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Development of a hand function questionnaire to evaluate occupational performance in rheumatology clients

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CHAPTER 4: DISCUSSION

4.1 INTRODUCTION

The purpose of this study was to develop a new and comprehensive occupational therapy assessment tool that would efficiently and effectively collect assessment data from the specific cohort of clients attending the Kalafong Rheumatology outpatient clinic.

The previous chapters' detail how the questionnaire was developed and analysed until the SOQ was finalised. The discussion that follows will attempt to explain the results that were obtained at each step of the development using the current literature to discuss the findings.

4.2 THE PILOT STUDY

The first draft of the questionnaire was developed from the researcher's clinical experience and was tested during the pilot study which provided face validity. The researcher used a small convenience sampling of 15 clients to test the appropriateness of Questionnaire 1 for this cohort of clients considering the high illiteracy rate.

The use of the regular clinic OTA as the research assistant in the administration of the Questionnaire 1 ensured that the questionnaire could be administered in the clients own language. During the pilot study a lot of time and supervision was spent on this aspect to ensure that the results were not skewed by the administration of the questionnaire. The use of the same OTA in each step of the questionnaire development and testing ensured

that the questionnaire was administered to all subjects, in both the experimental and control groups, in a consistent and uniform manner so differences in results could not be attributed to differences in the administration of the questionnaire.

Although the sample used in the pilot study was small it was relatively representative of the cohort of clients seen at the clinic. The group consisted mainly of women diagnosed with RA, most were right handed and mostly Sotho speaking. The sample was too small to make any generalisations, but useful to determine the concurrent and convergent validity between the variables. Although results obtained by the 15 subjects on Questionnaire 1 demonstrated a high and significant correlation and concurrent validity between the results of Questionnaire 1 and pain due to joint tenderness. Alow but significant correlation was found between Questionnaire 1 and the SHE.

The high correlation that was found between the Ritchie index for pain assessed by joint tenderness and the questionnaire (r=0,846) at a 1% significance level indicating that if a client scored high on the Ritchie index, they would also score high on the questionnaire. This finding is supported by the literature where it is often mentioned that pain and joint tenderness are some of the most prominent contributing factors to functional disability (Melvin & Ferrell, 2000).

The low correlation that was found between the SHE and the questionnaire (r=0,619) at a 5% level of significance suggests that only a very small portion of the results on the one assessment can be explained by changes on the other thus the two assessments did not

measure the same variable, demonstrating poor convergent validity between the two tests. Another aspect that led the researcher to believe that the two assessments could not be compared was the incompatibility of the scoring system for each evaluation. The subtests in the SHE measured performance in time while Questionnaire 1 scored points. No further evaluations of the questionnaire were tested against the SHE for this reason.

Questionnaire 1 did not consider all the factors that needed examination and was developed on the researcher's intuition and hearsay and the questions included were not based on the literature or the opinion of experts. A limitation of this step in the questionnaire is that no expert was consulted to interrogate the contents. The researcher decided to further develop the questionnaire by using the literature because this is good research practice.

The pilot study was extremely useful in terms of the further development of the questionnaire. The items included in any questionnaire have to be tested with a sample population to determine whether the questions asked, collect the data required, or measures the ability under investigation etc. It also gave the researcher the opportunity to change the questions and expand the questionnaire after the initial phase.

4.3 QUESTIONNAIRE 2

One of the critical issues in the research was to decide whether to design a new questionnaire for this population group, or whether an already published assessment could be used. The decision to develop a new questionnaire was based more on

considerations related to the culture and socio-economic background of the population, rather than on using a questionnaire that already existed.

The researcher reviewed relevant OT and medical literature and expanded Questionnaire 1 from 24 questions in Questionnaire 1, to 48 questions in Questionnaire 2. The literature supported the notion that it is a sounder scientific base to develop more items and then test each one before inclusion in a final assessment to improve the content validity (Oppenheim, 1992).

The researcher incorporated many principles from multidimensional assessments into the development of the new questionnaire, but the format and administering criteria were based on what would ensure optimal collection of the most reliable information from this specific population.

As the research progressed, decisions had to be made about the inclusion and exclusion of different questions so that the final version included only the questions that were appropriate and had content validity, thus being able to give an indication of the occupational performance of these clients as influenced by their hand function.

4.4 TESTING OF QUESTIONNAIRE 2

The statistician initially recommended a sample size of 50 subjects for the testing of Questionnaire 2. Since the population of possible subjects was relatively small, it was decided to include all the clients that met the inclusion criteria until the sample reached

50. This convenience sample was appropriate under the circumstances because it was not possible to determine how many arthritic clients lived in the feeder area of the hospital, so true random sampling would have been inappropriate (Steyn, et al, 1989). After the sample size of 50 clients was reached and in further consultation with the statistician, it was decided to increase the sample to improve the quality of the statistical analyses. The sample was extended to include 96 clients who met the study criteria.

The final content validity was assured when three questions (questions 46, 47 and 48) were excluded from the Questionnaire 2. This was based on the fact that more than 50% of the clients answered the question as not applicable. Question 46 was about driving a car and very few of the clients had their own cars or had driver's licences. This result supported the researcher's initial inclination that most people in the area used public transportation. It is expensive owning a car and most of the clients who came to Kalafong hospital were from lower socio-economic backgrounds.

Questions 47 and 48 covered leisure time activities and it was obvious from the beginning of the research that this was a concept foreign to this population. The clients seen at the Kalafong rheumatology clinic had few leisure activities and most of them worked 10 hours and more per day and spent another two to four hours commuting to and from work. The researcher was satisfied when the results supported some of the initial face validity or "gut feelings" she had about which activities were more relevant to the population. It was however, necessary for the scientific base of the research, to prove this (Steyn, et al, 1989).

4.5 STEP 3

When analysing the data in the previous chapters, it was obvious that the number of subjects included in the item analyses for each question (n) was usually less than the 96 clients evaluated. The reason for this was some of the Subjects who answered "don't know" or "not applicable" were excluded from the analysis for that specific question.

All 45 questions were sensitive in terms of the ability to distinguish between high and low scores for functional difficulty. This meant that the final questionnaire included only questions that could give an indication of the influence hand function difficulties have on occupational performance. Clients who scored high on this questionnaire would have severe functional difficulty and those who scored low would have less functional difficulty.

Fourty-one of the questions were sensitive in distinguishing between high and low pain levels. The four questions that were not sensitive to this criterion were only not sensitive for low pain levels.

Question 9 addressed the issue of opening bottles and the researcher expected from experience at the rheumatology clinic that most clients had difficulty with this task – even when their disease or pain were not that intense. For this reason it was decided to still include the question in the final questionnaire.

Question 36 was a direct question about the pain a client experienced and it was to be expected that there would be more “yes” answers to this question with all groups of clients. This demonstrated that the high correlation existing between the questionnaire and the client’s pain is valid.

Questions 37 and 40 both dealt with psychological/emotional considerations and the literature indicated that rheumatology clients have a psychological component to their disease (Shearn, Fireman 1985); (Wolfe, Cathey 1991). It could thus be expected that these two questions would generate more “yes” answers.

Thirty-five of the 45 questions were sensitive to disease activity. This aspect was difficult to analyse objectively as the literature clearly states that severe pain is commonly associated with active disease (Schumacher, 1988; Melvin & Ferrell, 2000). It could thus be expected that there would be more “yes” answers to questions related to pain.

4.5.1 THE SOQ VERSUS PAIN

Pain was found in the literature to be the single most important factor influencing motivation and therefore indirectly influencing functional ability (Minnock, FitzGerald & Bresnihan 2003),(Heiberg, Kvien 2002) Clinical experience has also shown the researcher that clients who "want to” or have inner motivation, achieve much more, than those who are not motivated. The statistical analyses of the questionnaire score and the client's experience of their level of pain indicated that a good correlation existed between

the score on the questionnaire and a person's rating of their own pain. This evaluation was also to ensure good content validity of the SOQ.

A high pain score also indicated a high score on the SOQ. This can be interpreted that clients who experience high pain levels also had severe functional difficulty. If a client scored their own pain level as being two or three, their SOQ score would be above 66,6% (in the high third of the total possible score). And the inverse is also true: Clients who scored their pain as low (0 and 1) would score in the low third on the SOQ with a score below 33,3%.

4.5.2 THE SOQ VERSUS DEFORMITIES

The results obtained through this part of the analyses, showed clearly that no correlation could be found between the degree of deformity and the results of the SOQ. The researcher started the research project ambivalent about whether to do this analysis, but decided to do so and determine through statistical analyses if a correlation existed or not. Just relying on clinical experience in seeing clients with severe deformities doing all of their own ADLs independently, but not proving it statistically was not good practice. The results supported that this correlation did not exist.

4.5.3 THE SOQ VERSUS DISEASE ACTIVITY

77,7% of the questions were sensitive to disease activity. As stated before, a high correlation was expected between disease activity and the results of the SOQ. This expectation was based in part on clinical experience, but also on the literature that stated

that active disease is usually accompanied by severe pain levels (Schumacher, 1988; Melvin & Ferrell, 2000).

4.6 STUDY 2

Predictive validity was the last type of validity assessed in the in the project. The SOQ was analysed to determine the perfect raw score. The researcher expected it to be zero and the analysis supported this. A person who does not have arthritis, scores zero on the SOQ. When the SOQ was originally designed, it was designed as a questionnaire for use in a clinic to give a number to the functional difficulty a client experiences. Having a final questionnaire that has been rigorously tested, consisting of 45 questions have not changed the initial goal of having an assessment tool that will give a value to the difficulties experienced by this cohort of clients. It was this last part of the research that brought the academic and clinical interests together again. The researcher designed the questionnaire so that each Yes answer to a question would be awarded a score of 1 point. This meant that 48 were the most any person could score and 0 was the least. In a discussion with the statistician, he brought up the subject of what would happen if 0 was not the score obtained by people without arthritis. The results of this part of the research supported the fact that people, who do not have arthritis, did score 0. So the assumption can now be made that a score of 0 on the SOQ, is indicative of no functional difficulty in the areas assessed by this questionnaire. Perhaps a limitation of this section of the study was no predictive validity testing of the SOQ with clients with other types of hand injury. The SOQ was only compared to normal people and was not examined when used with another cohort of clients with dysfunction resulting from a different disease process.

4.7 CONCLUSIONS & RECOMMENDATIONS

This research have proved that the SOQ is a relevant tool that can add value to assessing the influence hand function problems caused by a rheumatic disease have on a client's functional ability and occupational performance. The SOQ was specifically designed to collect data efficiently from the select group of clients attending the Rheumatology clinics of our big public hospitals where the therapists are mainly white and do not speak the home language of most of the clients

Using this questionnaire, OTs can easily identify the precise problem areas experienced by the client and this will form an excellent starting point for therapy. This questionnaire is client-centred and more user friendly than the many conventional standardised hand function assessments and can be easily administered by a trained OTA under the guidance of an Occupational therapist.

The SOQ could also be used as a screening tool in a busy hospital, by having an OTA complete it with the client before seeing the OT. The OT then has a better perspective of what a client can or cannot do.

The questionnaire will also be an extremely valuable tool if the OT completes it with the client, provided she is conversant with the language or use the assistance of an interpreter. The reason being that it can be used as the beginning of the first consultation from which further discussion can be triggered.

An area of further research could be the use of the SOQ to record progress of the clients attending a Rheumatology outpatient programme.