

**EVALUATION IN COMMUNITY BASED REHABILITATION PROGRAMMES: A STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS ANALYSIS**

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**ABSTRACT**

*The purpose of this article was to qualitatively analyse the extent to which community based rehabilitation programmes have been evaluated over the past thirty years. A framework of strengths, weaknesses, opportunities and threats analysis was used in conducting this analysis. Using an extensive search of MEDLINE, 22 articles were located that described and evaluated one or more dimensions of CBR. Three studies each from Australia, India, Zimbabwe and two studies each from England, Philippines, Vietnam and one each from Finland, Guyana, Jamaica, Japan, Pakistan, Papua New Guinea, Thailand, and United States were included in the analysis. A variety of methods used, most evaluations conducted in community settings, focus on mobility related evaluations by most programmes, and development of new instruments were the strengths of CBR evaluations. Some of the weaknesses were lack of consistency in outcome measures, lack of cost benefit and cost effectiveness studies, small sample size of many studies, and lack of focus on other than mobility related disabilities by most projects. The opportunities for CBR evaluations pertain to training assessments, use of mixed models, using indicators from a standard taxonomy, and focusing on medical rehabilitation. The threats to CBR evaluations are a need to prioritise from multifarious activities and having limited resources for evaluation.*

**INTRODUCTION**

Three decades have elapsed since the World Health Organisation (WHO) introduced the community-based rehabilitation (CBR) strategy as part of its goal to accomplish “Health for All by the year 2000”(1). A training manual was produced in 1980 (2) that was revised in

1989 (3) and has now been translated in several languages for use at the village level. In essence, the primary tenet of CBR is to provide primary care and rehabilitative assistance to persons with disabilities, by using human and other resources already available in their communities. The five basic principles of CBR strategy include:

- Utilisation of available resources in the community.
- Transfer of knowledge about disabilities and skills in rehabilitation to people with disabilities, families and communities.
- Community involvement in planning, decision making, and evaluation.
- Utilisation and strengthening of referral services at district, provincial, and national levels that are able to perform skilled assessments with increasing sophistication, make rehabilitation plans, participate in training, and supervision.
- Utilisation of a co-ordinated, multisectoral approach.

The purpose of this article is to qualitatively analyse the extent to which the CBR approach and programmes have been evaluated over the past thirty years. A framework of strengths, weaknesses, opportunities and threats analysis has been used in conducting this analysis (4).

## **METHODOLOGY**

In order to collect the materials for the study a search of MEDLINE database was done. A search of the terms “community based rehabilitation” and “evaluation” in MEDLINE revealed forty four articles of which twenty two met the inclusion criteria. The inclusion criteria were publications: (1) in English language; (2) that dealt with community-based rehabilitation as opposed to institutional based rehabilitation; (3) publications that described any aspect of either a qualitative or quantitative evaluation of a CBR programme and (4) published after 1980. Foreign language publications or publications that did not describe CBR evaluation were excluded. Also excluded were publications not in MEDLINE database, professional reports, or other forms of publication.

## **RESULTS**

The studies have been arranged in the order of the year that these have been published. The studies are summarised in Table 1.

**Table 1. Summary of evaluation-related studies in community-based rehabilitation**

Year of Publication	Country	Design	Outcome Measures	Salient findings
1985 <sup>5</sup>	Finland	Experimental	<ul style="list-style-type: none"> <li>· Self perceived health status</li> <li>· Functional capacity</li> <li>· Independence in household tasks</li> <li>· Social participation</li> <li>· Leisure activities</li> <li>· Costs</li> </ul>	<ul style="list-style-type: none"> <li>· Self perceived health status improved in experimental group</li> <li>· No change in other variables</li> </ul>
1987 <sup>6</sup>	Zimbabwe	Post-test only design	<ul style="list-style-type: none"> <li>· Etiology</li> <li>· Learning targets</li> <li>· Ratings of clients' progress</li> <li>· Participants' reactions to the programme</li> </ul>	<ul style="list-style-type: none"> <li>· 41% undiagnosed, followed by 22% with cerebral palsy</li> <li>· 16% showed outstanding progress with 79% steady progress</li> </ul>
1988 <sup>7</sup>	Guyana	Multiple baseline design & qualitative assessments	<ul style="list-style-type: none"> <li>· Griffiths test of development</li> <li>· Portage assessment</li> <li>· Emotional disturbance of mothers</li> <li>· Attitude of mothers</li> <li>· Child rating</li> <li>· Initial reactions</li> </ul>	<ul style="list-style-type: none"> <li>· 33 children (1.85%) were identified as disabled</li> <li>· Portage and Griffiths assessments showed significant improvement after training.</li> <li>· Parental attitudes also changed significantly</li> </ul>
1988 <sup>8,9</sup>	Pakistan	Pre-test Post-test design	<ul style="list-style-type: none"> <li>· 23 item questionnaire from WHO manual<sup>2</sup> that includes information about type of disability and improvement in disablement</li> </ul>	<ul style="list-style-type: none"> <li>· Difficulty in seeing and moving most common</li> <li>· 80% persons with disability showed improvement in one or more areas</li> </ul>

1992 <sup>10</sup>	Philippines & Zimbabwe	Pre-test Post-test design	<ul style="list-style-type: none"> <li>· Status for six types of disabilities in terms of ability scores</li> <li>· Starting school</li> <li>· Percent employed</li> </ul>	<ul style="list-style-type: none"> <li>· 78% persons with disability in Philippines and 93% in Zimbabwe showed improvement in ability scores</li> <li>· 26% children with disability in Philippines and 69% in Zimbabwe started school</li> <li>· 61% in Philippines employed and 50% in Zimbabwe</li> </ul>
1992 <sup>11</sup>	Jamaica	Post-test only design	<ul style="list-style-type: none"> <li>· Views on CBR worker's visit</li> <li>· Knowledge</li> <li>· Attitudes</li> <li>· Practices</li> </ul>	<ul style="list-style-type: none"> <li>· 25% commented on CBR visit and of these half were positive</li> <li>· Positive changes in knowledge</li> <li>· 67% showed changes in attitudes</li> <li>· 70% said their practices had changed</li> </ul>
1992 <sup>12</sup>	India	Post-test only design	<ul style="list-style-type: none"> <li>· Disease acceptance</li> <li>· Respect in the family</li> <li>· Occupation after rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>· Acceptance about Leprosy had increased in patients</li> <li>· Respect in the family increased for 95% of the leprosy patients</li> <li>· All patients had some kind of occupation</li> </ul>
1996 <sup>13</sup>	Zimbabwe	Post-test only design	<ul style="list-style-type: none"> <li>· Traditional beliefs</li> <li>· Impact of a child with disability on the caregiver</li> <li>· Community involvement</li> <li>· Perceived ability to teach the child</li> <li>· Attitude toward various health services</li> </ul>	<ul style="list-style-type: none"> <li>· 72% respondents in one group were satisfied with CBR</li> <li>· Significant correlation was found between appreciation of CBR and attitude toward various health services</li> <li>· Significant correlation was also found between perceived ability to</li> </ul>

			· Expectations for the future of a disabled child	teach and expectations for the future of the child
1998 <sup>14</sup>	England	Post-test only design	· Community outcomes · Hospital anxiety and depression scale (HAD) · Functional Independence/ Assessment measure (FIM/FAM)	· Community outcome scale was developed and validated
1998 <sup>15</sup>	India	Post-test only design	· Parental adjustment	· Development and validation of a parental adjustment scale for rural parents of disabled children
1998 <sup>16</sup>	Vietnam	Qualitative	· Training content · Training methods · Training evaluation	· Assessment of CBR training needs, content, methods, and evaluation
1998 <sup>17</sup>	United States	Factorial mixed model design	· Examination of CBR related knowledge	· CBR continuing education programme with administrators and professionals, revealed higher gains than in paraprofessionals
1998 <sup>18</sup>	Thailand	Pre-test post-test design	· Walking velocity · Pain levels · Costs	· Statistically significant improvement in pain levels and walking velocity · Costs much cheaper than institution based care
2000 <sup>19</sup>	Philippines	Qualitative audit methodology	· Access · Effectiveness of referral · Satisfaction · Training · Collaboration	· Using personal interviews, focus groups, and records review it was found that the CBR programme was received as important & accessible

				<ul style="list-style-type: none"> <li>· Satisfaction was high</li> <li>· Referral systems were functioning well but could be improved</li> <li>· WHO training manual was useful but training could be improved</li> </ul>
2000 <sup>20</sup> & 2003 <sup>21</sup>	Australia	Qualitative SWOT analysis	<ol style="list-style-type: none"> <li>1. Network partnerships</li> <li>2. Balance of product and process</li> <li>3. Knowledge transfer</li> <li>4. Problem solving</li> <li>5. Financial and resource infrastructure</li> <li>6. Human investments</li> <li>7. Community focus</li> <li>8. Social cohesion</li> <li>9. Participation</li> <li>10. Government partnerships</li> <li>11. Communication</li> <li>12. Community building skills</li> <li>13. Leadership</li> <li>14. Community control over decision making</li> <li>15. Trust</li> </ol>	<ul style="list-style-type: none"> <li>· Strengths: 1, 2, 4, 6, 7, 8, 15</li> <li>· Weaknesses: 5, 10</li> <li>· Opportunities: 3, 9, 12, 13, 14</li> <li>· Threats: 5, 11</li> </ul>
2001 <sup>22</sup>	Vietnam	Qualitative SWOT analysis	<ul style="list-style-type: none"> <li>· Five tenets of WHO model</li> </ul>	<ul style="list-style-type: none"> <li>· Strengths with regard to utilization of available resources, knowledge transfer, &amp; referral</li> <li>· Weaknesses regarding community involvement &amp; multi-sectoral approach</li> </ul>
2002 <sup>23</sup>	Japan	Case control design	<ul style="list-style-type: none"> <li>· 12 Functional fitness tests</li> </ul>	<ul style="list-style-type: none"> <li>· All test items revealed performance deficits in</li> </ul>

				stroke survivors · Need to subgroup CBR clients according to functional fitness
2002 <sup>24</sup>	England	Randomized control trial	· Barthel index (BI) · Brain injury community rehabilitation outcome-39 (BICRO-39) · Functional independence measure (FIM) · Functional assessment measure (FAM) · Hospital anxiety and depression scale (HAD)	· Improvements on BI and BICRO-39 · No changes on HAD · No change in FIM+FAM scores · No changes on socializing or productive employment subscales of BICRO-39 · Benefits can continue years after TBI
2003 <sup>25</sup>	Australia	Qualitative thematic analysis	· Goal statements of Brain injury survivors	· Taxonomy of 21 categories within 5 domains utilizing 125 descriptors was developed
2003 <sup>26</sup>	Papua & New Guinea	Survey and qualitative	· Screen for childhood disability · Perceptions of disabled	· More sensitive tool · Qualitative methods good for eliciting perceptions
2003 <sup>27</sup>	India	Prospective treatment and comparison group design	· Positive and negative syndrome scale (PANSS) · Disability Assessment Schedule (DAS)	· CBR model was more effective in reducing disability · Within the CBR group the compliant group had better outcomes than partially or non compliant individuals
2005 <sup>28</sup>	Australia	Prospective repeated measures design	· Skill development following an outdoor adventure course · Goal-based learning	· Over 80% stated goals were achieved · Approach showed promise for CBR

The first study was done in Posio, Finland (5). Using an experimental design, it was found that self-perceived health of the elderly and disabled persons improved for the experimental group. No changes were found for functional capacity, independence in household tasks, social participation, and leisure activities. The primary costs of rehabilitation were lower for the experimental group, but the secondary costs were the same. The author of the study recommended better training of CBR functionaries in evaluation, involvement of outside experts, planning for evaluation at the beginning, and having an interdisciplinary supervisory team.

The second study was done in four areas of Zimbabwe (6). Using a post-test only design, it was found that a large number of persons with disability (41%) were undiagnosed. Based upon the coordinator's rating of a client's progress, it was noted that 16% demonstrated outstanding progress, 79% steady progress, and 5% showed little, or no progress. Except for one, all the 136 participants found the programme to be helpful. Three aspects were found to be important in programme success: partnerships with agencies, training in mental handicap, and culturally relevant resource materials.

The third study was done in Guyana (7). The study used a multiple baseline design where three data points were taken over a two month period in the baseline and data was collected using the Portage checklist and Griffiths test of development. The study also collected qualitative data on emotional disturbance of mothers, attitude of mothers, parental rating of the child with most other children, and sentence completion to gauge initial responses. The study contacted 815 homes with 4,644 persons and found 33 children as disabled (1.85% of the sample of children). A repeated t-test Griffiths test revealed statistical significance ( $p < 0.01$ ) and so also significance was found on Portage test. Parents also rated significant improvement in their children. Overall, the CBR approach was found to be successful.

The fourth study was done in a slum area (Kachi Abadi) and a village near Lahore in Pakistan (8,9). The questionnaire from the WHO manual (2) in a house-to-house survey was used to gauge the prevalence of disability and identifying persons in need of intervention. Eighty two persons were trained and reevaluated after 1-2 years using the WHO questionnaire and it was found that 66 (80%) had made improvement in one or more areas of the programme such as looking after self, moving around the house, attending school etc.

The fifth study was an evaluation done in Philippines and Zimbabwe in 1992 (10). The study used a pre-test post-test design and found that ability scores after CBR training increased by 78% in Philippines and 93% in Zimbabwe. Likewise, 26% children with disability in Philippines and 69% in Zimbabwe started school and 61% persons with disabilities were employed in Philippines and 50% in Zimbabwe.

The sixth study has been done in Jamaica (11). The study utilised a post-test only design and found that knowledge, attitudes and practices improved in approximately two third of the persons with disability. The seventh study is about Greater Madras Leprosy Treatment and Health Education Scheme (GREMALTES) project done in India (12). The study utilised a post-test only design and found that acceptance about disease had increased in patients. Also respect in the family increased for 95% of the leprosy patients. After rehabilitation, all patients had some kind of occupation.

The eighth study was done in Zimbabwe (13) and interviewed CBR beneficiaries on six variables: (1) traditional beliefs about children with disabilities, (2) impact of a child with disability on the caregiver, (3) community involvement, (4) caregiver's perceived ability to teach the child, (5) attitude toward various health services, and (6) expectations for the future of a disabled child. A significant correlation between appreciation of CBR and attitude toward various health services was found. Also, it was found that perceived ability to teach and expectations for the future of the child had significant correlation. The ninth study was done in England (14) and aimed at developing and validating a community outcomes scale for persons with traumatic brain injury. The tenth study developed and validated a parental attitude scale for parents of disabled children in rural India (15). The eleventh study is a qualitative account of training methods and their evaluation developed in Vietnam for community based rehabilitation (16). The twelfth study was physically based in The United States but entailed a 4-day continuing education training for 308 administrators, professionals and para-professionals from several countries (17). The training showed improvement in the knowledge of the participants – more in administrators and professionals as compared to para-professionals.

The thirteenth study done in Thailand (18) aimed at examining effectiveness and cost of the CBR programme in a slum after a period of three years. Using a pre-test post-test design, effectiveness of the programme was assessed by measuring walking velocity, pain levels,

and reasons for discontinuing the use of the CBR programme. Statistically significant changes in walking velocity and pain levels were found. Only nine out of 178 patients stopped using CBR because their condition did not improve. The cost per patient per day, was found to be approximately Bt 111, which was much cheaper than institution based rehabilitation.

The fourteenth study was done in Philippines (19) after seven years of operation and used qualitative approach of audit where records were reviewed, in-depth personal interviews were conducted with key informants and focus groups discussions were conducted. It was found that CBR programme was perceived as important and accessible. The referral systems were functioning well but there was scope for improvement. The clients and their families were satisfied with the services and they were willing to help in the continuation of the programme. The WHO Training Manual was rated as useful. However, there was scope for improvement in training methods, duration, follow-up, and translation into the local language.

The fifteenth study was done in Australia and published in 2001 (20) and 2003 (21). It utilised participatory rural appraisal in its planning and conducted qualitative SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis around 15 identified characteristics. It was found that network partnerships, balance of product and process, problem solving, human, intellectual and social investments, community focus, social cohesion and relationship of trust were strengths of the CBR programme. Financial and resource infrastructure and partnership with government and policy infrastructure, were identified weaknesses. There were greater opportunities for knowledge transfer, widespread participation, community building skills, leadership, and community control over decision making. The threats pertained to financial and resource infrastructure and communication system.

The sixteenth study was an evaluation done in 2001, in Vietnam (22). A participatory SWOT analysis method was utilised for evaluation. The data were examined against the WHO model. Strengths of the programme were found in three out of five areas, namely, utilisation of available resources, transfer of knowledge about disabilities, and utilisation and strengthening of referral systems. The weaknesses were in the areas of community involvement in planning and decision making and co-ordinated multi-sectoral approach. The seventeenth study was done in Japan (23) that compared stroke survivors with controls and found that functional fitness levels were less and varied in stroke survivors. The study recommended that CBR projects should group individuals according to functional fitness. The eighteenth study looked

at traumatic brain injury survivors in England and used a randomised controlled design (24). The study found that years after injury, the benefits continue in TBI survivors and must be harnessed by CBR programmes. The nineteenth study done in Australia looked at qualitatively classifying client goals in CBR programmes with acquired brain injury survivors (25). A taxonomy related to five categories of goals was developed : (1) me and my body, (2) looking after myself, (3) addressing psychosocial issues, (4) relating to others, and (5) services and information.

The twentieth study was done in Papua and New Guinea (26) and developed a ten question screening questionnaire for childhood disability and also collected qualitative data from persons with disabilities to understand their perceptions. The twenty first study was done in India with persons suffering from chronic schizophrenia (27). Using a prospective treatment and comparison group design, the study found that the CBR model was more effective in reducing disability and within this group the compliant group had better outcomes than partially, or non compliant individuals.

The final study is from Australia (28), in which a three stage programme was evaluated. In the first stage, practical activities were used to build social skills. In the second stage a 9-day outdoor adventure course was introduced with physically challenging tasks and in the third stage individuals worked on individual goals that they had set. This programme that emphasised goal setting was successful in achieving 80% of the goals and offers potential for CBR programmes.

## **DISCUSSION**

The purpose of this study was to examine CBR programme evaluations and discuss the strengths, weaknesses, opportunities and threats from these analyses. In the analyses, three studies each from Australia, India, Zimbabwe; two studies each from England, Philippines, Vietnam; and one study each from Finland, Guyana, Jamaica, Japan, Pakistan, Papua and New Guinea, Thailand, and United States were included.

### **Strengths**

One of the strengths of the evaluations is that they have been varied in their methodology. Two studies (5,24) used randomised control design, Six used quasi-experimental designs (8,10,18,23,27,28), six used post-test only designs (6,11,12,13,14,15) five used qualitative designs

(16,19,21,22,25), and three used mixed model designs (7,17,26). The use of a variety of methods provides an opportunity to both generate hypotheses and test hypotheses. It adds to the repertoire of potential evaluators an array of methods to pick and choose from.

Almost all the evaluations of CBR programmes have been based in community settings, which is another of its strengths. The approach of CBR is different from the institutional-based approaches in the fact that these are based in community settings. The perceptions of the community are central to planning and evaluation of CBR programmes and it is praiseworthy to find, that such is the case.

In terms of the types of disabilities focused upon, most of the evaluations have focused on mobility-related assessments. Rehabilitation of brain injured persons has also been the focus of many country CBR programmes, especially the ones in developed countries (24,25,28).

Many projects have used existing instruments and validated those to their populations, while other projects have developed new measures. Noteworthy among those are the community outcomes scale developed in England (14) and a parental adjustment scale developed in rural India (15).

### **Weaknesses**

One of the weaknesses of the CBR evaluation that is evident, is that there is lack of consistency in outcome measures. Wirz and Thomas have also pointed out at this weakness in a seminal article on this issue (29). Many of the outcome measures describe the practice as opposed to effectiveness.

Only one study has measured the costs of the CBR programme (18) and only one study has assessed the progress on the WHO model (22). More studies that discuss cost benefit and cost effectiveness issues and also examine the effectiveness in terms of the WHO model are needed.

Another weakness about which not much can be done is the small sample size utilised by many of the evaluations. What can be done in such situations is that qualitative and mixed models be used instead of quantitative models. Another problem in some of the descriptions is that the writing style could be better and details of the methods used could be explicitly elaborated.

A final weakness pertains to the fact that other than mobility related assessments, other disabilities have not been adequately addressed. For example, only one evaluation (27) pertains to mental disability.

### **Opportunities**

Assessment of training has been addressed in an evaluation of a few CBR projects. There is ample opportunity for systematic evaluation of training efforts. Such evaluation can be done in terms of content, methods, and impact in terms of changes in knowledge attitudes, and behaviours.

There is greater opportunity regarding use of mixed models in conducting evaluations. There is need for combining both qualitative and quantitative methods in conducting CBR evaluation. Both these differing methodologies have a lot to contribute to CBR evaluation. The use of participatory approaches is mandatory, given the nature of the CBR approach. However, this has not been utilised completely by all CBR evaluators.

There is also an opportunity to use a variety of methods such as case studies, focus groups, nominal groups, participatory techniques, content analysis, and key informant interviews (30).

In terms of indicators, Wirz and Thomas (29) have presented a taxonomy of indicators that is quite useful. They have identified three domains, namely maximising the potential of the person with disability, service delivery, and the environment where the person with disability lives. In the domain of maximising the potential the following are included: functional independence, education, economic independence, inclusion, community leadership roles and participation in/ownership of programmes. In the domain of service delivery programme planning and management, financial and people management, training and sustainability are included. In the third domain of environment, included are family attitudes and involvement and community attitudes and inclusion of PWD. Using a systematic framework like this one, by all CBR projects is an important opportunity. Inter-country consensus meetings that refine this classification and make it useful for adoption by all CBR projects are needed.

Some authors have talked about systematisation of evaluation of medical rehabilitation (31). Medical rehabilitation is an important component of CBR and must be evaluated. A tracer approach consisting of three aspects of medical rehabilitation offers potential opportunity for

bringing in systematisation. The three components of this approach are focus on technical quality based on minimum technical standards for each impairment; interpersonal quality that entails observation of service sessions; and management (structural) quality which involves comparing rehabilitation goals of service users and service providers.

### **Threats**

A potential threat for CBR evaluations lies in the fact that these projects have multifarious activities and focusing on all activities in evaluation, is seldom possible. Mitchell (32) has suggested and categorised priority areas into four domains. The first is that of service delivery system where issues such as utilisation of CBR worker needs to be evaluated. The second domain is that of technology transfer where issues such as effectiveness of the WHO Manual needs to be evaluated. The third domain is that of community involvement, where issues such as assessing changes in attitude of community towards disabled people is evaluated. The final domain is that of organisation and management, where issues such as identification of the best organisational model for CBR is evaluated.

CBR, by its nature operates in resource-poor settings. In such settings, it is often difficult to find resources for conducting evaluation at the expense of programming. This is a real threat to CBR evaluations. Conscious efforts need to be made in the planning stage itself, to budget for evaluation.

### **SUMMARY AND CONCLUSIONS**

The article examined twenty two CBR evaluations, to develop a list of strengths weaknesses, opportunities, and threats from these articles for future evaluators. The strengths included variety of methods used, most evaluations having been conducted in community settings, focus on mobility-related evaluations by most programmes, and development of new instruments. Some of the weaknesses of CBR evaluations were lack of consistency in outcome measures, lack of cost-benefit and cost-effectiveness studies, small sample size used in many studies, and lack of focus on other than mobility-related disabilities by most projects. The opportunities for CBR evaluations pertained to systematisation of training assessments, use of mixed models, using indicators from a standard taxonomy, and focusing on medical rehabilitation. The threats to CBR evaluations were the need to prioritise from multifarious activities and having limited resources for evaluation.

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## REFERENCES

1. World Health Organization (WHO). *Resolution on disability, prevention and rehabilitation* (A29.68) Geneva: WHO, 1976.
2. Helander E, Mendis P, Nelson G. *Training the disabled in the community*, version 2. Geneva, WHO, 1980.
3. Helander E, Mendis P, Nelson G, Goerdts A. *Training in the community for people with disabilities*. Geneva, WHO, 1989.
4. Grosz P. *Marketing your practice. Do you need SWOT team?* CDS Review 2002;95(3):10-16.
5. Kivela SL. *Problems in intervention and evaluation. A case report of a community-based rehabilitation and activation programme for the elderly and disabled*. Scandinavian Journal of Primary Health Care 1985;3(3):137-140.
6. Mariga L, McConkey R. *Home-based learning programmes for mentally handicapped people in rural areas of Zimbabwe*. International Journal of Rehabilitation Research 1987;10(2):175-183.
7. O'Toole B. *A community-based rehabilitation programme for pre-school disabled children in Guyana*. International Journal of Rehabilitation Research 1988;11(4):323-334.
8. Finnstam J, Grimby G, Nelson G, Rashid S. *Evaluation of community-based rehabilitation in Punjab, Pakistan: I: Use of the WHO manual, 'Training disabled people in the community'*. International Disability Studies 1988;10(2):54-58.
9. Grimby G, Finnstam J, Nelson G, Rashid S. *Evaluation of community-based rehabilitation in Punjab, Pakistan: II: The prevalence of diseases, impairments, and handicaps*. International Disability Studies 1988;10(2):59-60.
10. Lagerkvist B. *Community-based rehabilitation—outcome for the disabled in the Philippines and Zimbabwe*. Disability and Rehabilitation 1992;14(1):44-50.
11. Thorburn MJ. *Parent evaluation of community based rehabilitation in Jamaica*. International Journal of Rehabilitation Research 1992;15(2):170-176.
12. Gershon W, Srinivasan GR. *Community-based rehabilitation: an evaluation study*. Leprosy Review 1992;63(1):51-59.
13. Finkenflugel HJ, Van Maanen V, Schut W, Vermeer A, Jelsma J, Moyo A. *Appreciation of community-based rehabilitation by caregivers of children with a disability*. Disability and Rehabilitation 1996;18(5):255-260.

14. Stilwell P, Stilwell J, Hawley C, Davies C. *Measuring outcome in community-based rehabilitation services for people who have suffered traumatic brain injury: the Community Outcome scale*. Clinical Rehabilitation 1998;12(6):521-531.
15. Pal DK, Chaudhury G. *Preliminary validation of a parental adjustment measure for use with families of disabled children in rural India*. Child: Care Health and Development 1998;24(4):315-324.
16. Winterton T. *Providing appropriate training and skills in developing countries*. International Journal of Language and Communication Disorders 1998;33 Suppl: 108-113.
17. Willer B, Button J, Willer C, Good DW. *Performance of administrators, professionals, and paraprofessionals during community-based brain injury rehabilitation training*. The Journal of Head Trauma Rehabilitation 1998;13(3):82-93.
18. Jitapunkul S, Bunnag S, Ebrahim S. *Effectiveness and cost analysis of community-based rehabilitation service in Bangkok*. Journal of Medical Association of Thailand 1998;81(8):572-578.
19. Lopez JM, Lewis JA, Boldy DP. *Evaluation of a Philippine community based rehabilitation programme*. Asia Pacific Journal of Public Health. 2000;12(2):85-89.
20. Kuipers P, Kendall E, Hancock T. *Developing a rural community-based disability service: (I) service framework and implementation strategy*. Australian Journal of Rural Health. 2001;9(1):22-28.
21. Kuipers P, Kendall E, Hancock T. *Evaluation of a rural community-based disability service in Queensland, Australia*. Rural Remote Health. 2003;3(1):186.
22. Sharma M, Deepak S. *A participatory evaluation of community-based rehabilitation programme in North Central Vietnam*. Disability and Rehabilitation 2001;23(8):352-358.
23. Sakai T, Tanaka K, Holland GJ. *Functional and locomotive characteristics of stroke survivors in Japanese community-based rehabilitation*. American Journal of Physical Medicine and Rehabilitation 2002;81(9):675-683.
24. Powell J, Heslin J, Greenwood R. *Community based rehabilitation after severe traumatic brain injury: a randomised controlled trial*. Journal of Neurology, Neurosurgery, and Psychiatry 2002;72(2):193-202.
25. Kuipers P, Foster M, Carlson G, Moy J. *Classifying client goals in community-based ABI rehabilitation: a taxonomy for profiling service delivery and conceptualizing outcomes*. Disability and Rehabilitation 2003;25(3):154-162.
26. Byford J, Veenstra N, Gi S. *Towards a method for informing the planning of community-based rehabilitation in Papua and New Guinea*. Papua and New Guinea Medical Journal 2003;46(1-2):63-80.
27. Chatterjee S, Patel V, Chatterjee A, Weiss HA. *Evaluation of a community-based rehabilitation model for chronic schizophrenia in rural India*. British Journal of Psychiatry 2003;182:57-62.

28. Walker AJ, Onus M, Doyle M, Clare J, McCarthy K. *Cognitive rehabilitation after severe traumatic brain injury: a pilot programme of goal planning and outdoor adventure course participation.* Brain Injury 2005;19(14):1237-1241.
29. Wirz S, Thomas M. *Evaluation of community-based rehabilitation programmes: a search for appropriate indicators.* International Journal of Rehabilitation Research 2002;25(3):163-171.
30. Sharma M. *Viable methods for evaluation of community-based rehabilitation programmes.* Disability and Rehabilitation 2004;26(6):326-334.
31. Evans PJ, Zinkin P, Harpham T, Chaudury G. *Evaluation of medical rehabilitation in community based rehabilitation.* Social Science and Medicine 2001;53(3):333-348.
32. Mitchell R. *The research base of community-based rehabilitation.* Disability and Rehabilitation. 1999;21(10-11):459-468.