



# The effects of rehabilitation on intellectually-disabled people – a systematic review

## Authors:

Ernest J. Sechoaro<sup>1</sup>  
Belinda Scrooby<sup>1</sup>  
Daleen P. Koen<sup>1</sup>

## Affiliations:

<sup>1</sup>School of Nursing Science,  
North-West University,  
Potchefstroom Campus,  
South Africa

## Correspondence to:

Belinda Scrooby

## Email:

belinda.scrooby@nwu.ac.za

## Postal address:

Private Bag X6001,  
Potchefstroom 2520,  
South Africa

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**Background:** Rehabilitation has emerged as a comprehensive approach to addressing intellectually-disabled peoples' skill deficits, improving competencies and facilitating optimal functioning in order to provide the greatest possible measure of social and economic participation, self-reliance and independence.

**Objective:** To synthesise critically and summarise the best available evidence of the effects of rehabilitation on intellectually-disabled people.

**Method:** Literature searches of different electronic databases and manual searches were conducted using selected keywords. Studies on the effects of rehabilitation on intellectually-disabled people were selected systematically, appraised critically for methodological quality and summarised.

**Results:** Rehabilitation interventions indicated good outcomes with regard to intellectually-disabled people. Findings showed that people with mild to moderate intellectual disabilities improved in terms of activities of daily living (ADL) after rehabilitation. Improvement was noted in ADL, self-care skills, communication skills and cognitive achievements.

**Conclusion:** Findings demonstrated positive rehabilitation effects on intellectually-disabled people. This study contributes to the comprehensive nursing care of intellectually-disabled people by endorsement of the effectiveness of rehabilitation in terms of ADL, self-care skills, communication skills and cognitive achievements. The collected evidence of this study may contribute to the education of more effective nurse practitioners involved in the daily care and rehabilitation of intellectually-disabled people.

**Agtergrond:** Rehabilitasie het ontwikkel in 'n omvattende benadering met 'n kombinasie van behandelingsmetodes om die veelvoudige hindernisse wat met intellektuele gestremde geassosieer word die hoof te bied. Rehabilitasie word gebruik om die intellektueel gestremde mense se vaardigheidstekorte aan te pak, bevoegdheid te bevorder en optimal funksionering te fasiliteer met die beste moontlike sosiale en ekonomiese deelname, onafhanklikheid, selfstandigheid en selfbeskikking as doelwit.

**Doelstelling:** Hierdie sistematiese literatuuroorsig het die beskikbare bewyse van die effek van rehabilitasie op intellektueel gestremde mense ondersoek en beskryf.

**Metode:** Literatuur soektogte van verskillende elektroniese databasisse en handsoektogte was gedoen deur geselekteerde sleutelwoorde te gebruik. Studies oor die effekte van rehabilitasie op die intellektueel gestremde persone was stelselmatig geselekteer, krities ontleed vir metodologiese kwaliteit en opgesom.

**Resultate:** Rehabilitasie-intervensies het goeie uitkomst op intellektueel gestremde mense getoon. Bevindinge het getoon dat mense met ligte tot matige intellektuele gestremdhede ten opsigte van daaglikse aktiwiteite na rehabilitasie verbeter het. Vordering is opgemerk in daaglikse leefaktiwiteite, selfsorgvaardighede, kommunikasievaardighede en kognitiewe prestasie.

**Gevolgtrekkings:** Bevindinge het positiewe rehabilitasie effekte op die intellektueel gestremde mense getoon. Hierdie studie dra by tot die omvattende verpleging van intellektueel gestremde mense deur ondersteuning van die doeltreffendheid van rehabilitasie met betrekking tot daaglikse leefaktiwiteite, selfsorgvaardighede, kommunikasievaardighede en kognitiewe prestasie te gee. Die bewyse wat in hierdie studie ingesamel is, kan bydra tot die opleiding van doeltreffender verpleegkundiges wat by die daaglikse versorging en rehabilitasie van intellektueel gestremde mense betrokke is.

## Introduction

People with intellectual disabilities have complex needs and limitations in terms of bodily functions, personal factors and activity skills. These disabilities pose significant challenges for



them as well as for healthcare professionals. Therefore, intellectually-disabled people require specific forms of health and special social services (Lin *et al.* 2006:1499). Thompson, McGrew and Bruininks (2002:25) believe that efforts can be made to improve on methods that can lead to effective interventions to increase learning and adaptation on the part of intellectually-disabled people. This systematic review synthesised and described best evidence regarding the effects of rehabilitation on intellectually-disabled people as a means of overcoming the challenges outlined.

## Background

Rehabilitation has emerged as a comprehensive approach with a combination of treatment modalities that have the purpose of addressing multiple impediments and overcoming disabilities. Rehabilitation is a goal-oriented process, with the aim of enabling intellectually-disabled people to reach an optimum mental, physical and/or social functional level, thereby providing them with the tools required to change their lives (Department of Health 2000:31).

The philosophy behind rehabilitation is that rehabilitation concentrates more on prevention or reduction of impairment of handicap than on treatment of diseases. It is grounded strongly on the belief in the empowerment of intellectually-disabled people and it identifies the individual's goals on the grounds of which a plan is developed to meet these goals. From this rehabilitation perspective, it is important to extend support as long as possible. Furthermore, this support should not be withdrawn when the client improves (Lin *et al.* 2006:1499–1500).

Looking at international trends and prompted by the United Nation's actions to declare the rights of intellectually-disabled people and to adopt the Declaration of the Rights of Disabled People in 1975, the *Rehabilitation Act* of 1973 of the United States of America (USA) prioritised the mandatory provision of rehabilitation services for people with disabilities (Lin *et al.* 2006:1499–1500). The South Korean government enacted the *Special Education Promotion Act* in 1977; this regulation and the first legal policy established promoted normalisation, mainstreaming, inclusive education, early education and individualised education, thus improving the educational opportunities for people with disabilities (Oh *et al.* 2005:50). The historical overview of rehabilitation from Southern Korean literature reiterates that rehabilitation started to develop only in the early 1950s. The South Korean government agreed to expand their social services to be inclusive of rehabilitation for people with disabilities (Oh *et al.* 2005:49). Despite progress made, the delivery of vocational rehabilitation services was still subject to many problems and limitations (Oh *et al.* 2005:49). In the 1960s, many medical doctors who had been trained in rehabilitation medicine and other specialties in the United States, returned to South Korea in order to help in orthopaedic and rehabilitation departments in major hospitals. Soon thereafter, resident training programmes were developed in South Korea in these specialty fields (Oh *et al.* 2005:50).

In South Africa, the current estimates for the proportion of the South African population with disabilities converge at 5% – 6% of the population, which equates to around 2.5 million people with disabilities in South Africa. There is thus a need for appropriate policies and services for this sector of the population. Chappell and Johannsmeier (2009:7) further elucidated that community-based rehabilitation (CBR) developed in the late 1980s as a result of challenges faced by people with disabilities. The National Rehabilitation Policy document (Department of Health 2000:3) is in agreement with the above, facilitating the realisation of every citizen's constitutional right of access to healthcare services. This policy document forms part of South Africa's strategy to improve the quality of life of people with disabilities, serving as a vehicle to bring about equality with regard to opportunities and to enhance their human rights.

Burns (2008:46) gives an overview of the historical background of earlier South African legislation relating to the treatment of mental health care users, including people with disabilities. Burns states that the *Mental Health Act* 18 of 1973 (South Africa 1973) focused on the control and treatment of these patients. This Act also reinforced the separation of mental and general healthcare. Psychiatric services were isolated from and not integrated into primary healthcare. The structure of these old systems disempowered, alienated and stigmatised mentally-ill and intellectually-disabled people, with traumatic and damaging consequences. The psychiatric service provision under the *Mental Health Act* (South Africa 1973) was not grounded on the ethical principles of autonomy, beneficence, non-maleficence and justice, which led to human rights infringements (Burns 2008:46).

Because change was necessary, the *Mental Health Care Act* 17 of 2002 (South Africa 2002) was promulgated in South Africa against the backdrop of positive international developments in mental health legislation. This new culture focused on human rights. The new Mental Health Care Act reflects this new spirit and is based on the important principles of provision of care, treatment and rehabilitation. Mentally-disabled people's rights are respected, in other words their right to be provided with care, treatment and rehabilitation, with the least possible restriction of their freedom (Burns 2008:47).

In conclusion, rehabilitation enables the maximisation of a person's functional abilities and helps intellectually-disabled people learn to improve the skills needed for walking, eating or self-care management (Legere 2007:227). Martin (2006:125–126) supports the above by stating that intellectually-disabled people must learn to make decisions for their self-care. Without learning and applying these skills, intellectually-disabled people would be hospitalised repeatedly because of their lack of learned skills. It is important that people with intellectual disabilities receive services and support that will enable them to live a productive and fulfilling life, whilst being protected legally from unfair treatment and exploitation. The rehabilitation of intellectually-disabled people should be applied in practice in order to enhance their functional skills and to improve their quality of life.



## Problem statement

Based on the above information, it becomes clear that the improvement of rehabilitation services to address the skills deficit for intellectually-disabled people is an ongoing challenge in the public health system. Rehabilitation is applied inconsistently and the effects thereof are not stipulated clearly. In this study, a systematic review was thus conducted in order to synthesise critically and summarise best available evidence regarding the effects of rehabilitation on intellectually-disabled people. Critical synthesis and summary of the effects of rehabilitation may guide and increase the knowledge required to meet the challenges faced by intellectually-disabled people. Because of the gap in functional skills deficits, the researcher identified the need to explore the effects of rehabilitation on intellectually-disabled people. On reflection, the major effect of rehabilitation on intellectually-disabled people may be positive client outcomes, which include improved functional skills levels, adaptation to their disability, maximised functional independence with the least amount of ongoing professional assistance and maintained bio-psychosocial status for community-based living, marked by growth toward autonomy and achieving a full, rich and fulfilling life.

## Research method and design

The research method followed in this study was a systematic literature review that included both national and international literature and studies that focused on and provided broad scientific evidence of the effects of rehabilitation on intellectually-disabled people (Badr 2007:79). As stated by Whitemore and Knafl (2005:547), '[s]ystematic reviews are research reviews that combine the evidence of multiple studies regarding a clinical problem to inform clinical practice'. The following five steps associated with the systematic review of reported evidence (American Dietetic Association [ADA] 2005), were used to address the study objectives:

- Step 1: Formulate a focused review question
- Step 2: Formulate a search strategy
- Step 3: Perform a critical appraisal
- Step 4: Summarise the evidence, by means of:
  - a. data extraction
  - b. data analysis
- Step 5: Summarise the findings.

## Step 1: The review question

The review question was structured using the following elements – *Population of interest* (P); *Intervention* (I); *Comparisons* (C); *Outcome* (O); and *Time frame* (T) – namely, the PICOT format (Whitemore & Knafl 2005:548). For this study, *Setting* (S) was also included. The operationalisation of these elements is displayed in Table 1.

The review question was then stated as follows: 'What are the effects of rehabilitation on intellectually-disabled people?'

## Step 2: Gathering and classifying the evidence

The next step in conducting a systematic review is to gather all the relevant literature using a structured search strategy. The 'search process should be as transparent as possible and documented in a way that enables it to be evaluated and reproduced' (Centre for Reviews and Dissemination [CRD] 2009:16).

### Search strategy

A comprehensive search during the systematic review was done in order to identify the maximal number of eligible primary sources and to minimise selection bias (Whitemore & Knafl 2005:548). Searches in different electronic databases as well as manual searches of references to collect primary studies were conducted using selected keywords. The search strategy was not limited to the English language, as doing so would have introduced language bias (CRD 2009:17). Sources that were searched are displayed in Table 2.

### Selected study to be included

Studies were selected by means of inclusion and exclusion criteria (Table 2). The criteria were determined in order to make certain that the boundaries of the review question are clearly defined. The aim of the search was to include all the studies relevant to the research question.

### Inclusion criteria

The inclusion criteria for this study were:

- Research studies, such as systematic reviews
- Published journal articles on primary studies
- Published theses and dissertations
- Grey literature – unpublished theses and dissertations

**TABLE 1:** Use of the PICOT format, as applied to this study.

PICOT format	Operationalisation
Population	Mild and moderate intellectually-disabled people.
Intervention	Rehabilitation.
Comparisons	No comparison.
Outcome	Positive client outcomes, which include improved functional skills levels, adaptation to disability, maximised functional independence with the least amount of ongoing professional assistance and maintained bio-psychosocial status for community-based living, marked by growth towards autonomy and achieving a full, rich and fulfilling life.
Time	Not applicable.
Setting	Institutional and community setting.

Source: Whitemore, R. & Knafl, K., 2005, 'The integrative review: Updated methodology', *Journal of Advanced Nursing* 52(5), 546–553

**TABLE 2:** Sources for formal search.

Databases (Platform)	Databases	Completed and current research
EBSCOhost	Academic Search Premier	International journals on health science – primary studies.
	Source: Nursing and/or Academic	
	File Premia	-
	CINAHL with full text	-
	Healthsource Consumer Edition	-
	Healthsource: Nursing and/or Academic Edition	-
	MEDLINE (nursing and allied professions)	-
	Africa-Wide: NiPAD	-
	PsycINFO	Scholarly articles in behavioural sciences in mental health.
	Science Direct	International journals on health science – primary studies.
Cochrane Library	International systematic reviews and clinical trials in health science.	
Nexus (NRF)	Current and completed research projects in South Africa.	
Sabinet Online: ISAP S Ae Publication	South African journals and publications – primary studies. Full text South African journals.	
Google scholar	Scholarly literature.	
Manual search: References of primary studies	All references.	

- Written in English or translations thereof, including well-written English abstracts of any eligible primary study
- Relevant primary research studies from 2000 to 2010. Only literature and studies of this time period were used so as to ensure that the literature was recent.

### Exclusion criteria

The exclusion criteria for this study were:

- Primary studies in foreign languages without English abstracts
- Conference abstracts
- Primary studies before 2000
- Primary studies after 2010
- Consumer/newspaper articles.

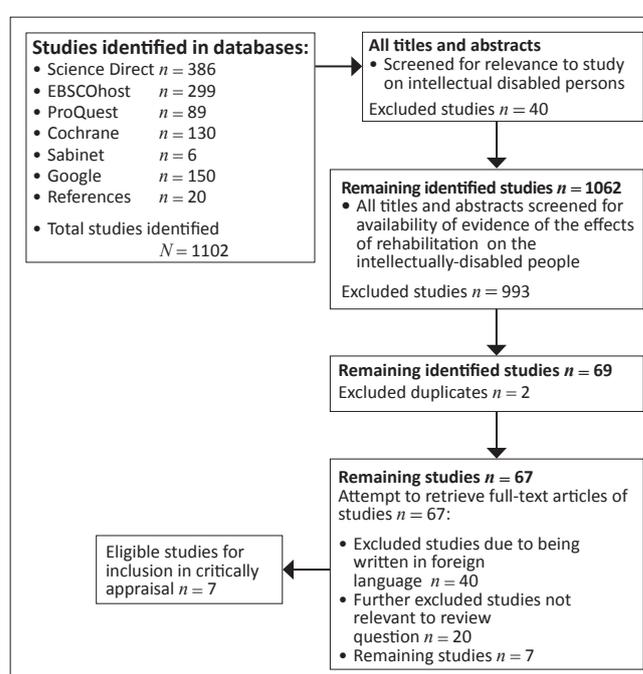
### Documentation of the search

The articles were retrieved through the use of various databases, using the identified key words. Google and library loan were used in order to obtain all possible relevant articles. An experienced librarian at the North-West University assisted in a specific search strategy in Nexus (a national electronic database).

The study selection was initially conducted by screening titles and abstracts against the inclusion criteria so as to identify potentially relevant papers and availability of evidence. After reading the abstract, the studies that appeared to meet the inclusion criteria were. After this, the full papers of the abstracts identified as having possible relevance were then screened, as described by CRD (2009:13). Accurate record keeping was maintained throughout the process for audit purposes in order to enhance rigour. Seven studies were included for final critical appraisal. The number of studies that were identified, excluded and included are broken down in Figure 1.

### Step 3: Performing the critical appraisal

In the systematic review, the sampling frame included all eligible studies. Critical appraisal of the selected studies for methodological quality and validity increases the complexity

**FIGURE 1:** The realisation of the search strategy (sample).

whilst still enhancing the rigour of the systematic literature review. Quality evaluation for systematic literature reviews thus varies, depending on the sample frame (Whittemore & Knafel 2005:549).

In this study, all relevant studies were appraised in terms of methodology and quality using the standardised checklists from the Critical Appraisal Skills Programme (CASP 2006). A record of all the appraised studies, instruments that have been used for appraisal, appraisal outcomes and motivation for decisions on inclusion and exclusion was kept for audit purposes. A second reviewer was asked to perform an independent appraisal of the selected studies for methodological quality and inclusion in or exclusion from the systematic literature review. Any conflict that occurred during appraisal was resolved by personal discussion between the researcher and the independent reviewer. After critical appraisal was conducted, a final list with relevant and



rigorous studies was compiled. These studies were used for the next step, namely, data extraction.

The realisation of the entire search strategy to yield the studies for critical appraisal can be found in Figure 1.

#### Step 4: Findings of evidence and summarising the evidence

The summary of the evidence presents the cumulative information, data and quality of evidence for the most important outcomes; an explanation of data extraction and data synthesis; and a discussion and recommendations.

##### Data extraction and data synthesis

Data extraction elements (presented in Table 3) of each study involved the focus of the study, the main findings and other findings that were relevant to this systematic review. All data extracted were graded on the strength of their evidence supporting the conclusions or recommendation, according to the guidelines in the analysis manual of the American Dietetic Association Evidence (ADA 2008:62).

Data extraction of the relevant, selected and included studies was performed using data reduction and data display. Data reduction requires the determination of an overall classification system or subgrouping in order to manage data generated through diverse methodologies. It includes techniques for the extraction and coding of data from primary studies in order to simplify, abstract, focus and organise said data into a manageable framework for the comparison of issues, variables, sample characteristics and findings from the individual studies that are relevant to the review question. Data display involves the conversion of extracted data from individual primary studies into a display depicting assembled data from multiple primary studies on particular variables. The data display can be in the format of matrices, graphs, spreadsheets or charts (Whittemore & Knafl 2005:550). In this study, all the relevant primary studies included for review were classified according to study design and type of evidence. The extracted data from this systematic review were coded in order to compare the themes and variables for display in table format. This is a formalised process for the collection of study characteristics. In addition, reporting of the characteristics of studies was an important component of the final review report, representing part of the review data trail that is claimed to be important for primary research (Evans & Pearson 2001:114–115).

Data extracted from the systematic reviews included for synthesis of evidence are outlined in Table 3.

## Discussion

Critical synthesis of the individual findings of the primary studies toward a conclusion entails data comparison, conclusion drawing and verification. Data comparison is a repetitive process involving examination of the data display in order to identify the patterns, themes and relationships of

and between the variables. The drawing of conclusions and the verification thereof are on a higher level of abstraction than data comparison. Conclusions entail incorporation of the particulars into the general, as well as development of a conceptual model that is revised continually in order to include as much data as possible. Rigorous data synthesis reflects honesty, transparency and a thorough reflection and exploration is verified by continuous recordkeeping throughout the whole process (Whittemore & Knafl 2005:551).

Verification with primary studies is required in order to enhance accuracy and confirmability. This is done in terms of discernment of the identified patterns, themes and relationships described in the final conclusion. Addressing conflicting evidence can be a considerable challenge and should be dealt with either by voting, comparing the frequency of significant positive findings against significant negative findings, exploration of confounding variables or motivation for the need of further research (Whittemore & Knafl 2005:551). In this study, conflicting evidence was addressed by including the outcomes of rigorous and relevant studies in the conclusion statements, whether the studies contained conflicting evidence or not (refer to Table 3).

A systematic review was conducted for all published studies on the effects of rehabilitation on intellectually-disabled people. The relevant empirical evidence was also synthesised. The following findings and conclusions were identified from the systematic review:

- Classroom- and community-based skills training are effective when it comes to improving the functional ability of people with intellectual disabilities. It is thus important that the abovementioned training interventions are conducted on an ongoing basis in order to promote independence in terms of ADL of people with intellectual disabilities.
- After rehabilitation, marked improvement of skills is noted in younger intellectually-disabled people with higher IQs. In general, skills seem to increase over time for people with intellectual disabilities. Improved changes are noted in cognitive abilities and in the following main skill categories: self-care, communication and educational achievements. The residential situation is also said to affect several of the skills. Intellectually-disabled people who live at home, with either relatives or foster parents, showed higher increases in almost every skill category, whilst those in hospitals and homes run by charities showed fewer increases. From this information, it would appear that the rehabilitation of intellectually-disabled people is effective.
- People with mild to moderate intellectual disability benefit from occupational therapy and show improvement in terms of ADL. ADL performance is a factor for the development of autonomy and independence and consequently decreases the need for assistance in everyday life or in general. It can be concluded from this study that people with intellectual disabilities can benefit from occupational therapy interventions that are

**TABLE 3:** Data extraction of systematic reviews included for synthesis of evidence.

Studies	Sample	Research question	Research outcome	Findings
1. Applegate <i>et al.</i> 2008. Country: USA	Single-subject study design with one participant.	Does knowledge of results work better at 100% or at a reduced frequency for individuals with intellectual disability, especially in terms of their ability to learn to tell time?	'The results of the study generally indicate that incorporating knowledge of results into the learning strategy of an individual with intellectual disability facilitated the ability to tell time more accurately' (Applegate <i>et al.</i> 2008:32).	The participants in the study demonstrated an increase in their performance ability to correctly identify the time on an analogue clock face.
2. Drysdale <i>et al.</i> 2008. Country: Northern Ireland	An RCT (randomised control trial) with 40 children	Is community living skills training effective in improving the functional ability of children with moderate learning disabilities?	Results suggested that community skills training was effective in improving the functional ability of people with intellectual disabilities.	Findings indicated that classroom-based training was as effective as that supplemented by community-based training. 'The outcome from this study supports previous findings that community skills training can be effective in improving the functional ability of people with intellectual disabilities' Drysdale <i>et al.</i> 2008:247).
3. Hällgren & Kottorp 2005. Country: Australia	Quantitative single-case design, using six participants who satisfied the inclusion criteria.	What are the effects of an occupational therapy intervention program on ADL ability and awareness of disability in persons with intellectual disabilities?	The results indicated that performance in persons with mild to moderate intellectual disability improved in terms of ADL after the intervention phase	This study supports the findings of the pilot study of Kottorp <i>et al.</i> (2003). It is recommended that five sessions are sufficient to achieve a detectable clinical improvement in ADL performance. It is also recommended that clients be made aware of their disability, as awareness of disability helps active participation in rehabilitation (Katz <i>et al.</i> 2002). ADL performance is "a factor for developing autonomy and independence with intellectual disability" (Kjellberg 2002; Ringsby 2002), consequently, decreasing the need for assistance in everyday life or in general. It is concluded from this study that persons with intellectual disabilities can benefit from occupational therapy interventions to improve ADL ability, even in the absence of any change in their awareness of disability.'
4. Beadle-Brown <i>et al.</i> 2002. Country: UK	Cohort of 146 intellectually-disabled children.	Not specified	Results indicated that skills had improved in many areas between different assessment timeframes. Improvement was more noticeable for the children who had been youngest at the time.	'Findings indicate that skills seem to increase over time for people with intellectual disability in general (changes in cognitive ability and for three main skill categories: self-care skills, communication skills and educational achievements)' (Beadle-Brown <i>et al.</i> 2002:20). The residential situation is said to affect several of the skills, it is stated that 'intellectual disabled people living at home, with relatives or foster parents showed higher increases on almost every skill category than those in hospitals and charity-run homes, for example' (Beadle-Brown <i>et al.</i> 2002:20). This finding could be explained by the effect of IQ and overall ability. Those children who were less able mentally and physically were those who were placed in hospitals or specialised homes, whilst those who were more able stayed at home with their parents for longer. <b>Bottom-line findings:</b> 'The encouraging findings are that skills seem to increase over time for people with intellectual disabilities in general. These increases are greater at the younger ages and for the most parts for those of a higher IQ. The residential situation is also said to affect several of the skills. Intellectual disabled persons living at home, with relatives or foster parents showed higher increases on almost every skill category than those in hospitals and charity-run homes' (Beadle-Brown <i>et al.</i> 2002:12).
5. Kottorp <i>et al.</i> 2003. Country: USA	Quantitative single-case design with three participants.	Does a client-centred, occupation-based intervention programme result in enhancing both awareness of disability and ADL ability for clients with mental retardation?	The result from this study indicate that an occupational therapy intervention programme had a positive effect on ADL process ability for three people with mental retardation.	Findings indicated that all three participants improved in ADL process ability <b>Bottom-line findings:</b> 'Results from this study indicate that an occupational therapy intervention programme, including restorative occupation and adaptive occupation, is effective in improving the ability of people with mental retardation to carry out ADL efficiently and safely' (Kottorp <i>et al.</i> 2003:51).
6. Russell <i>et al.</i> 2004. Country: India	RCT design with 57 children and their parents	Not specified	Intellectually-disabled children showed a significant improvement in the acquisition of adaptive behaviour after training. Improvement was noted in the intervention group in the areas of self-help general, self-help dressing and socialisation in addition to the areas of self-help eating, communication and locomotion. However, areas of occupation and self-direction did not show a statistically significant increase in scores despite the clinical improvements noted in these areas	From this research it is stated that the significant increase in adaptive functioning amongst the intervention group children might have followed from factors and processes unknown. However, it is known that parents of children with disabilities place importance on adaptive behaviour development. <b>Bottom-line findings:</b> 'Investigation clearly showed additive efficacy of enhanced parental attitude in the acquisition of adaptive behavior amongst children with intellectual disability; the minimum additive efficacy achieved was 80%' (Russell <i>et al.</i> 2004:383).

Table 3 continues on the next page →


**TABLE 3 (Continues....):** Data extraction of systematic reviews included for synthesis of evidence.

Studies	Sample	Research question	Research outcome	Findings
7. Lloyd 2007. Country: Australia	Qualitative research ethnographic method supported by a collaborative enquiry approach to participative action research. The source population involved gathering a group of 18- to 35-year-old strangers from amongst the general public, in a mixed-gender group, with same-gender pairing of buddies. The researcher became totally embedded in the community of participants and assumed the role of a tribal leader.	Not specified	The results indicated that it was possible to generate increased well-being and confidence for more independent living amongst people living with the challenge of intellectual disability. Their ongoing wellbeing depends equally on community settings of shared affirming energy and daily living feedback, mirroring and support. Therefore, the open valuing approach of psychosocial rehabilitation creates open and ongoing mutual support in an equitable and non-labelling or patronising way, and can also create much more cost-effective forms of CBR as compared to the current medical models (e.g. of allocating one facilitator to 60 participants over two years, with an average time commitment of two days a week).	<p>People living with intellectual disability experience improved increased quality of life and self-determining sense of self when they are included in mixed, open urban tribes or communities of belonging. Being with other participants also provides shared testimonies of experience, which give each other encouragement and stimulation, generating motivation and strengthened intention for life. People reported feeling well, showed evidence of finding more energy for life and began pursuing more diverse activities and creativity.</p> <p><b>Bottom-line findings:</b> 'The bottom line is that this process of person-valuing approach to psychosocial rehabilitation showed to produce efficacious results in the lives of all participants. An interactive symbolic environments elicits important information about practical ways to assist the daily lives of peoples living with psychosocial challenges in an environment if sharing and being with other participants revealed that intellectually-disabled people feel better about themselves and express more confidence and independence, especially when they are in a community of belonging where respectful, equitable relationships of safety and trust are established. The participants were assisted to help themselves and each other in terms of recovery, growth and development when they are enabled to come together in a vulnerable, safe and trusting environment of sharing and caring. Successful psychosocial rehabilitation depends on people's motivation for recovery, growth and development, and this happens best in communities of belonging where there is shared affirming energy and daily living feedback and support, and not in isolated group homes or through patronising professional service delivery that pathologies its recipients. This type of rehabilitation provides cheaper bottom-line costs, that is it creates a much more cost-effective CBR. Therefore, people living with psychosocial challenges require clinical assistance to get their lives in balance' (Lloyd 2007:99).</p>

designed to improve their ADL ability. It can thus also be predicted that, with collaboration between occupational therapists, other mental health care workers and nurses, rehabilitation of intellectually-disabled people will be effective.

- In support of the above paragraph, an occupational therapy intervention programme which includes both restorative and adaptive occupation is effective with regard to improving the ability of intellectually-disabled people to carry out ADL both efficiently and safely. In this case, further research is also needed in order to determine whether such a programme also leads to an improvement in ADL, motor ability and awareness of their disability.
- Investigations also showed clearly the additive efficacy of enhanced parental attitude with regard to the acquisition of adaptive behaviour amongst children with intellectual disabilities. The minimum additive efficacy achieved was 80%, with intellectually-disabled children showing a significant improvement in the acquisition of adaptive behaviour after training. The intervention group showed improvement in the areas of self-help, both general and with regard to dressing and socialisation, as well as in the areas of self-help eating, communication and movement.
- Prior knowledge of results during the process of rehabilitation gives guidance for future performance and the knowledge of results also provides the intellectually-disabled person with information needed to change their performance before the next performance occurs. The findings indicated that intellectually-disabled persons who received greater amounts of feedback during skills

acquisition improved their performance and obtained higher scores during task performance. The results, therefore, are a general indication that incorporating knowledge of results into the learning strategy for a person with an intellectual disability facilitates the ability, for example, to tell time more accurately.

- The bottom-line is that the process of the person-valuing approach to psychosocial rehabilitation produces highly effective results in the lives of the participants. Interactive symbolic environments elicit important information regarding practical ways of assisting in the daily lives of people living with psychosocial challenges in an environment of sharing and being with other participants. It furthermore reveals that intellectually-disabled people gain a greater sense of well-being and show more confidence and independence, especially 'when they are in a community of belonging where respectful, equitable relationships of safety and trust are established' (Lloyd 2007:100). Successful psychosocial rehabilitation is dependent on the person's desire for recovery, growth and development, which happens best in communities where there is a shared energy with regard to affirmation, daily living feedback and support, in contrast with isolated group homes or patronising professional service delivery that nauseates its recipients. This type of rehabilitation provides cheaper bottom-line costs; in other words, it creates much more cost-effective CBR. People living with psychosocial challenges thus require clinical assistance in order to obtain balance in their lives. For example, these people need to be assisted to help themselves in order



to become independent individuals. In this case, nurses of all categories, that is, professional nurses, enrolled nurses and assistant nurses, need to be trained regarding how to assist people with intellectual disabilities in their endeavour to become independent individuals.

## Limitations of the study

This study used only electronic databases subscribed to by North-West University, which is a limitation because other universities might have access to different databases. However, this limitation was overcome by the use of multiple sources to obtain published studies, for example, electronic databases and manual search.

- This systematic review was conducted on studies presenting mostly with medium- and high-quality ratings and a mix of class A (randomised control trials), B (cohort studies) and C (qualitative studies) evidence. Limited generalisation in this context may be as a result of class C/single-case study designs having too small a number of participants to allow generalisation to a larger population. Another reason for limited generalisation was the limited improvement in skills, which may be attributed to the fact that other intellectually-disabled people 'have a diminished capacity to understand the underlying abstract meaning of questions asked and causal relationships. [This] may impact on their ability to think and reflect upon ADL performance' (Hällgren & Kottorp 2005:355).

The major limitation of this study was the amount of variability and fluctuation in the data, even though all participants showed differences before and after the intervention programme. With this variability in mind, all results should be viewed with caution. Because other studies did not include additional control groups, the presence or size of such effects are not measurable.

## Recommendations

Many intellectually-disabled people experience difficulties with regard to obtaining appropriate rehabilitation intervention and continued assistance. Findings amongst people with disabilities highlight the fact that the healthcare and welfare systems should create a coordinated system for the improvement of rehabilitation services amongst intellectually-disabled people. Because intellectually-disabled people have multiple healthcare needs, healthcare policies should reorganise the healthcare system to make it respond appropriately to their needs.

There is some small-scale evidence which suggests that various psychosocial interventions may be feasible for people with mild intellectual disabilities. Research is, therefore, still needed, as research evidence related to the effects of psychosocial intervention on the intellectually-disabled person is sparse.

The following recommendations are made specifically with regard to nursing, as intellectually-disabled people have multiple healthcare needs. Healthcare policy should thus

reorient the healthcare system to respond appropriately to these patients' needs.

## Recommendations for nursing practice

There is a real need for rigorous practice-based evidence to reinforce the increasing range of treatment options for this group of service users. For this reason, rehabilitation training should be incorporated into nursing practice. This will enable nurses to equip intellectually-disabled people with skills to acquire basic life skills and to manage ADL. Since nurses form part of the multidisciplinary team, it is important that occupational therapists collaborate with the nurses in order to ensure that the rehabilitation of intellectually-disabled people is done effectively and on an ongoing basis.

## Recommendations for nursing education

Nurses of all categories, namely, professional nurses, enrolled nurses and assistant nurses, need to be educated, trained and equipped with rehabilitation skills and knowledge in order to assist people with intellectual disabilities within institutional/community settings, with the aim of promoting their quality of life.

## Recommendations for nursing research

There is a real dearth of clinical research evidence concerning the effects of rehabilitation on intellectually-disabled people. The knowledge gained will add to the research knowledge base. Further research is still needed and should focus on the efficacy of specific rehabilitation service types provided to people with intellectual disabilities in South Africa.

## Conclusion

Persons with mild to moderate intellectual disabilities improved in terms of their activities of daily living. On the other hand, persons with intellectual disabilities can benefit from occupational therapy interventions in order to improve their ADL ability, even in the absence of any change in their awareness of disability. It is thus important that occupational therapists and other mental health care workers collaborate with nurses in order to ensure that the rehabilitation of intellectually-disabled people is effective.

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## Competing interests

The authors declare that they have no financial or personal relationship(s) which may have inappropriately influenced them in writing this article.

## Authors' contributions

E.J.S. (North-West University) was a Master's degree student who completed a mini-dissertation in partial



fulfilment of the requirements for the degree Magister Curationis in Psychiatric Nursing Science. B.S. (North-West University) was his supervisor and D.K. (North-West University) his co-supervisor. E.J.S. was responsible for the whole research process and B.S. and D.K. gave feedback, structure and guidance during this process, in addition to checking the work for final submission for examination as well as publication.

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