

## THE DEVELOPMENT OF A NURSING ASSESSMENT INSTRUMENT FOR THE MENTALLY HANDICAPPED INDIVIDUAL



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### ABSTRACT

*Because mental handicap is a lifelong condition, mentally handicapped individuals and their families experience unique needs and problems, which require sound assessment by the nurse to enable her to intervene effectively. She can do so; if she uses an assessment instrument specifically developed for that purpose. Thus, the purpose of this study was to develop a sufficiently comprehensive nursing assessment instrument that could be used by nurses to address the specific needs and problems of both mentally handicapped individuals and their families.*

*A descriptive survey method was followed, and the study was limited to the first step of the nursing process namely: assessment. The study was conducted in two phases. During phase one, an extensive literature search was carried out and from the literature and own experience, an assessment instrument was developed. The instrument consists of two parts, of which the first part assesses the mentally handicapped individual and the second, his family. The Delphi technique was used to determine the face and content validity of the assessment instrument and the latter was determined by computing the Content Validity Index for each item on the assessment instrument. High levels of face and content validity were established.*

*The second phase of the study involved the statistical testing of the assessment instrument (developed during Phase 1) for reliability using alpha coefficient tests. This part of the study was restricted to certain areas of the Eastern Cape of the Republic of South Africa and a high level of reliability with a mean alpha coefficient of 0.8736 was obtained.*

### OPSOMMING

*Vanweë die feit dat geestesgestremdheid 'n lewenslange toestand is, ervaar geestesgestremde persone en hul families unieke behoeftes en probleme wat deeglike beraming deur verpleegkundiges vereis, ten einde effektiewe ingryping te verseker. Verpleegkundiges kan effektief ingryp indien hulle van 'n beramingsinstrument, wat spesifiek vir die doel ontwikkel is, gebruik maak. Die doel van hierdie studie was dus om 'n omvattende beramingsinstrument te ontwikkel, wat deur verpleegkundiges gebruik kan word om die spesifieke probleme en behoeftes van geestesgestremde persone en hulle families aan te spreek.*

*'n Beskrywende opname-metode is gevolg en die studie was tot die eerste stap van die verpleegproses beperk, naamlik: beraming. Die studie was in twee fases uitgevoer: Gedurende die eerste fase was 'n uitgebreide literatuuroorsig gedoen waarna 'n beramingsinstrument, vanuit eie ervaring en die literatuurstudie, ontwikkel was. Die instrument bestaan uit twee dele, waarvan die eerste deel gemoeid is met die beraming van die geestesgestremde persoon, en die tweede deel met die beraming van sy familie. Die Delphi tegniek was gebruik om die voorkomsgeldigheid van die instrument te bepaal, terwyl die inhoudsgeldigheid deur die bepaling van 'n Inhoudsgeldigheid Indeks verkry was. Gevolglik was 'n hoë mate van voorkoms- en inhoudsgeldigheid verkry.*

*Fase 2 van die studie het die statistiese toetsing vir betroubaarheid van die beramingsinstrument (wat in Fase 1 ontwikkel is) deur middel van 'n alfa koeffisiënt toets, behels. Hierdie deel van die studie was tot dele van die Oos-Kaap van die Republiek van Suid-Afrika beperk. 'n Hoë mate van betroubaarheid met 'n gemiddelde alfa koeffisiënt van 0.8736 was verkry.*

### INTRODUCTION

Mentally handicapped individuals are a unique group of people who are neither ill, nor do they function like any other member of society - they are an exceptional group with special needs and problems. In South Africa, nurses, due to the comprehensive nature of their training, are suitable to assist mentally handicapped individuals and their families to deal with their problems on a day-to-day basis. To do so, an

assessment instrument is usually used to assess the individual and his family (all references to the male gender also includes the female gender).

This article describes the development of an assessment instrument for mentally handicapped individuals including the methodology and criteria for instrument development as well as the analysis of data, and findings of the study.

## BACKGROUND TO THE RESEARCH PROBLEM

Assessment is usually done to determine the patient's current level of functioning so that the direction for future development can be planned. Bernsen (1980:167) argues that assessment methods should exceed mere classification to include information relevant to intervention. The researcher strongly agrees with this view as the whole objective of a nursing assessment is to derive some nursing diagnosis for which specific intervention can be planned by means of a nursing care plan. To do so, Bailey (1982:11) suggests that a personal profile of the mentally handicapped individual's strengths and weaknesses should be drawn up so that the nursing care plan can build on the individual's strengths, while at the same time, attempt to ameliorate his weaknesses.

Many different assessment instruments for the mentally handicapped exist, some of which are used by nurses, although as far as could be established, none was specifically developed for nurses to use. Developmental scales and checklists such as: The Adaptive Behaviour Scale for Children and Adults, the Parental Involvement Project Development Charts, the Gunzburg Progress Assessment Charts, the Development Checklist, the START Programme, and the Raeden Development Assessment Guide are some of the instruments commonly used by nurses (Bailey 1982:13 & 14). Only the most commonly used instruments will be discussed briefly in this article.

### Progress Assessment Charts

Gunzburg (1966, 1968, 1977) developed a series of six sets of Progress Assessment Charts to be used for mentally handicapped children of different age groups, one of which was specifically designed for use with Down's Syndrome patients. According to Raynes (1988:88-89), Gunzburg developed the Progress Assessment Charts for use with different age groups by teachers, social workers, psychologists, or primary caretakers of mentally handicapped individuals. This instrument is limited to mentally handicapped children whose abilities range from profound to borderline mental handicap in the age group 6-16 years, and is generally used to provide a data base for individual programme planning (Raynes, 1988:88-89).

The Progress Assessment Charts cover skills under the following domains: self-help, communication, socialisation, and occupation, and require mainly a yes/no response. The type of testing is direct, using observation and interviews, and the results are produced as a visual profile in the form of a wheel, where boxes are shaded if the skills are present. However, the instrument is likely to be time consuming, fails to allow for detailed assessment, and lacks a holistic approach as it does not allow assessment of the entire family.

### Fairview Self-Help Scale

The Fairview Self-Help Scale (Ross, 1970) was developed by Robert Ross in 1969 at the Fairview State Hospital in California, and is generally used as a preliminary to more detailed assessments for severely and profoundly handicapped people. The instrument is used to determine the functional age of mentally handicapped individuals by means of a checklist (Giliomee and Uys, 1997:494). Data is gathered through direct testing and observation and covers the following areas: motor dexterity, self-help skills, communication skills, social interaction, and self-direction. The functional age is determined by calculating a score obtained from the various scales, and by matching the score obtained with the corresponding functional age in months, on a chart. For example: a score of 132 is equivalent to a functional age of 120 months.

This instrument is limited in its use because it was designed for severely and profoundly mentally handicapped persons and only assesses their functional age up to a chronological age of 120 months, and therefore does not cater for older children or other categories of mentally handicapped individuals. Besides establishing the behavioural age of patients, no profile of the patient's strengths and weaknesses can be drawn, making it difficult to set goals or objectives for nursing intervention. The instrument is further limited in that it does not reflect the strengths, needs and problems of the other family members.

### The Washington Guide

The Washington Guide for promoting development in young children, concentrates on developmental assessment by comparing it with the chronological age, offering guidelines for the support of parents (Giliomee and Uys, 1997:495). Its biggest disadvantage is the fact that it is only useful in the assessment of very small children in terms of chronological age (1 - 52 months of age). It makes provision for assessment of young children in the following areas: motor skills, feeding skills, sleep, play, language, discipline, toilet training, dressing and undressing (Barnard and Erickson, 1976:76-95).

The instrument does not allow one to compile a profile of the child, and does not allow one to determine the child's or the family's strengths and weaknesses, which is a drawback when setting goals for intervention. Besides the fact that the instrument fails to provide adequately for the affective and cognitive development of the child, it is of no use to nurses who have to deal with patients older than 52 months.

### The START Programme

The Strive Towards Achieving Results Together (START) programme was developed by Solarsh, Katz and Goodman (1990) and is known as the START Home Programme. This programme differs from the instruments discussed above, as it is essentially a stimulation and developmental programme for developmentally delayed children and not just an assessment instrument. The package consists of: Start's integrated

programme manual, a teacher-counsellor's guide, a parent guide, checklists, activity sheets, and appendices.

This programme is very popular in South Africa as it was developed locally, and deals extensively with the development of small children up to the age of three years. The programme was designed to cover gross motor and fine motor/cognitive skills, communication and activities of daily living (Katz, McKerrow and Goodman, 1990:36). The involvement of the families of mentally handicapped children is a very positive aspect of this programme.

The assessment instrument developed in this research study was not intended as a developmental programme, and does not include children younger than four years of age. Therefore, the developed assessment instrument is neither in competition with, nor duplicating the START programme, but was designed by a nurse for use by nurses to fill the age gap above 4 years.

### Statement of the problem

**TABLE 1: COMPARISON OF ASSESSMENT INSTRUMENTS**

CHARACTERISTICS	NEW INSTRUMENT	GUNZBURG INSTRUMENT	FAIRVIEW INSTRUMENT	WASHINGTON INSTRUMENT
Assesses the mentally handicapped individual	√	√	√	√
Assesses the family of the handicapped person	√	—	—	—
Draws a profile of the mentally handicapped individual	√	√	—	—
Draws a profile of the family of the mentally handicapped individual	√	—	—	—
Makes provision for summarizing nursing alerts	√	—	—	—
Can be used across all categories of mental handicap	√	√	—	√
Assesses psychomotor, affective and cognitive domains	√	√	—	—
Useful over a wide range of chronological age	√	√	—	—
Allows for the formulation of nursing goals and diagnosis	√	—	—	—
Designed to serve as a data base for the formulation of nursing care plans	√	—	—	—
Establishes strengths and weaknesses of both the patient and his family	√	—	—	—

All the instruments discussed above, were not specifically designed for nurses' use, thus, they did not make provision for nursing comments, or priorities, and did not provide for the formulation of a nursing diagnosis. Table 1 outlines the main differences between the new instrument developed by the researcher and those discussed above.

Thus, the research problem can be stated as the lack of a comprehensive assessment instrument for nurses to assess mentally handicapped individuals and their families.

### THE AIM OF THE STUDY

The aim of the study was to develop an instrument for the assessment of mentally handicapped individuals and their families that:

- is structured,
- can be used by nurses,
- will not be time consuming,
- is comprehensive,
- is specifically aimed at the needs and problems of mentally handicapped individuals and their families,

(Please note that the START Programme was not included in the table as it is a developmental programme rather than an assessment instrument.)

- can serve as a basis for further referral and more intensive assessment,
- actively involves the individuals and their families,
- determines the strengths and weaknesses of mentally handicapped individuals and their families in order to plan and implement more meaningful nursing interventions, and
- can serve as a data base against which future findings could be measured.

## RESEARCH DESIGN, METHOD AND TECHNIQUES

The study followed a descriptive approach in a non

experimental design. The study was conducted in two phases (See Figure 1)

### The development of the assessment instrument

The development of the assessment instrument was preceded by an extensive literature study on the topic of mental handicap, particularly the assessment of mentally handicapped individuals. The steps in instrument development, as outlined by Wilson (1989:344), were used as a guideline for the development of the assessment instrument.

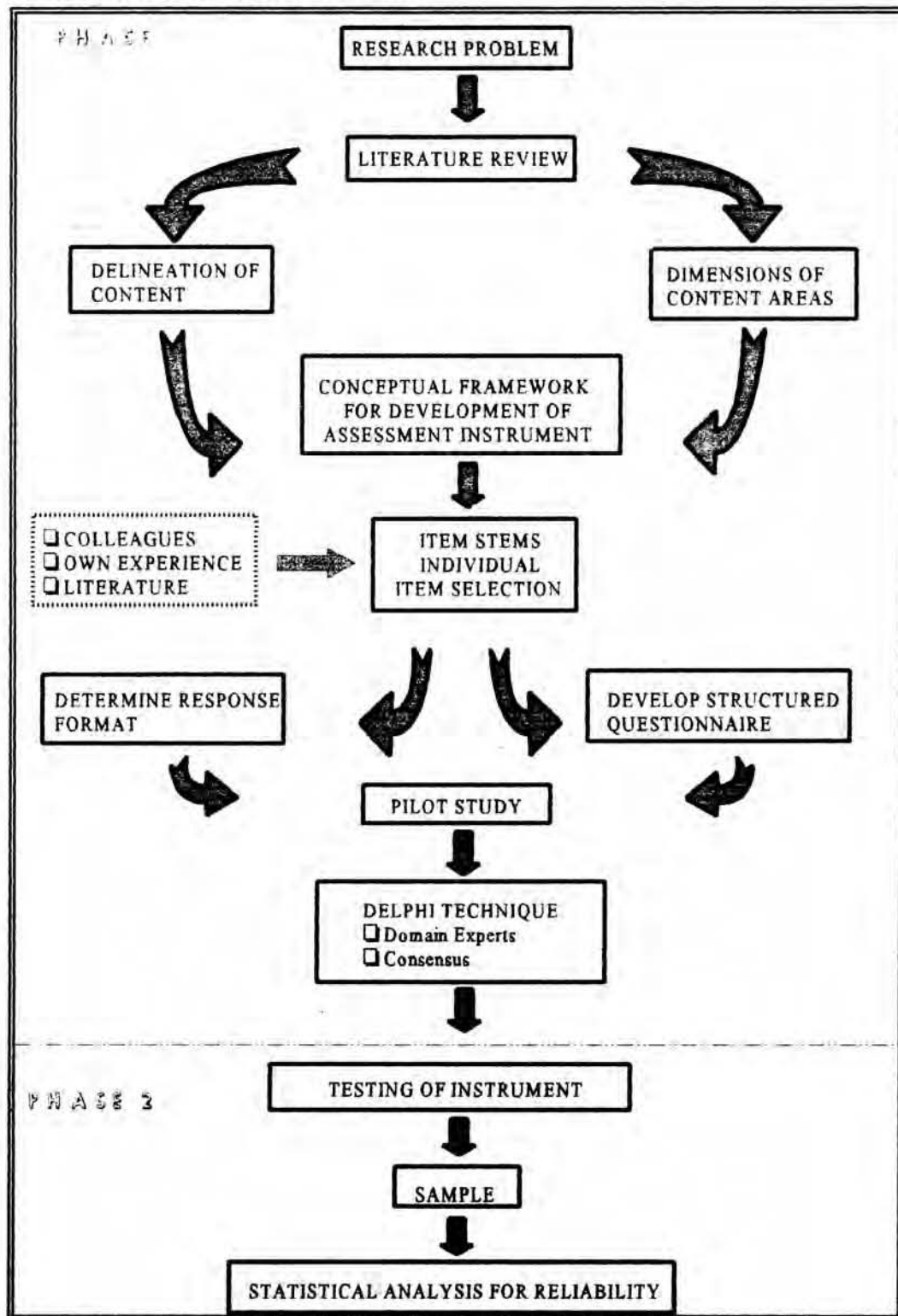


FIGURE 1: A SCHEMATIC PRESENTATION OF THE COURSE OF THE RESEARCH



Two major steps were carried out from the literature review stage, namely:

- the delineation of the content area, and
- the identification of the various dimensions of the content areas that needed to be measured.

The content area deals with the first step of the nursing process, namely assessment, which involves the gathering of data concerning the patient and his condition. The patient in this context included both mentally handicapped individuals and their families. The second step of instrument development consisted of various activities. The first activity was to search the literature, and to draw upon own experience and the expertise of colleagues and others to generate item stems, which are specific criteria for which specific items should be included. Item stems selected for the assessment instrument are reflected in Table 2.

**TABLE 2 : ITEM STEMS SELECTED FOR THE INSTRUMENT**

<b>PART 1</b>	<b>PART 2</b>
<b>SECTION A</b>	<b>SECTION A</b>
Personal Information	Personal Information
<b>SECTION B</b>	<b>SECTION B</b>
Internal Homeostasis	Family Stressors
Personal Hygiene	- Paternal Stressors
Elimination	- Maternal Stressors
Nutrition	- Parents acceptance and knowledge of child's disability
Mobility	Relationships
Sensory	- Father's relationship with the child
Cognitive	- Mother's relationship with the child
Safety and Comfort	- Sibling's relationship with the child
Spiritual and Social	Family Environment
Interpersonal and Sexual	- Physical Environment
	- Social Network
	Family support
	- Structural Support
	- Constitutional Support
	- Functional Support

The next activity was to determine the types of questions (items) to be asked, and to develop each item so that it conveyed only one idea, and was brief and clear. This was achieved by searching the literature and by drawing upon own experience and the expertise of colleagues.

Following item selection, it was necessary to choose the response format best suited to obtain the needed data. The format selected had to be both simplistic and objective, and consequently items were arranged so that a simple 'Yes' or 'No' response could be made. Coupled with the response, is the indication of whether or not the response is considered a 'strength' or a 'weakness'. At this stage structured questionnaires for the evaluation of the assessment instrument were also compiled.

This was followed by a pilot study so that the assessment instrument and structured questionnaires could be revised if necessary. The assessment instrument was then submitted to a select panel of experts (domain experts) to refine the instrument and to test for validity. Using the Delphi technique, refinement of the instrument depended upon a consensus

among the domain experts regarding content validity, clarity and design of the assessment instrument.

The final activity was to implement the refined assessment instrument on a sample of mentally handicapped individuals and their families to test for reliability.

### ***The General Criteria for Assessment Instruments***

Besides the fact that all assessment instruments should meet the requirements of validity and reliability, the instrument under development had to meet certain general requirements. These included:

- Easy implementation.
- Economical usage of time.
- Sufficiently comprehensive to cover all aspects of the patient.
- Serve as a data base for future assessment.
- Specifically aimed at the needs and problems of the patients for whom it was designed.
- Use should be acceptable to the patient.
- Allow active involvement of the patient in the assessment process.
- Should be structured.
- Should be useful at any stage during the course of the patient's condition.
- Should be accompanied by a complete information guide.
- Facilitate the formulation of a nursing diagnosis (Van Wyk, 1989:113-116).

### ***The Delphi Technique***

The Delphi technique, as described by Waltz and Bausell (1983:87-88), was followed and seven domain experts were used for Phase 1 of the study. Burns and Grove (1993:344) believe at least five, and not less than three experts, should be selected when content-related validity is to be determined. In the selection of the domain experts a purposive or judgmental sample was used. This kind of sampling is often used with the belief that a researcher's knowledge about the population and its elements can be used to hand pick the subjects to be included in the sample (Polit and Hungler, 1993:179).

To locate domain experts the researcher invited participation from every possible institution in South Africa that worked with mentally handicapped people. Domain experts in the United Kingdom were traced through the United Kingdom Central Council (UKCC), as well as by open letters of invitation to the editors of some well known nursing journals.

A structured questionnaire was designed to obtain information from the domain experts regarding the content validity, clarity and design of the assessment instrument. Structured questionnaires along with the assessment instrument and information guide were mailed to the various domain experts.

## ***Rationale For The Inclusion of Items on The Assessment Instrument***

### **Personal information**

Personal information was included for both parts of the assessment instrument, as it is essential for an overall profile of the patient, and for identification and record purposes.

#### ***Part 1 - Assessment of the Mentally Handicapped Individual***

##### **• Internal Homeostasis**

According to McVicar and Clancy (1998:607) homeostasis is the term used by physiologists to explain how the internal environment is maintained in a balance for healthy functioning. In the context of this study, internal homeostasis refers to the gathering of data from general, basic observations carried out by the nurse for any patient, i.e. body temperature, pulse, respiration, blood pressure, haemoglobin level, and microscopic urine analysis.

##### **• Personal hygiene**

This type of information is essential for nurses to determine mentally handicapped individuals' abilities to take care of their personal hygienic needs, as this is a basic requirement if one is to function effectively and more independently on a day-to-day basis.

##### **• Elimination**

This section is included so that nurses can establish problems with bowel and/or bladder functioning. It is important to note that toilet habits cannot be taught before the child can walk as the ability to walk demonstrates that the spinal pathways are sufficiently developed for sphincter control (Giliomee & Uys, 1997:524).

##### **• Nutrition**

Assessment of the mentally handicapped individual's nutritional status is essential, as they are seen as a group who is susceptible to nutritional disorders. Predisposing factors to nutritional disorders include neuromotor dysfunction, impaired feeding skills, reduced mobility and the consumption of tannin rich beverages, such as tea and coffee, which are associated with iron deficiency (Razagui, Barlow, Izmeth & Taylor, 1991:331).

##### **• Mobility**

The assessment of gross and fine motor ability is necessary to establish individuals' abilities to perform activities of daily living, which reflects their level of independence.

##### **• Sensory perception**

Patrick Callaghan (1995:48) suggested that as human beings we take in a wealth of information on a daily basis using the six main senses namely sight, smell, taste, sound, touch and proprioception (a sense of the internal state of our bodies). Mentally handicapped individuals may have delayed developmental milestones or behavioural problems due to undetected sensory impairments, e.g. visual or hearing problems, or they may be unable to experience touch, pain, or thermal changes, thus increasing their risk for injury.

- Cognitive functioning

Items are included here to identify strengths and weaknesses in short and long term memory, thinking process, and language ability, as it is believed that such information should be considered in the planning of nursing interventions. The data gathered here provides nurses with information on the patients' ability to participate and co-operate in the management of their problems.

- Safety and comfort

Safety and comfort are considered basic human needs, and due to the vulnerability of mentally handicapped individuals in this regard, it is necessary to assess their strengths and weaknesses related to environmental safety. The patients' orientation to person, place, and time should also be assessed, including their level of consciousness and contact with reality, as this directly influences the nature of nursing interventions.

- Spiritual and socialisation aspects

It is generally accepted that religious families are often better equipped to deal with crises, as their religion serves as a form of support. Assessment of mentally handicapped individuals must therefore include their spiritual and social orientation, as it is important for the establishment and maintenance of meaningful relationships.

- Interpersonal and sexual orientation

Sexual assessment should include the individuals' sexual development and their sexual attitudes. Mentally handicapped individuals often express their sexuality inappropriately and may fall victim to sexual abuse. Furthermore, mentally handicapped individuals are often overprotected or denied the privilege of developing a sexual relationship with a person of their own choice. Stanley (1985:22) is of the opinion that mentally handicapped persons have the same rights as any other person, and this includes heterosexual relationships for most, and homosexual relationships for a minority.

## Part 2 - Assessment of the Family

- Family stressors

The mentally handicapped individual's family tends to experience high levels of stress, and unless they can cope with this, family dysfunction will set in. Factors such as the age, age at onset of parenthood, physical and mental health, and many others may be either strengths or weaknesses. Some factors (e.g. employment) are alterable, while others (e.g. age at marriage) cannot be changed. Nurses must include the parents' acceptance of their children's disability when assessing family stressors, because without full acceptance, family functioning will always be stressed.

- Relationships

Family relationships may be strained by the presence of a mentally handicapped child, and may in serious cases, lead to family disintegration. Therefore, nurses must explore the relationship that each family member has with the mentally

handicapped individual. Thus, good relationships will be a strength and will contribute towards family functioning.

- Family environment

The environment in which the family exists may either contribute to, or impair, family functioning. Thus, the family environment should not only be assessed for its physical nature, but also for hygiene. As part of the family environment, nurses must also determine the family's social network so that strengths and weaknesses can be identified.

- Family support

It is generally accepted that, the manner in which a family copes with the additional stress of having a mentally handicapped child depends upon the various resources and support systems available to them, as well as the strengths within the family. Support may be structural, constitutional, or functional.

## Data analysis for phase 1 of the study

During phase 1 of the study, face validity was determined by analysing the domain experts' responses to a questionnaire specifically developed for this purpose, while content validity was established by determining a Content Validity Index for each item, based upon the responses made by them. Subsequently, high levels of face and content validity were established.

Statistical analysis was carried out to determine the reliability of the assessment instrument using alpha coefficient tests. According to Polit and Hungler (1993:445) alpha coefficients are computed through procedures such as Cronbach's alpha technique, the split-half technique, and the test-retest approach, and provide an estimate of internal consistency that serve as an indication of how reliable an instrument is.

Two rounds of questionnaires were sent out to the different domain experts asking them to judge each item in the assessment instrument along a 4-point rating scale, and to make suggestions or changes to the items as they deemed necessary.

Figure 2 (a & b) reflects the content validity index (CVI) scores, expressed in percentages for round 1. From this it is clear that most of the items received a content validity index of 1.00 which means that for those items full consensus was reached among all the domain experts.

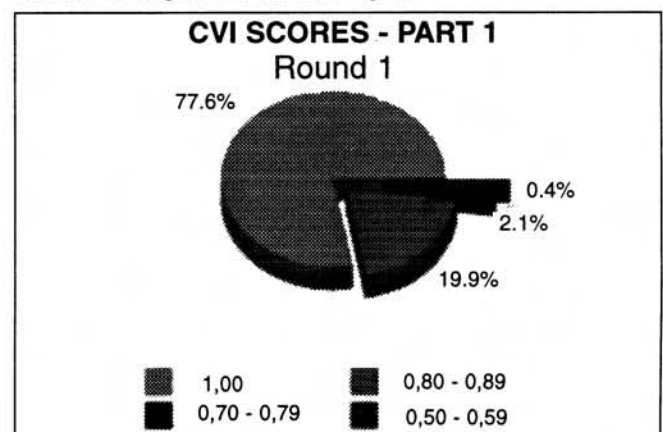
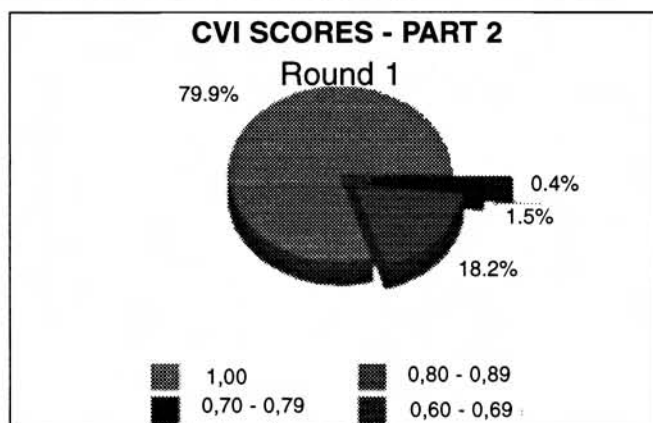


FIGURE 2(a) CVI SCORES - ROUND 1

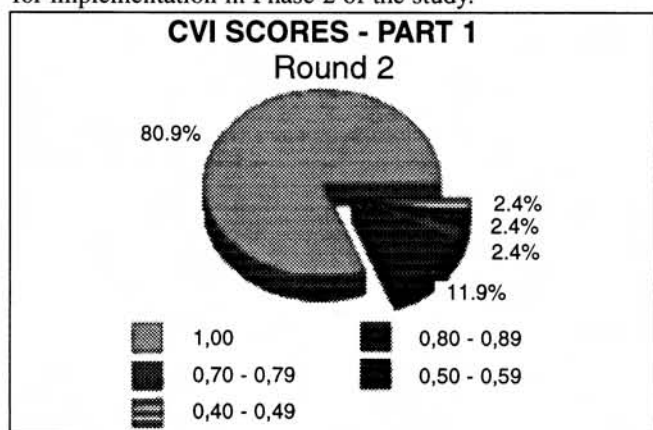




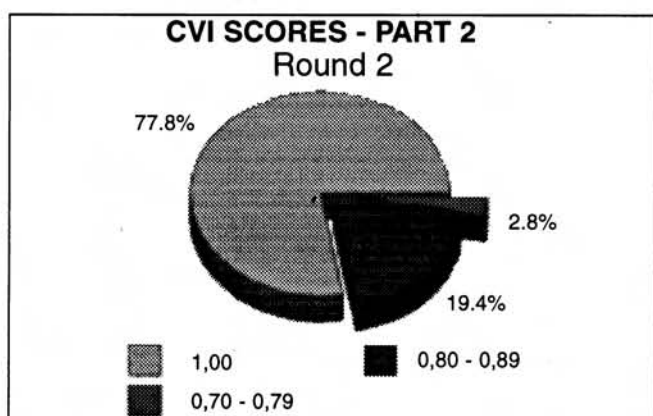
**FIGURE 2(b) CVI SCORES - ROUND 1**

A second round of questionnaires was sent out to the domain experts in an attempt to obtain a consensus on those items that needed alterations, plus those items that needed to be moved to more appropriate item stems. New items suggested by the domain experts were included under the appropriate item stems, and domain experts were again asked to rate the items according to the same rating scale that applied to the first set of questionnaires. The questionnaires, posted to the domain experts for this round, contained only the item stems and items that needed scrutiny by the domain experts.

A consensus among the seven domain experts was reached at the end of round 2. Items rejected included those items with a CVI rating below 0.60. The percentage of CVI ratings is reflected in Figure 3 (a & b). A high level of consensus was clearly reached, which reflected positively on the content validity of the assessment instrument. In Part 1, items with a CVI rating of 1.00 made up 80.9%(34), while 77.8%(28) of the items in Part 2 received a CVI score of 1.00. Following round 2, the assessment instrument was amended and ready for implementation in Phase 2 of the study.



**FIGURE 3(a) CVI SCORES - ROUND 2**



**FIGURE 3(b) CVI SCORES - ROUND 2**

## Data analysis for phase 2 of the study

Data analysis for phase 2 of the study consisted of testing of Part 1 of the instrument for reliability, and the analysis of responses related to the use of Part 2 of the instrument. Phase two of the study involved the testing of the assessment instrument (Part 1) for reliability, and for this purpose, a small stratified convenience sample was used. Each subject was assessed by four registered nurses who were trained as field workers. Using the data collected by the field workers, alpha coefficient tests were carried out to determine the reliability of the assessment instrument. The sample was stratified (See Table 3) in terms of the well known levels of mental handicap (American Psychiatric Association - DSM IV, 1994). A total of 28 subjects, between the ages of 4 and 18, were selected for assessment, using the newly designed assessment instrument. The subjects included in the study were taken from two large Eastern Cape hospitals, genetic services, and a day care unit for mentally handicapped persons.

**TABLE 3: STRATIFIED CONVENIENCE SAMPLE**

LEVEL OF HANDICAP	NUMBER OF SUBJECTS
MILD	7
MODERATE	7
SEVERE	7
PROFOUND	7
<b>TOTAL</b>	<b>28</b>

## The Assessment Instrument - Part 1

Part 1 of the assessment instrument was tested for reliability using an alpha coefficient test. This method was used to compute internal consistency. According to Polit and Hungler (1993:246) "an instrument may be said to have internal consistency or homogeneity to the extent that all its sub-parts are measuring the same characteristic." To do this, the instrument was divided into 10 scales (Item stems) as reflected in Table 4. Scales are designed to measure an attribute through a composed set of items that are all measuring that attribute (Polit and Hungler, 1993:246). Each scale, in Table 4, was tested for reliability by determining the alpha coefficient for all items in that scale as well as the alpha coefficient for each individual rater.

**TABLE 4 : SCALES FOR RELIABILITY TESTS**

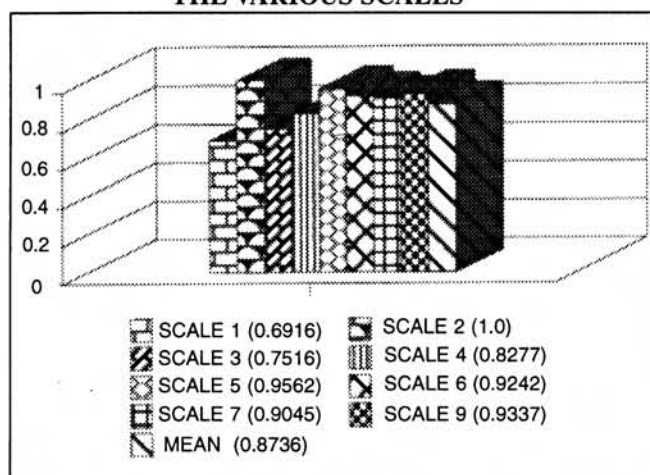
SCALE	
1 Internal Homeostasis	6 Sensory
2 Personal Hygiene	7 Cognitive
3 Elimination	8 Safety and Comfort
4 Nutrition	9 Spiritual and Socialisation
5 Mobility	10 Interpersonal and Sexual



According to Polit and Hungler (1993:245 & 247), reliability coefficients (usually designated as  $r$ ) range in value between 0.00 and 1.00, and the higher the reliability coefficient, the more accurate the measure. Reliability coefficients above 0.70 are, therefore, considered satisfactory and coefficients of 0.85 to 0.95 are considered high and preferable.

The same four field workers (raters) assessed each of the 28 subjects in the sample. Subsequently, an alpha coefficient was determined for each of the above scales so that the inter-rater or inter-observer reliability could be established. (See Figure 4)

**FIGURE 4: ALPHA COEFFICIENT VALUES FOR THE VARIOUS SCALES**



(Note: No Alpha coefficient values for Scales 8 & 10 could be computed due to insufficient data)

#### Scale 1 - Internal homeostasis

This scale consisted of 15 items, each measured for the attribute of internal homeostasis. An alpha coefficient of 0.6916 for all items was achieved, which was just below the 0.7 value that is considered acceptable for reliability. Thus, it can be deduced that the items testing the scale for internal homeostasis were reliable, and that there was no inconsistency between the raters as the actual value for each rater was  $r = 0.7035$  (See Table 5).

#### Scale 2 - Personal hygiene

No individual alpha coefficient values could be determined for this scale due to the lack of data on certain items. Data could have been lacking because some items may have been irrelevant for some subjects, but alpha coefficients could not be obtained without that data. However, the overall alpha coefficient for all the items in this scale could be determined, and was found to have a zero variance. This meant that the responses for those items that were applicable and completed by the four raters were identical, with a subsequently coefficient value of  $r = 1.00$ . Therefore, the items testing for this scale were reliable.

#### Scale 3 - Elimination

This scale consisted of 11 items testing for elimination. The reliability of the items testing for elimination were satisfactory as the coefficient value was  $r = 0.7516$ . Inter-rater reliability was also high, as illustrated by the small measure (0.0557) of variability between the four raters, and the mean alpha coefficient of  $r = 0.7522$ . (See Table 5)

#### Scale 4 - Nutrition

Scale 4 consisted of 34 items testing for nutrition. The alpha coefficient for all these items was  $r = 0.8277$  and was considered a satisfactory level of reliability. A high level of inter-rater reliability was computed with a mean alpha coefficient of  $r = 0.8267$ . A difference between the highest and lowest alpha coefficient of only 0.0535 is illustrated in Table 5.

#### Scale 5 - Mobility

This scale consisted of 34 items, each measuring for the attribute of *mobility*. A very high level of reliability was computed on the items testing this scale with the overall coefficient value of  $r = 0.9562$ . The inter-rater reliability for this scale was also very high with a mean alpha coefficient value of  $r = 0.9563$ . The difference between the highest and lowest alpha coefficient for the four raters was very small (0.0027) as reflected in Table 5.

**TABLE 5: INTER-RATER RELIABILITY COEFFICIENTS**

SCALE	rater 1	rater 2	rater 3	rater 4	mean	difference (highest & lowest)
Internal Homeostasis	0.7035	0.7035	0.7035	0.7035	0.7035	0.0000
Personal Hygiene	No values due to insufficient data					
Elimination	0.7716	0.7623	0.7159	0.7593	0.7522	0.0557
Nutrition	0.7900	0.8394	0.8341	0.8435	0.8267	0.0535
Mobility	0.9552	0.9579	0.9565	0.9558	0.9563	0.0027
Sensory	0.8964	0.9070	0.9240	0.8946	0.9055	0.0294
Cognitive	0.8964	0.9070	0.9240	0.9045	0.9079	0.0276
Safety & Comfort	No values due to insufficient data					
Spiritual & Socialisation	0.9272	0.9313	0.9397	0.9369	0.9337	0.0125
Interpersonal & Sexual	No values due to insufficient data					

### **Scale 6 - Sensory**

A total of 19 items were used to test for sensory attributes. The overall alpha coefficient for these items was  $r = 0.9242$  and was considered a high level of reliability. The mean alpha coefficient for inter-rater reliability was  $r = 0.9055$ , with the variability between the highest and lowest rater being 0.0294 as indicated in Table 5. Thus, a high level of reliability between the raters was achieved.

### **Scale 7 - Cognitive**

A total number of 30 items were used to test for this attribute, and the overall alpha coefficient obtained for the items in this scale was  $r = 0.9045$ . This coefficient suggested a high level of reliability for the items in this scale. A high level of inter-rater reliability was also obtained in this scale, as reflected by the mean alpha coefficient of  $r = 0.9079$ , with a variability of only 0.0276 between the highest and lowest rater (See Table 5).

### **Scale 8 - Safety and comfort**

No individual alpha coefficient values could be determined due to the lack of data on certain items in this scale. The reason for this was that some items may have been irrelevant for some subjects, and without such data alpha coefficients, for both the items as well as the four raters, could not be obtained.

### **Scale 9 - Spiritual and socialisation**

Twenty nine (29) items were used to test for spiritual and socialisation attributes. The overall alpha coefficient for the items of this scale was  $r = 0.9337$ , and was indicative of a high level of reliability. Table 5 illustrates the level of inter-rater reliability plus the mean alpha coefficient which was  $r = 0.9337$ . The difference between the four raters' highest and lowest alpha coefficient values was 0.0125, which suggested a high level of agreement between the different raters.

### **Scale 10 - Interpersonal and sexual**

No individual alpha coefficient values could be determined for this scale due to the lack of data on certain items in this scale. Again, the reason for this is that some items may have been irrelevant for some subjects, and without such data alpha coefficients for both, the items as well as the four raters, could not be obtained.

As explained in the above discussion, alpha coefficients for two of the ten scales could not be computed, however, based on the high levels of reliability of the other 8 scales, it could reasonably be assumed that those scales were also likely to be reliable. In the unlikely event of those scales being totally unreliable and thus having an alpha coefficient of  $r = 0.0$  each, then the mean alpha coefficient value for all ten scales would be  $r = 0.6989$ , which, in statistical terms, is still considered acceptable for reliability of the instrument.

### **Family Assessment - Part 2**

Because of the sensitive nature of the data required in Part 2 of the assessment instrument, and the fact that data in this part of the assessment instrument could be obtained through

interviewing techniques, it was felt that the same approach as for Part 1 could not be used as the families would not easily open up to, or confide in, unfamiliar evaluators who were merely making their acquaintance for the sake of completing a research document. It was thus decided that each evaluator would assess seven families and then complete a questionnaire evaluating the instrument. This questionnaire was only applicable to Part 2 of the assessment instrument, and required information on the basic criteria that all instruments should meet as discussed previously.

The family assessment instrument (Part 2) was used by four field workers, who each assessed seven families, and then completed a questionnaire based on the general characteristics of assessment instruments. Field workers had to evaluate the use of the instrument by indicating their opinion on specific statements contained in the questionnaire.

The findings of these questionnaires are reflected in Table 6. On the whole, from the information in Table 6, the assessment instrument was evidently evaluated positively, except for three statements about the assessment instrument that were negatively judged by one or more evaluators (i.e. the evaluators disagreed with the statements given in the questionnaire).

The first statement that was negatively evaluated was the one on time usage. Here 50% (2) of the respondents felt that the instrument, when compared with others, is time consuming. A good instrument must be economical in terms of time usage, and if considered very time consuming, those persons for whom it was designed in the first place may not use the instrument. Keeping a balance between time consumption and what should be included in an instrument is difficult, since an instrument that is not considered time consuming in its use may be insufficiently detailed. The key to this problem is to design an instrument in such a way that it gathers only relevant data and ensures that minimal writing is needed, so that it can be completed in the shortest possible time. Furthermore, the instrument was designed to allow for certain sections to be ignored (if unnecessary) or to be completed at a later stage. It can also be assumed that the instrument will take less time to complete as the user becomes more familiar with it.

Of the respondents, one (25%) disagreed with the statement that the instrument should be useful at any stage during the patient's condition. An effective instrument must be useful at any stage during the course/progression of the patient's condition. However, although generalisation is an important characteristic, over-generalisation may be a problem as important data may be missed.

The third statement that was negatively evaluated (25%) related to the information needed in Section A of the instrument. Section A consists of personal information such as name and address, marital status, and names and ages of siblings. This type of information may not be viewed as vital to the assessment, but it is important for identification and record purposes.

TABLE 6: RESPONSES TO FAMILY ASSESSMENT - PART 2

STATEMENT	RESPONSE			
	1	2	3	4
The assessment instrument is suitable for registered nurses to use	3 (75%)	1 (25%)		
The use of the instrument will have a positive effect on the nursing management of the family	2 (50%)	2 (50%)		
The assessment instrument is specifically aimed at the needs and problems of the mentally handicapped individual's family	1 (25%)	3 (75%)		
The family is sufficiently involved in the determination of its needs or problems	2 (50%)	2 (50%)		
This instrument is not time consuming when compared with other instruments used by you		2 (50%)	2 (50%)	
The use of the instrument is acceptable to the family		4 (100%)		
The grading of the family's strengths and weaknesses, with regard to family stressors, is of value in the assessment of the patient	2 (50%)	2 (50%)		
The grading of the family's strengths and weaknesses, with regard to family relationships, is of value in the assessment of the patient	2 (50%)	2 (50%)		
The grading of the family's strengths and weaknesses, with regard to family environment, is of value in the assessment of the patient	2 (50%)	2 (50%)		
The grading of the family's strengths and weaknesses, with regard to family support, is of value in the assessment of the patient	1 (25%)	3 (75%)		
The information guide, that accompanies the instrument, contains clear instructions		4 (100%)		
The structure of the instrument is a positive characteristic of the instrument	1 (25%)	3 (75%)		
The assessment instrument could be useful at any stage during the course of the patient's condition		3 (75%)	1 (25%)	
The assessment instrument is easy to use		4 (100%)		
The assessment instrument could serve as a basis for further and more detailed assessments	1 (25%)	3 (75%)		
The assessment instrument will facilitate the formulation of a nursing diagnosis		4 (100%)		
The strengths and weakness profile can be useful to nurses when setting goals/objectives	2 (50%)	2 (50%)		
The assessment instrument can serve as a data base for future assessments	3 (75%)	1 (25%)		
Information required in Section A is essential	1 (25%)	2 (50%)	1 (25%)	
The assessment instrument is sufficiently comprehensive to cover all the aspects of the patient's nursing care	1 (25%)	3 (75%)		

## CONCLUSION

Mental handicap is a lifelong state and the needs and problems of mentally handicapped individuals are ever present and dynamic in nature. It is therefore essential that their needs and problems be assessed as comprehensively as possible both in the community and in institutions. This is possible when the assessment is carried out using the developed assessment instrument, the advantages of which include:

- The nursing assessment of all the needs and problems of mentally handicapped individuals and their families.
- The elimination of problems through the identification of

weaknesses, and the enhancement of strengths that may be inherent in patients and their families  
(See Figure 5a & 5b for a sample of the profile charts of the Assessment Instrument).

- The enhancement of independence in patients and their families through the improvement of self-care activities.
- The development of individualised nursing interventions for each patient and his family.

The use of this assessment instrument, by practising nurses, in the assessment of mentally handicapped individuals and their families, is therefore, recommended. The instrument is available from the authors on request.

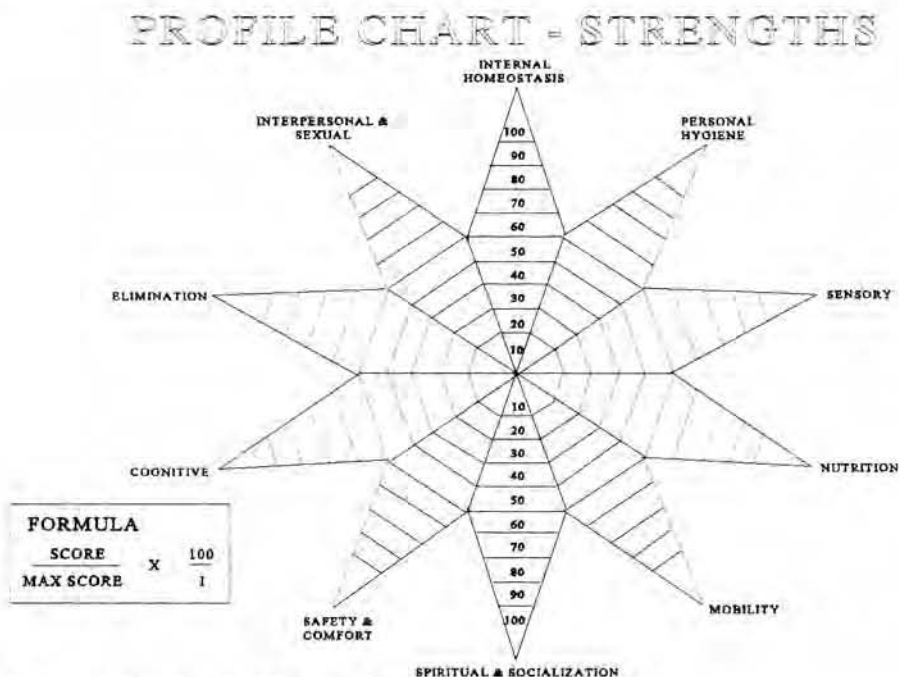


Figure 5 (a) Profile Chart - Strengths

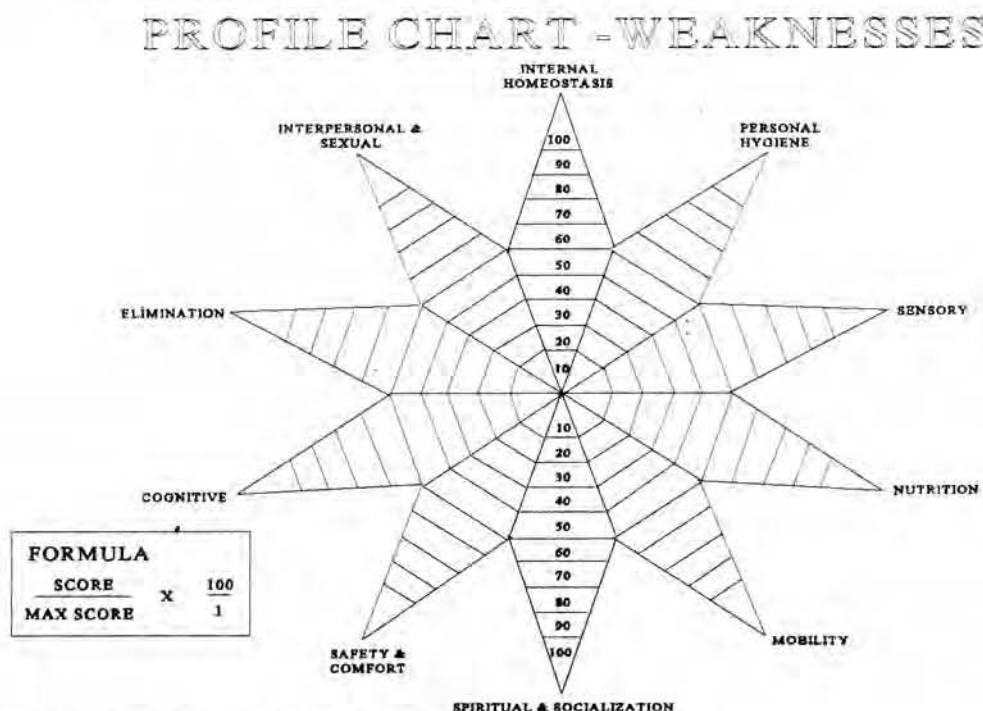


Figure 5 (b) Profile Chart - Weaknesses



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