
A Study of the Natural History of Back Pain: Part I: Development of a Reliable and Sensitive Measure of Disability in Low-Back Pain

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59.4 Abstract

Background: The authors observe that one of the difficulties in instigating a trial of treatment of low back pain is the lack (prior to this study) of suitable outcome measures.

Method: Selecting questions from a previous pilot study, the authors applied a questionnaire in a primary care setting in south London and checked its reproducibility and validity.

Results: The Roland-Morris Disability Questionnaire (RMDQ) is a health status measure designed to be completed by patients to assess physical disability due to low back pain.

Conclusion: This article describes the development and validation of a questionnaire designed to measure self-rated disability due to low back pain.

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59.5 Summary

This paper presents the Roland-Morris Disability Questionnaire (RMDQ) a novel disease specific outcome measure. The RMDQ is a health status measure designed to be completed by patients to assess physical disability due to low back pain. It was designed for use in research examining the natural history of back pain, but has also been found to be useful for monitoring patients in clinical practice. It was originally designed for use in primary care in the United Kingdom but has since been used in a variety of other settings. The article describes the development and validation of this questionnaire.

The RMDQ was derived from the Sickness Impact Profile (SIP) which is a 136-item health status measure covering all aspects of physical and mental function [1]. Twenty-four items were selected from the SIP because they related specifically to physical functions that were likely to be affected by low back pain. Each item was qualified with the phrase “because of my back pain” to distinguish back pain disability from disability due to other causes—a distinction that patients are in general able to make without difficulty.

The outcome data are collected in the form of a patient completed (self-rated) questionnaire. The questionnaire was administered in a single primary care centre in South London. The questionnaire was administered on several occasions to examine its reproducibility. It was also compared to a visual analogue scale for pain, a six point rating scale, and to ‘certain physical signs recorded by the doctor’ to ensure validity.

The statements the questionnaire uses are as follows:

1. I stay at home most of the time because of my back.
2. I change position frequently to try and get my back comfortable.
3. I walk more slowly than usual because of my back.
4. Because of my back I am not doing any of the jobs that I usually do around the house.
5. Because of my back, I use a handrail to get upstairs.
6. Because of my back, I lie down to rest more often.

7. Because of my back, I have to hold on to something to get out of an easy chair.
8. Because of my back, I try to get other people to do things for me.
9. I get dressed more slowly than usual because of my back.
10. I only stand for short periods of time because of my back.
11. Because of my back, I try not to bend or kneel down.
12. I find it difficult to get out of a chair because of my back.
13. My back is painful almost all the time.
14. I find it difficult to turn over in bed because of my back.
15. My appetite is not very good because of my back pain.
16. I have trouble putting on my socks (or stockings) because of the pain in my back.
17. I only walk short distances because of my back.
18. I sleep less well because of my back.
19. Because of my back pain, I get dressed with help from someone else.
20. I sit down for most of the day because of my back.
21. I avoid heavy jobs around the house because of my back.
22. Because of my back pain, I am more irritable and bad tempered with people than usual.
23. Because of my back, I go upstairs more slowly than usual.
24. I stay in bed most of the time because of my back.

The respondent is asked to place a tick next to those statements that describe how they are on that particular day. A positive response (a tick) scores 1 point. The questionnaire is scored from 0 (minimal disability) to 24 (severe disability). The mean score in the authors' population was 11.4, from which they conclude that the questionnaire would also be suitable for use with a more severely disabled population.

59.6 Citation Count

1,393

59.7 Related References

1. Roland M, Fairbank J. The Roland-Morris disability questionnaire and the Oswestry disability questionnaire. *Spine*. 2000;25(24):3115–24.
2. Fairbank JC, Pynsent PB. The Oswestry disability index. *Spine*. 2000;25(22):2940–53.

59.8 Key Message

This paper presents a patient completed questionnaire as a method of both measuring pain and disability and collecting outcome data in patients suffering from back pain. The

authors' stated aim was to create a questionnaire that was simple, short, sensitive, and reliable.

59.9 Why It's Important

This questionnaire has been widely used and has stood the test of time. It represents one of the first attempts to scientifically measure outcome in back pain. The fact that the questionnaire is patient completed helps to reduce observer bias. It remains one of the most frequently used and quoted outcome measures used with patients with low back pain. Despite relatively small numbers in the original study (230 patients) it was claimed to be both valid and reproducible. Its use in subsequent studies has confirmed this to be the case.

59.10 Strengths

The study is well designed. We are told in the paper that this study followed a smaller pilot study and the authors did attempt to demonstrate the measure's validity and reproducibility. Whether the patient-reported nature of the outcome measure represents a strength or a weakness depends on the point of view of the observer. Physician assessments are notoriously inaccurate and, if the goal of medicine is the relief of suffering and distress, then the patient will always be the final arbitrator. On the other hand, if the purpose of the assessment is arbitration in a dispute, less subjective measures are likely to be more robust.

The paper stated one of its aims as being simple and easy to apply. Its simple nature and ease of application make the questionnaire relatively simple and straightforward to administer. It is readily understood by patients. Although designed for administration on paper it has been successfully administered on computer and by telephone. It has been used in a wide variety of situations over many years and is available in a number of languages.

59.11 Weaknesses

The study is relatively small with only 230 patients entering the study and only 193 completing it. The population group comes from a single general practice south London. Somewhat surprisingly for its location the paper reports that most of the study population are Caucasian.

The RMDQ is most suitable for observing short term changes in back pain such as response to treatment or rapid resolution of symptoms. The Oswestry Disability Index, a similar patient completed questionnaire, has been proposed as being better suited for patients with more severe disability due to back pain.

A number of researchers have proposed modifications to the RMDQ. These include changing the wording of the questionnaire from "... because of my back" to "... because of my back or leg problem". This makes the questionnaire more suitable for use in patients with sciatica. Other researchers have suggested modifications to individual items. Stratford and Binkley [2] suggested that a number of items were redundant and that the questionnaire could be improved by reduction to 18 items.

The RMDQ does not attempt to measure psychological distress associated with back pain and therefore correlates less well with measures of psychological disability [3]. In addition it shows only modest correlation with direct measurements of physical function.

59.12 Relevance

The personal, social and economic burden of back pain for patients and for society has been well documented. The direct costs of health care have to be counted alongside lost productivity at work, litigation costs and the financial support of those unable to work. Back pain touches many different specialties including orthopaedics, general practice, public health, biomechanics, psychiatry, and pain management. It continues to be an area of much research and debate. Reaching a pathological or anatomical diagnosis is not always possible which inevitably leads to different aetiologies being treated in the same manner. Rarely in other areas of medicine do we treat a symptom as a diagnosis. Chest pain isn't treated, rather angina, pneumonia or gastro-oesophageal reflux disease. Yet with the back, 'back-pain' has become an umbrella term for many underlying diagnoses, some of which have well defined aetiologies and treatments and others much less so. The management of back pain has failed to comply with a 'western model of disease' where treatment follows from a diagnosis that has a definable cause. Other models that seek to understand holistically how a person responds to painful stimuli have also been applied but none have yet provided a panacea.

The Roland Morris Disability Questionnaire represents one of the earliest, and now most well established methods for assessing disability and outcome in patients suffering from back pain. Subsequently many different outcome measures have been proposed.

In 1980 O'Brien and Fairbanks [4] published the Oswestry Disability Index (ODI) a similar but more detailed disease specific questionnaire that had been developed over the previous 5 years in a tertiary referral setting. Both the ODI and the RMDQ have been widely used and in a jointly published comparison Roland and Fairbanks [5] suggest the RMDQ is more appropriate in a less severely disabled patient group.

Subsequently and as a consequence of the development of these more accurate methods of measuring outcome, the concept of the minimally important clinical difference has been introduced. This concept attempts to address the question, how much of a difference in the score makes a meaningful difference to the patient's quality of life and overall well being as assessed by more generalised health measures (e.g. SF-36) [6, 7].

The RMDQ and ODI focus mainly on the functional aspects of disability caused by back pain. Other authors have suggested that other factors such as depression, somatisation and fear avoidance behaviour may influence outcome [3, 8, 9].

Since this study many other outcome measures for back pain have been described. Recently a proposal from an international group of back pain researchers [10] has been published seeking to standardise outcome measurements in back pain. Such standardisation would (they state) improve comparability of results, facilitate meta-analysis and encourage the more accurate reporting of outcomes. This represents a more recent attempt to do what Roland and Morris did in 1983. The outcome measurement that Deyo et al. suggests is a set of six questions modelled on the Roland-Morris questionnaire and suitable for use in a primary care setting.

1. Pain symptoms – In the past week, how bothersome have the following symptoms been? A. low back pain? B. leg pain (sciatica)?
2. Function – During the past week how much did pain interfere with your normal work (including both work outside the home and housework)?
3. Well-being – If you had to spend the rest of the life with the symptoms you have right now, how would you feel about it?
4. Disability – During the past 4 weeks about how many days did you cut down on the things you normally do for more than half of the day because of back pain or leg pain (sciatica)?
5. Disability (social role) – During the past 4 weeks how many days did low back pain or leg pain (sciatica) keep you from going from work or school?
6. Satisfaction with care – Over the course of treatment for your low back pain or leg pain (sciatica), how would you rate your overall medical care?

Additionally they suggest a set of previously validated outcome measures that can be used in research settings where a more detailed response is required. The SF-36, American Association of Orthopedic Surgeons (AAOS) and North American Spine Society (NASS) scoring systems for back pain were advocated. Recommended outcome measures which preserve the same dimensions as the six question form include the Roland and Morris Disability Scale and the Oswestry Disability Questionnaire for function. For overall well being, inclusion of either the SF-12 or the EuroQoL is recommended.

Many different treatments have claimed to be of benefit in the treatment of back pain some of which have been subjected to scientific study. The Roland-Morris disability questionnaire represents an attempt in a primary care setting to evaluate how effective these treatments are.

References

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