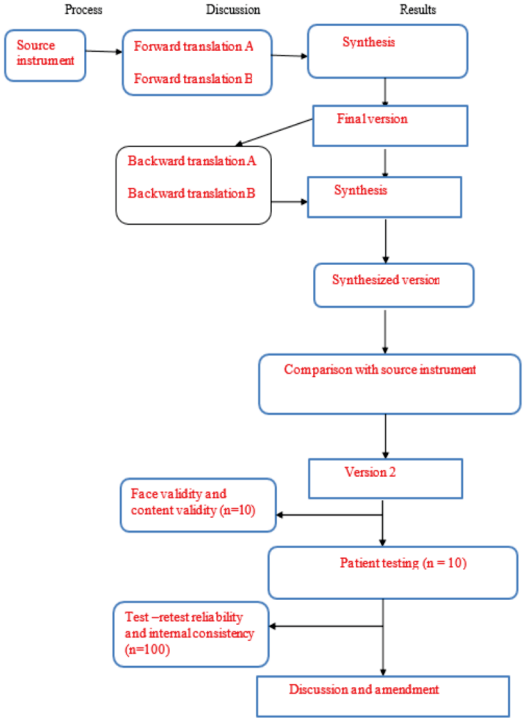


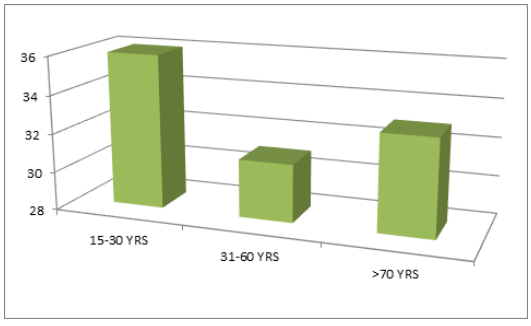
Chart:- Cross Cultural Adaption

RESULT

All statistical analysis was done using SPSS 25.0 software for windows. Descriptive analysis was used to obtain mean and standard deviations. Reliability testing was done using reliability analysis. Inter class correlation coefficient, ICC(2,1) and Cronbach's α were measured. Confidence interval were set at 95%, p = 0.05 for all the analysis.

1. Age Distribution

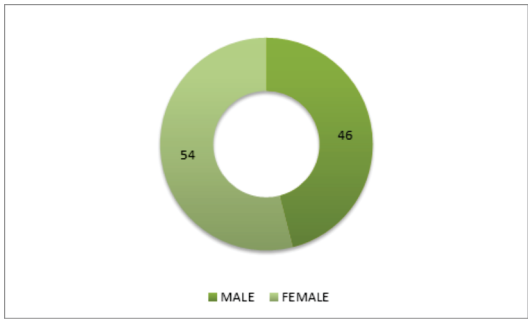
The research was performed on 100 patients with neck pain between the age of more then 18 years. There were 36 patients between the ages of 18 to 30, 31 patients between the age 31to 60, and 33 patients between the age of >70 years.



Graph : Age Distribution

2. Gender Distribution

The research was performed on 100 patient with neck pain . In which 54 are females and 46 are males.



Graph 7.2 : Gender Distribution

The content validity of Gujarati translated The Northwick Park Neck Pain Questionnaire by a 8 experts were found to be, I-CVI of individual items The Northwick Park Neck Pain Questionnaire of ≥ 0.93 and overall S-CVI for idiomatic equivalence, semantic equivalence and content relevance ≥ 0.90. For content validity equivalence all 6 experts answers were located between mostly agree and strongly agree of Gujarati version of The Northwick Park Neck Pain Questionnaire for idiomatic equivalence (average= 0.89) semantic equivalence(average = 0.91) and content relevance (average= 0.92). Test-retest reliability (n=100) was tested by using the interclass correlation coefficient, ICC (2,1) and Internal consistency (n=100) was reported in terms of Cronbach's α measured in two session after 1 week

Table 7.1:- Test- Retest Of Gujarati Version The Northwick Park Neck Pain Questionnaire

The Northwick Park Neck Pain Questionnaire	Week 1 (Mean)	Week 2 (Mean)	Cronbach's alpha	ICC	P- value
	17.5	18.73	0.88	0.882	0.01

DISCUSSION

Non-specific neck pain is very common in rheumatology patients. Of the working population, 30% aged 25-29 years and 50% over 45 years report one or more attacks of painful neck, which is the primary motive for patient presentations. In our study first report of the reliability and validity of Gujarati version of The Northwick Park Neck Pain Questionnaire for evaluating pain and function with neck pain patients.[7]

The restriction of activities of daily living caused by neck pain has an important place in the planning of treatment. Whatever the source of

the pain, the objective assessment is difficult and the evaluation should primarily be based on the patient's subjective experience of pain and disability. Instead of focusing on the examination findings for diagnostic purposes, it is more accurate for a multidisciplinary approach to evaluate the patient's performance in daily life. For this purpose, there are specific questionnaires developed for the evaluation of patients and the quantitative determination of treatment results.[8] Various features of the scale such as acceptability, ease of use, high reliability, validity and responsiveness to clinical changes can guide the evaluation and selection of an appropriate scale. Therefore, we attempted to adapt the NPQ into Gujarati. Tabachnick and Fidell reported that the sample size of 10 participants per item was sufficient for factor analysis . The present study included 100 patients with neck pain. Thus, the required sample size was sufficient.[9]

In this study 100 patients participated. Gujarati version of The Northwick Park Neck Pain Questionnaire was given twice with 1-week interval to measure the test- retest reliability and to validity. The results of the study showed good correlation neck pain scale (ICC= .815) ($P<0.01$) and internal consistency (Cronbach's alpha = . 989 and .978).

For content validity equivalence all 6 experts answer were located between mostly agree and strongly agree of Gujarati version of The Northwick Park Neck Pain Questionnaire (average=0.89) semantic equivalence (average = 0.90) and content relevance (average= 0.93). Thus, Gujarati version of The Northwick Park Neck Pain Questionnaire was content validated for idiomatic equivalence, semantic equivalence, content relevance.

Contrary to questionnaires evaluating general health, questionnaires related to regional pain and functions are considered to have higher validity because they are directed to a single body region. Therefore, the NDI was developed as the first questionnaire by Vernon et al in 1991 and then the NPQ was developed in 1994 and then the NPDS was developedin 1999. Vernon and Mior applied the NDI at a 1-week interval to patients who have had neck pain due to whiplash injury and without trauma and found the ICC score to be 0.89 . Leak et al found that ICC score was 0.84 for NPQ. They proposed that the NPQ is easy for patients to complete, simple to score and provides an objective measure for evaluating outcomes in patients with acute or chronic neck pain. Wheeler et al found that ICC score was 0.93 for NPDS. Other studies investigating the reliability of the neck questionnaires in the Turkish population, such as the Turkish version of the NPDS and the NDI, have similar ICC scores. Bicer et al conducted a study concerning chronic neck pain and reported that the value of the Cronbach's alpha coefficient for the reliability of the NPDS was 0.86. Aslanet al. conducted a study of patients with chronic neck pain who were administered with the NDI and NPDS. They found that ICC score was 0.979 at a 1-week interval for the NDI and the correlation between the NDI and the NPDS was 0.659 to 0.728.[10-11]

In previous studies, interrater reliability and interrater reliability of the Korean The Northwick Park Neck Pain Questionnaire were (ICC =(0.97) respectively. reliability and validity for level of pain and function had high sensitivity and specificity for the patient with Neck pain.

In Spanish version the concurrent validity had a high correlation (r = 0.74- 0.86) and inter and intra- rater reliability was between 0.4 to 0.6 and 0.6 to 0.8 The Northwick Park Neck Pain Questionnaire is valid and reliable for Spanish population.

It was found Gujarati version of The Northwick Park Neck Pain Questionnaire items equivalent to those in original version which is intended by translators involve in this study. The results showed that it was translate this scale into other languages without losing psychometric properties of the original English version.

CONCLUSION

The Gujarati version of The Northwick Park Neck Pain Questionnaire was cross- culturally adapted and validated for use among the Gujarati-speaking populations. The translated version has acceptable reliability and internal consistency.

ABBREVIATIONS

NPQ: Northwick Park Neck pain questionnaire
NDI: Neck Disability Index
ODI: Oswestry disability index
ICC: Interclass correlation

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