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

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2011-06-09
http://hdl.handle.net/10539/10058

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CHAPTER 2: REVIEW OF THE LITERATURE

2.1 INTRODUCTION

The review of the literature yielded many articles, books and other publications pertaining to any combination of the following key words: hand function, functional ability, occupational performance, multidimensional questionnaires, health related quality of life, rheumatology and occupational therapy. The researcher decided to investigate which assessments were available for use by the OT in the field of rheumatology. This was done to identify which of these (if any) would be applicable for use with the population to be studied at Kalafong Hospital.

Initially the researcher investigated hand function, functional ability and multidimensional assessments in the medical and occupational therapy literature. As much of the research on hand function and hand function testing was done in the 1980 and 1990s, much of the literature reviewed is between eighteen and twenty years old. Although it is important for the researcher to know the background medical information regarding arthritis, this will not be discussed here.

Cordery (1972), Burckhardt (1985), Fries (1989) and Trombly & Radomski (2002) all stressed the importance of OTs assessing the client's quality of life (QOL) and emphasised that the performance of normal activities should be the focus point of treatment.

This review will first look at hand and functional assessments, and then focus more intensely on multidimensional assessment questionnaires in the field of rheumatology.

2.2 HAND AND FUNCTIONAL ASSESSMENTS

Muscle strength and ROM assessments have been used for many years in assessing hand function. The information obtained by these traditional assessments, can only give a limited indication of how a client uses his hand, because clients use muscular substitutions and adaptive methods to perform functional tasks (Melvin 1989). Brophy, et al (2004), Wolfe (2001), Yazici (2004) and Yelen (2002) however, found that a client's functional status was better gauged by qualitative assessment methods (Brophy et al. 2004, Wolfe et al. 2001, Yazici et al. 2004, Yelin et al. 2002).

Greenseid & Mc Cormack (1968) stressed the need for functional testing in the evaluation of disability. They stated that functional ability should be evaluated by noting the stability of grips and their departure from the normal. Wallace and Regan (1958) also stressed the importance of evaluating grip stability in the arthritic in order to determine which actions are stressful to the joint so that joint protection methods can be employed.

Functional hand assessments were developed to determine both functional ability and disability. Functional ability determines how a client uses his hands in spite of limitations and gives the OT an understanding of what the rheumatic hand can do, whereas functional disability helps the OT in identifying the areas of difficulty or inability and to plan and assess treatment (Melvin 1989).

Kellor (1971) used two categories when describing hand tests namely:

A. Tests in which a variety of practical tasks are performed.

B. Tests designed to quantitatively measure ROM of the joints of the hand as well as grip strength.

The type of hand test selected depends on the population and specific reason for assessment (Scrimgeour, 1985). This is especially relevant for clients from rural African populations, since most standardised assessments are compiled in westernised countries and on urban communities.

Melvin (1989) summarised a number of hand assessments that could be used in the field of rheumatology:

Table 2.1 Hand Function Assessments

AUTHOR	TITLE	TEST ITEMS
Agnew,P & Maas, F (1982)	Hand Function-Related to age and sex	Jebsen Hand Function Test
Bell, E, Jurek, K & Wilson, T (1976)	Physical Capacities Evaluation of Hand Function (PCE)	Unilateral Tasks: 1. Picking up straight pins 2. Peg, washer, sleeve assembly 3. Nut, bolt assembly 4. Card sorting 5. Turning blocks over Bilateral Tasks: 1. Erector set assembly 2. Removing coins from purse 3. Peg washer assembly 4. Nut, bolt assembly 5. Card sorting 6. Bennet Hand Tool Dexterity Test 7. Turning blocks over Strength: Dynamometer

Smith,H (1973)	Smith Hand Function Evaluation	Timed Functional Tasks: 1. Unilateral grasp-release tasks: a) Placing and replacing 3 graduated blocks to a prescribed position on the table. b) Placing 4 graded nails in a glass. c) Placing 4 coins in a glass. d) Placing 16 pegs in a board (8 small, 8 large). 2. Activities of daily living: a) Opening and closing a safety pin. b) Unbuckling and buckling a belt on a cloth board. c) Unbuttoning and buttoning three buttons on a cloth board. d) Opening and closing a zipper on a board. e) Tying a double knot in shoelaces on a board. f) Tying a bow with shoelaces on a board. g) Simulated shoe lacing on a cloth board. 3. Writing sample: Write name, trace rectangle and a curved line. Hand Strength: Grip (dynamometer)
Potvin, AR et al. (1972)	Simulated Activities of Daily Living Examination	Timed Functional Tasks: There are seven subtests that involve walking, standing, or dressing. Additional Hand Function Subtests Include: Unbuttoning and buttoning buttons on a cloth board Opening and closing a zipper on a cloth board Putting on garden gloves Tying a bow in shoelaces Opening and closing a safety pin Unwrapping a Bandaid Squeezing toothpaste
Kellor, M et al (1971)	Technical Manual Hand Strength and Dexterity Norms	Hand Strength: Grip (Dynamometer) Pinch: Palmar, lateral, 3-point (pinch metre) Dexterity: Placing and removing 9 pegs in a board
Treuhaft, PS et al (1971)	A Rapid Method for Evaluating the Structure and Function of the Rheumatoid Hand	ROM: 1. Active ROM is measured on all joints. 2. Grades of range are assigned a numerical score. Structure: Common hand pathologies, e.g. ulnar deviation and instability, are assigned a numerical rating. Scores: Written on a hand outline (functional activities not

		included).
MacBain,KP (1970)	Assessment of Function in the Rheumatoid Hand	Hand Strength: 1. Grip (sphygmomanometer) 2. Pinch (sphygmomanometer) 3. Hook grasp (weight-pulley system) ROM: 1. Finger tip inches to crease. 2. Hand tracing. Timed or Weighted Functional Tasks: 1. For applied strength: a) Cutting play dough with a knife and fork. b) Pouring a full kettle of water into a bowl. c) Pouring from a large measuring cup into a teacup. 2. For precision: a) Buttoning and unbuttoning a Montessori board. b) Pinning and unpinning a safety pin into a cloth. c) Threading and tying a shoelace. d) Opening, closing and locking a model door. e) Picking up and retaining 3 coins.
Jebsen,RH (1969)	An Objective and Standardised Test of Hand Function	Timed Functional Tasks: 1. Writing a short sentence 2. Turning over 3x5 inch cards 3. Picking up small objects and placing them in a container. 4. Stacking checkers. 5. Simulated eating. 6. Moving empty large cans on a table. 7. Moving weighted large cans.
Carroll,D (1965)	A quantitative test of upper extremity function	Timed Functional Tasks: 1. Moving a series of items from a table to a shelf 14" higher than the table. Items include graduated wooden blocks, metal pipe, spheres, a slate of wood, a washer, an iron. 2. Pouring water: pitcher to glass, glass to glass, using pronation and then supination. 3. Placing hand: behind head, top of head, and at mouth. 4. Writing name.

Adapted from:
Melvin, J.L. 1989. Rheumatic disease in the adult and child: Occupational Therapy and Rehabilitation. 3rd ed.

The nine assessments included in her summary all (to a greater or lesser extent) evaluate the different grasp patterns. Except for the rapid method for evaluating the structure and function of the rheumatoid hand (Treuhaft, et al. 1971), all the others include timed functional tasks.

The Physical Capacities Evaluation of Hand Function (PCE) (Bell, et al 1976), SHE (Smith 1973), Functional Assessment of the Rheumatoid Hand (Carthum, et al 1969)and Qualitative Test of Upper Extremity Function (Carroll 1965) include both unilateral and bilateral tasks. The Technical Manual Hand Strength and Dexterity Norms (Kellor et al. 1971) only assesses unilateral functions and the Simulated Activities of Daily Living Examination (SADLE) (Potvin et al. 1972) and the Assessment of Function in the Rheumatoid Hand (MacBain 1970) assess only bilateral tasks.

Grip strength was included in the PCE, SHE, Functional Assessment of the Rheumatoid Hand, Technical Manual Hand Strength and Dexterity Norms and the Assessment of Function in the Rheumatoid Hand. The first three of these use a dynamometer and last two a sphygmomanometer for this part of the assessments.

Measuring ROM was only included in the Technical Manual Hand Strength and Dexterity Norms, the Assessment of Function in the Rheumatoid Hand and the Functional Assessment of the Rheumatoid Hand.

Three of the assessments included a writing task (SHE, Objective and Standardised Test of Hand Function and the Quantitative Test of Upper Extremity Function).

Not one of these assessments evaluate the client's ability to perform his/her own functional or ADL tasks, e.g. to pull up their own zipper or tie their own shoelaces. The functional task is assessed on a table in front of the client and is measured by a stopwatch.

All nine of these assessments have been standardised and have normative data. The Objective and Standardised Test of Hand Function (Jebsen et al. 1969) has the most extensive population for normative data (N=360). The Australian version of this test (Agnew & Maas 1982) also has an extensive normative population (N=318).

The Functional Assessment of the Rheumatoid Hand (Carthum, et al 1969) is the only one to include a section on disease status. Especially the pain aspect is very important in the field of rheumatology as it can impair hand function (Ansell 1969). This test uses special equipment which is described for reproduction, but will be difficult to make.

The SHE, SADLE, Assessment of Function in the Rheumatoid Hand and the Objective and Standardised Test of Hand Function all use specific equipment that can be reproduced based on detailed descriptions by the authors. The PCE and Quantitative Test of Upper Extremity Function both use specialised equipment that can be reproduced, but

with more difficulty because the descriptions are not clear and the PCE include another test (Bennet Hand Tool Dexterity Test) and a number of assemblies.

The Rapid Method for Evaluating the Structure and Function of the Rheumatoid Hand (Treuhaft, et al. 1971) uses little specialised equipment and the assessment is based mainly on the active ROM at the different joints of the hand. The main criticism of this assessment is that ROM is not an indicative factor of function because many clients with severe deformities and radiological changes are independent in many functional ADL tasks (Regan-Smith et al. 1989). However, the simplicity and shortness of this assessment makes it a test for further clinical investigation.

The Quantitative Test of Upper Extremity Function (Carroll 1965) includes a hand placing sub test, which evaluates shoulder and elbow function. Ansell (1969) said that hand function is influenced by other joint involvement, particularly in the upper limb. This is true in the rheumatoid client where there is often involvement of joints other than those of the wrist and hand. The function of the hand should therefore be considered as an integrated whole, and not as an isolated function and should include tests involving movement of the entire upper extremity (Cordery, 1972).

In 1991, Backman and co-workers started developing the Arthritis Hand Function Test (AHFT) and published it in 1997. The results showed a correlation on dexterity with the Arthritis Impact Measurement Scale, but not with any of the other scales. It was thus concluded that it only looked at one dimension of hand function and the researcher was

looking for an assessment that included more dimensions (Backman, Mackie & Harris 1991, Backman & Mackie 1997).

After reviewing the standardized hand and functional assessments, the researcher failed to find any one test to address the questions that initiated this research project.

Burckhardt (1985) stated that the literature supports the notion that multiple factors influence QOL in chronically ill people. However, the severity of pain appears to be the key factor contributing to why some persons experienced lower QOL and are decidedly more negative about the disease than others. This is supported by Shearn and Fireman (1985) and McEvoy De Vellis, et al (1988) who also include pain, stiffness, fatigue and depression as distressing symptoms making it difficult to perform functional tasks (Shearn, Fireman 1985); (McEvoy DeVellis et al. 1988).

It is possible to assess the effects of chronic rheumatic disease by using measures that focus on a specific aspect of client status e.g. hand function, pain or income but Fries (1989) describes a number of advances in the management of rheumatic disease over the period 1965 - 1985. The emphasis on functional outcomes is especially pertinent to this research.

Assessments were developed to measure a number of the factors influencing functional outcome and client status simultaneously. These measurements were termed functional class measures (MDA's) and included the HAQ and AIMS (Meenan, et al. 1980); (Hill et

al. 1990); (Guccione 1990). A review of the rheumatology literature strongly emphasised the use of these assessments, which leads the review of the literature into a section on MDA's.

2.3 MULTIDIMENSIONAL ASSESSMENTS (MDA'S)

During the past 25 years a number of questionnaires were developed to measure the different sub dimensions and components of health status. These instruments are noted for the breadth of information they collect on physical, psychological and social function of a client with rheumatic disease (Guccione 1990).

These new assessments have two major aspects to differentiate them from traditional measures. Firstly, their main emphasis is to evaluate functional, psychological and socio economic status rather than joint tenderness or ESR. Secondly, they usually are in the form of self or interviewer administered questionnaires. This means they rely primarily on client report and not only on professional observation (ACR, 1988). "Asking the patient seems a more useful approach to a global assessment of functioning, pain, and general health status." (Melvin & Jensen, 1998).

MDA's go beyond merely measuring the pathological progress of the disease. They describe the effects of chronic disease from the client's perspective. These questionnaires have become the standard approach to the assessment of outcome in most chronic diseases, including rheumatic disorders (Fries 1989) (Berzon et al. 1994) (Jette 1993) ; Melvin & Jensen, 1998).

MDA's, like standardised hand function and functional tests, have both positive and negative aspects. The most obvious positive attribute is that they allow a broad and fairly comprehensive assessment of the client's health status, using a single instrument. They are inexpensive, usually easy to use and have been thoroughly studied in terms of reliability, validity and sensitivity and have been found to be at least equal, if not better than traditional measures (Bergner & Bobbitt 1981); (Meenan, et al. 1980); (Fries 1989); Melvin & Jensen, 1998).

The limitations are that the breadth of information they provide are generally at the cost of depth, e.g. the physical function component may lack adequate detail to assess hand function in response to intensive hand rehabilitation.

Many health status questionnaires were developed during the last quarter of the previous century. These were classified as either generic or disease-specific. Generic instruments were aimed to target general information related to health and were usually not developed for any specific disease or condition (Melvin & Jensen, 1998). In the field of rheumatology, there are a number of disease specific symptoms or contributing factors that may not be important to more general studies. For this reason, rheumatology health professionals preferred disease-specific measures.

In December 1990, a 77 page supplement was published in Medical Care on QOL instruments. Among these were the Activities of Daily Living Index, American Rheumatological Association Functional Classification (Melvin, 1989), AIMS (Meenan,

et al 1980), Articular Index (Dougados et al. 1988), Functional Index in RA (Lee et al. 1973), Functional Status Index (Jette, 1987), HAQ (Fries et al. 1980), Keitel Assessment (Keysser et al. 2001), MACTAR (Tugwell, et al. 1987), McGill Pain Questionnaire (Davis et al. 1990), MHIQ (Chambers et al. 1982), Quality of Well-Being Scale (Kaplan et al. 1989), RAND Assessment Batteries (Brook et al, 1979), SIP (Bergner & Bobbitt 1981)and the Toronto Functional Capacity Questionnaire (TFCQ) (Helewa, et al 1982), mentioned for use with rheumatologic diseases.

In 1988 the American College of Rheumatology (ACR) published a Dictionary of the Rheumatic Diseases and volume three covered Health Status Measurements in a 40 page booklet. The MDA's included were the: AIMS, Activity Losses Assessment, Functional Status Index (FSI), Index of Well-Being (IWB), MHIQ, MACTAR, RAND, SIP, HAQ, MHAQ and the TFCQ.

The researcher investigated all of the above and some of the more recently published instruments and summarised the ones most relevant to this research project in table format for further review and the following discussion is based on it.

Table 2.2 Multidimensional Assessments

Name / Author	Specific or General	Categories or test items or procedure	Time	Interviewer/ Self administered	Validity/ Reliability/ Sensitivity
1. MACTAR Tugwell et al. 1987	Specific for RA	Physical activities ranked based on client's own preference 5 top activities are re-evaluated over time (improved, worsened, stayed the same)	Dependent on client	Semi structured interview	Sensitivity to small changes noted
2. Activity Losses Assessment (ALA) Yelin et al. 1987	Specific for use with RA and OA	75 activities in 7 categories: household chores shopping social relationships religious activities leisure public service work	Results are obtained by a log diary kept by the client and the time spent is determined by each client	The client is required to keep a diary on the time spent on each of the 75 activities and this is then compared to time spent in the past and by normal controls	Reliability, validity and sensitivity not established
3. MHAQ Pincus et al. 1983	Specific for rheumatic disease	Physical function in 8 questions, PLUS change in function, satisfaction and pain for each of the 8 activities	5 minutes	Self-administered	Reliability and validity established
4. MHIQ Chambers et al. 1982	Specific for rheumatic disease	59 items 3 indices each divided into categories: physical function index- *physical activities *self care activities *mobility *communication	not noted-dependent on each client	Self-administered	Reliability and sensitivity established

Name / Author	Specific or General	Categories or test items or procedure	Time	Interviewer/ Self administered	Validity/ Reliability/ Sensitivity
		*global physical activity social index- *general well-being *work or social role performance *material welfare *support *participation with friends and family *global social function emotional index- *feelings about personal relationships *self esteem *thoughts about the future *critical life events *global emotional function			
5. Toronto Functional Capacity Questionnaire (TFCQ) Helewa et al. 1982	Specific for rheumatic disease	5 categories: personal care upper extremity activities mobility work leisure activities	18 minutes	interviewer administered	Reliability and validity established
6. SIP Bergner et al. 1981	Not specific for rheumatic disease, but applied successfully	136 items in 12 categories: ambulation mobility body care and movement social interaction communication alertness behaviour emotional behaviour sleep and rest eating work	30 minutes	interviewer or self-administered	Reliability and validity established

Name / Author	Specific or General	Categories or test items or procedure	Time	Interviewer/ Self administered	Validity/ Reliability/ Sensitivity
		home management recreation and pastimes			
7. HAQ Fries et al. 1980	Specific for rheumatic disease	2 formats: Short - 24 questions on ADL and mobility (physical function) Long - 330 items on pain, global severity, income, job change, cost of medical care, side effects of therapy and physical function	Short - 3 minutes Long - 60+ minutes	Self-administered	Reliability, validity and sensitivity established
8. AIMS Meenan et al. 1980	Specific for Rheumatic Diseases	9 categories: mobility physical activity dexterity household activities activities of daily living anxiety depression social activity pain	20 minutes	Self-administered	Reliability and validity established
9. Functional Status Index (FSI) Jette 1980	Specific for rheumatic disease	18 items in 5 categories: gross mobility personal care hand activities home chores social role activities	20 minutes	Self-administered	Validity and reliability established
10. Rand Health Insurance Batteries Brook et al. 1979	Not specific for rheumatic disease, but applied successfully	4 general dimensions with specific scales in each dimension: social function (social interaction and social participation in community and family activities) psychological function (anxiety,	60+ minutes	Interviewer administered	Sensitivity for function scales noted, but not for health perception scales

Name / Author	Specific or General	Categories or test items or procedure	Time	Interviewer/ Self administered	Validity/ Reliability/ Sensitivity
		depression and self-control) physical function (ADL, role activities, household tasks, leisure & physical activities) general health perceptions			
11. Index of Well-Being (IWB) Kaplan et al. 1989	Specific for rheumatic disease	4 areas: mobility physical activity social activity symptoms	20+ minutes	Interviewer administered by trained assessor	Sensitivity established

Ten of the assessments were disease specific and the three generic instruments were the Rand Batteries, the NHP and the SIP. Later research showed that these could be successfully applied to the field of rheumatology. The Rand Batteries psychological function measures, lead to the development of the AIMS anxiety and depression scales.

All the tests were developed in English and intended for use in English speaking countries. The SIP, NHP, AIMS & HAQ were translated into a number of other languages (Guillemin, et al. 1993); (Melvin & Jensen, 1998).

The time taken to complete the assessments varied from one assessment to the other but ranged from three to more than 60 minutes. A number of the assessments did not specify the time because the client determined it.

Six of the assessments were self-administered. One could be either self or interviewer administered, and the remaining four were interviewer administered. The SIP, MACTAR and IWB stated that the interviewer had to be trained.

The following instruments were discarded for use with the Kalafong population due to a number of reasons, which will be discussed with the instrument. The MACTAR was of little value since many problems were encountered when there is no standardized method of evaluating clients and each client is assessed in a different way. The ALA was not considered for further review because its log diary format made it difficult to use with the population seen at Kalafong hospital since many of the clients were illiterate. The MHAQ is self-administered and to explain the concepts of change in function and satisfaction to the clients at Kalafong appeared problematic. The MHIQ did not document the time taken to complete and is self-administered. The emphasis for the Kalafong population was mainly on hand function and not equally divided between physical, social and emotional aspects. The IWB scored the levels of function and symptoms on activity profiles of normals. These "normals" were white, western subjects and did not correlate with the population served by Kalafong hospital (Balaban et al. 1986).

The TFCQ appeared to have a number of aspects that would make it useful for the population at Kalafong, but very little was further published on it. The FSI included a category on hand activities and dimensions on pain and functional difficulty, which were aspects that could be used for the study at Kalafong hospital. Some of these principles

were used during the development of the SOQ, but the FSI and TFCQ in their entireties were discarded. One of the reasons the TFCQ was discarded was the lack of additional information on it, and the FSI has a scoring component that used language concepts that would be difficult to explain to the Kalafong hospital population.

From the literature it was apparent that the HAQ and AIMS were the two assessments most thoroughly investigated and the most frequently applied to research projects. They also appeared to be the assessments most frequently used in the clinical field. The SIP, when fully evaluated by the researcher appeared to have many qualities that made it a possibility for use with the population at Kalafong hospital. It thus became clear that the AIMS, HAQ and SIP had to be reviewed in more detail.

The AIMS was developed to measure client outcome in the rheumatic diseases. There are two versions of this assessment and the AIMS 2 is the current and revised version of the original AIMS and takes approximately 20 minutes to complete. It is a 78 item self-administered questionnaire. The validity, reliability and sensitivity were tested extensively (Meenan et al. 1992).

This assessment was translated into British English (Hill et al. 1990), Spanish (Hendricson et al. 1989), Portuguese (Brandão, et al. 1998), Swedish (Archenholtz & Bjelle 1997), French (Pouchot et al. 1996), Dutch (Riemsma et al. 1996); (VanMeeteren et al. 2000), Hebrew (Neumann et al. 1999), Italian (Salaffi et al. 2000), Japanese

(Hashimoto et al. 2001), Finnish (Arkela-Kautiainen et al. 2003), German (Rosemann & Szecsenyi 2007), Chinese (Chu et al. 2004) and Turkish (Atamaz, et al. 2005).

The AIMS and AIMS 2 have been used in research studying RA (Mason, et al. 1988); (Meenan 1982);(Anderson, et al. 1989);(Coulton, et al. 1989);(Hendricson et al. 1989);(Taal et al. 1989); (Hill et al. 1990);(Cavalieri, et al. 1991); (Meenan et al. 1992);(Pouchot et al. 1996);(Riemsma et al. 1996);(Archenholtz & Bjelle 1997);(Söderlin, et al. 2000), OA (Ren, et al. 1999);(Salaffi et al. 2000)), Fibromyalgia (Neumann et al. 1999)and adult Still's disease (Sampalis et al. 1995).

It was also adapted for use with elderly clients and named the GERI-AIMS (Hughes et al. 1991). Some authors felt it had to be shortened for use in clinical practice and these were termed patient profile reports (Kazis, et al. 1988) and later a Short Form was developed (Wallston et al. 1989); (Guillemin et al. 1997).

This assessment is considered the most comprehensive of all the disease specific MDA's (Melvin & Jensen, 1998). The researcher used some of the principles from the "Hand and Finger function, Arm function, Self care tasks and Household tasks" categories in the development of the SOQ.

The five options for each item, namely Always, Very Often, Sometimes, Almost Never and Never were difficult concepts to accurately explain in the native languages of the

Kalafong population. Another aspect which made it inappropriate for this population was that it is a self-administered questionnaire.

Several versions of the original Stanford HAQ are in use, namely the full HAQ, the HAQ, the CLINHAQ and the MHAQ. The complete version of the HAQ, known as the full HAQ, has not been published, but is over 20 pages long. Some feel this is too long for use in clinical practice (Wolfe 1995). The HAQ as used in the literature usually refers to the functional disability scale, which comprises 24 questions on eight ADL categories. It takes less that five minutes to complete and is valid, reliable and sensitive to change (Melvin & Jensen, 1998).

Although it was designed as a disease specific measure, it is applicable to such a variety of clients that it should rather be considered a generic instrument. Among the rheumatic diseases it has been used with RA, OA, juvenile RA, SLE, scleroderma, ankylosing spondylitis, fibromyalgia and psoriatic arthritis (Aloush et al. 2007, Avalos et al. 2007, Feldman et al. 2007, Furst et al. 2007, Haroon et al. 2007, Ho et al. 2007, Khanna et al. 2007, Malesci et al. 2007, Serednicka et al. 2007, Wagner et al. 2007, Wang et al. 2007). It has also been applied successfully to HIV/AIDS and normal aging (Lubeck & Fries 1997).

The following studies included the HAQ as an outcome measure:

- to investigate effects of self-help education (Lorig, et al. 1985),
- to examine outcomes of hospitalisation in RA (Wolfe, et al. 1986),

- to examine health service utilisation and costs (Lubeck, et al. 1986)
- to investigate the development of disability in people with RA (Sherrer, et al. 1986).

A modified version of the HAQ (MHAQ) was developed by Pincus et al. in 1983. In contradistinction to the short HAQ described above, the MHAQ evaluated physical function using eight questions instead of 24, and added new scales for change in function, satisfaction, and pain in the performance of each of these activities. It can be completed in approximately five minutes. Reliability and validity of the MHAQ and HAQ are comparable. It was also used to compare the physical function of nursing home residents with arthritis to those without arthritis (Guccione & Jette 1990).

Principles from the following components of the HAQ were used in the development of the SOQ: dressing and grooming, eating, hygiene, reach, grip and outside activity.

The SIP is a behaviour-based measure of sickness-related dysfunction designed to provide a reliable, valid and sensitive measure of health status. It consists of 136 items chosen because they broadly represent activities involved in daily living. Items are phrased as statements, for e.g. "I laugh or cry suddenly." and are divided into twelve categories (Gilson, et al. 1975).

The client's perception of their performance of these activities is the key to this assessment. Questions are answered as true or false and scored using a predetermined

weighting system based on estimates of the relative severity of the dysfunction. Three of the categories ambulation, body care and movement-mobility may be grouped into a physical dimension; and the four categories (emotional behaviour, social interaction, alertness behaviour, and communication) into a psychosocial dimension. The five remaining categories are independent (work, sleep and rest, eating, home management, and recreation and pastimes).

The SIP is available in a self-administered form or can be administered in a 30-minute interview. The questionnaire booklet includes all the instructions needed for either self- or interviewer-administered evaluations. If interview-administered, guidelines have been drawn up for the interviewer. The SIP has been tested for reliability, validity and feasibility. Clients are instructed to respond only to those items in the SIP which describe them and are relevant to their health. It is also important to emphasise that it must describe their current health status, i.e. today's status.

Although the SIP is a generic instrument, it has been applied successfully in the field of rheumatology with RA (Deyo & Diehl 1983); (Sullivan, et al 1990), musculoskeletal disorders (Kessler, et al. 1997) and rheumatic disorders (Sullivan 1988).

Not one of these three assessments appeared to be applicable in their standardised format to the clients seen at Kalafong hospital. They also did not focus primarily on hand function.

In 1998 the Michigan Hand Outcomes Questionnaire (MHQ) was developed for use after surgery. It consisted of 37 questions divided into six domains namely

a) overall hand function,
b) ADL,
c) pain,
d) work performance,
e) aesthetics and
f) client satisfaction with hand function (Chung et al. 1998).

The items included in each subsection were well designed and covered many of the areas mentioned in other questionnaires as discussed earlier. The five-point scale used in response to each question made it difficult for use with the population at Kalafong hospital. Concepts like "not at all difficult", "a little difficult", "somewhat difficult", "moderately difficult" and "very difficult" were almost impossible to explain in the native languages of the Kalafong population.

Based on these aspects, the researcher decided to develop a new questionnaire to evaluate the functional difficulties resulting from hand function problems, as experienced by the rheumatology client, specifically for populations like those seen at Kalafong hospital.