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A SYSTEMATIC REVIEW TO IDENTIFY SYSTEM RELATED ELEMENTS THAT CAN BE USED TO EVALUATE COMMUNITY-BASED REHABILITATION (CBR) PROGRAMMES

by

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A research report submitted in partial fulfillment of the requirements of the masters in physiotherapy (community) degree, Faculty of Health Sciences, UNIVERSITY OF THE WITWATERSRAND

Johannesburg, South Africa
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DECLARATION

I, Pauline Kusuwo, do hereby declare that the work presented in this research report is my own work which has never been submitted to this or any other university. It is being submitted to the University of the Witwatersrand, South Africa in partial fulfilment of the MSc. Physiotherapy programme. This research report shall not be submitted to any other university or degree programme in the future.

Signature……

Date……

ABSTRACT

Background: Community-based rehabilitation (CBR) is a community development strategy used to equalise opportunities for people with disabilities. CBR has been in use since 1978 and is implemented in more than 90 countries, however, there is a dearth of literature on the effectiveness of CBR. Research has shown that there is some reporting going on in CBR which in most cases describes the process of CBR rather than evaluate the CBR programmes. There is little evidence in the form of randomised control trials or systematic reviews, hence the field of CBR, in general, has been described as 'data rich but evidence poor'. Several authors have pointed to the need for indicators that can be used facilitate the evaluation of CBR. Critics of the common set of indicators for CBR evaluation have singled out the heterogeneity of CBR programmes as a limitation to their use. Other studies, however, acknowledge that there are different areas of focus in CBR but suggest a comprehensive set of indicators from which one can choose to enable the evaluation of the different components of CBR. There are different aspects of CBR that can be evaluated which include the impact on the environment, the individual and the conditions under which the programme operates.

Aim: The overall aim of the study was to identify the system-related elements that can be used to evaluate CBR programmes.

Method: The study design was a qualitative systematic review. A systematic search was conducted on four data bases namely SCOPUS, PubMed, PsychINFO, Medline and on the WHO website. Grey literature was searched on Google scholar. Reviewed literature was for the period between 2005 and 2015. Articles in English pertaining to CBR evaluation from all over the world were included in this systematic review. No systematic reviews were included. The Evans (2003) appraisal tool was used to determine the level of evidence for the included articles. The methodological quality was assessed using the Critical Appraisal Skills Programme (CASP) for qualitative studies and the Strengthening The Reporting of Observational Studies (STROBE) checklist for quantitative observational studies.

Results: 1734 titles were perused after which 49 abstracts were obtained. Of these, 34 were excluded for various reasons and 16 full articles were obtained. Duplicates were removed leaving nine articles for inclusion in the review. Three more articles were from the reference lists of the included studies bringing the total studies for possible review to twelve. Of the twelve studies ten were qualitative studies, one was a quantitative study and one was an

expert opinion. The level of evidence for studies was good for three studies, fair for seven and poor for two studies. Two studies were subsequently excluded because of poor ranking on the hierarchy of evidence as influenced by methodological quality resulting in a sample size of ten. The focus of CBR varied across the reports with most focussing on the health, social and empowerment domains of the CBR matrix, and none focussing on education and only a few elements covering livelihoods. Forty-four elements were identified for evaluation of CBR. The categories of the CBR elements identified were Empowerment, Human resources, Service delivery, Policy and Management. Twenty-five elements were identified as evaluating the system under four subheading namely Policy, Service delivery, Community participation and Management.

Conclusion: There still is a paucity of literature on CBR evaluation with qualitative methods being predominantly used in CBR evaluation. The quality of CBR literature is generally fair. CBR evaluations tend to focus on health, empowerment and social domains of the CBR matrix and therefore the elements identified for CBR evaluation focussed on the same domains. Of these twenty five elements which can be used to evaluate CBR systems were identified. There is need to expand CBR services to include the education and livelihood domains of the CBR matrix.

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PS. It is with a heavy heart that I learnt of the passing on of Vyvienne M'kumbuzi before final submission of this project. You will always be remembered as a great physiotherapist, an outstanding academic and a good role model. May your dear soul rest in peace.

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LIST OF ABBREVIATIONS

AGREE	- Appraisal of Guidelines, Research and Evaluation
CASP	- Critical Skills Appraisal programme
CBR	- Community Based Rehabilitation
CRPD	- Convention on the Rights of Persons with Disabilities
FCG	- Focus Group Discussion
HIV	- Human Immune-deficiency Virus
ILO	- International Labour Organisation
M & E	- Monitoring and Evaluation
NCCMT	- National Collaborating Centre for Methods and Tools
NGO	- Non-governmental organisation
PICO	- Population, Intervention, Comparison, Outcome/Population, Phenomena of Interest (I), Context, Outcomes
PWD/PWDs	- People with Disability(ies)
RCT/RCTs	- Randomised Control Trial(s)
STROBE	- Strengthening The Reporting of Observational Studies
UNESCO	- United Nations Educational Scientific and Cultural Organisation
WCPT	- World Confederation for Physical Therapists
WHO	- World Health Organisation

DEFINITION OF TERMS

Activity: the execution of a task or action by an individual (World Health Organisation, 2001).

Activity limitations: difficulties an individual may have in executing activities (World Health Organisation, 2001).

Community Based Rehabilitation (CBR): community development strategy for the equalisation of opportunities, social inclusion, rehabilitation and poverty reduction of people living with disabilities (World Health Organisation et al., 2010).

Disability: an umbrella term for impairments, activity limitations and participation restrictions, denoting the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual (environmental and personal) factors (Madden et al. 2014).

Impairment: any loss or abnormality of psychological, physiological or anatomical structure or function (World Health Organisation, 2001).

Indicators: numerical or textual values that provide information about a phenomenon (Skempes and Bickenbach, 2015).

Participation: involvement in a life situation (World Health Organisation, 2001).

Participation restrictions: problems an individual may experience in involvement in life situations (World Health Organisation, 2001).

Rehabilitation: the process aimed at restoring function through the coordination of medical, social, psychological and vocational measures with the ultimate goal of social integration and positive health (Saurabh et al., 2015).

System: a combination of services organised to meet the needs of a specific population (Kidd et al., 2014).

System elements: the different components of the system that interlink to define the behaviour of the system (Atun, 2012).

CHAPTER 1

1 INTRODUCTION

1.1 BACKGROUND

In 1978 the World Health Organisation (WHO) launched Community-Based Rehabilitation (CBR), which is a community development strategy for the equalisation of opportunities, social inclusion, rehabilitation and poverty reduction of people living with disabilities (World Health Organisation, United Nations Educational, Scientific and Cultural Organisation and International Disability and Development Consortium, 2010). CBR was designed as a model for delivery of rehabilitation services for areas that are hard to reach in the developing countries (McColl, Short, Godwin, Smith, Rowe, O'Brien and Donelly, 2009). This was after the realisation that ten percent of the world's population had a form of disability, the majority of whom lived in developing countries (Zambone and Suarez, 2010). The percentage of PWDs has since increased to 15% (Grandisson, Hebert and Thibeault, 2014a), due to the increased life expectancy of people with disabilities (PWDs), the proportional increase of the elderly in the world's population (Mitchell, 1999b, Kendall, Muenchbeger and Catalano, 2009) and the complications of HIV resulting in permanent, temporary or episodic disability (Hanass-Hancock, Strode and Grant, 2011). All these thus present disability as an international health problem (Mitchell, 1999b). It has been noted that where effective interventions that enable adequate rehabilitation and integration of PWDs in society do not exist, their livelihoods, those of their families and the community at large are affected (Ministry of Health Botswana, 2011). Disability thus is not only a problem for the individual but a community issue and thus requires the input and participation of different stakeholders in order to adequately address the factors affecting PWDs.

1.1.1 Systems

According to Kidd, McKenzie and Virdee, (2014), a system is a combination of services organised to meet the needs of a specific population. There are system barriers to accessing rehabilitation the world over, which enlarge the gap between the need for and provision of rehabilitation services (Skempes and Bickenbach, 2015, World Health Organization and World Bank, 2011). The mismatch between the needs of PWDs and availability of rehabilitation services has adverse effects on the functional status and health states of PWDs thus denying them the fundamental right to community participation (Skempes and Bickenbach, 2015, World Confederation of

Physical Therapists, 2003). The inaccessibility of rehabilitation services for PWDs worsens their social disadvantage, leading to social isolation, a consequence of stigma and discrimination (Skempes and Bickenbach, 2015, Lusli, Zweekhorst, Miranda-Galarza, Peters, Cummings, Seda, Bunders and Irwanto, 2015). The stigma and discrimination experienced by PWDs is further worsened by the communities' cultural beliefs for example there are a lot of myths regarding causes of disabilities which include witchcraft, a curse, sin, making PWDs social outcasts (Reynolds, 2010, Dalal, 2006). In order to address the inequalities faced by PWDs, coordinated, evidence informed interventions need to be put in place at all levels of the system (World Confederation of Physical Therapists, 2003, Skempes and Bickenbach, 2015). The interventions that are put in place to address the inequalities faced by PWDs should focus on primary and secondary prevention rather than tertiary prevention of disabilities. Focussing rehabilitation services at tertiary facilities where professionals are based reinforces tertiary prevention of disabilities (World Confederation of Physical Therapists, 2003) which is needed and vital. However, focussing on tertiary prevention may be problematic hence the need to strengthen primary and secondary prevention which will help address the root causes of disability and reduce its impact on the individual, family and society.

Health systems play a significant role in coming up with effective ways to address emerging health problems, burden of disease, ill health and poverty as a result of communicable and non-communicable diseases (Atun, 2012). It has become important consequently for health systems to adopt health policies and strategies that promote social inclusion, human rights and independence of PWDs (Skempes and Bickenbach, 2015). Such strategies will lead to decreased use of hospital and institutional services, and strengthen community services (Kendall et al., 2009). The improved access to rehabilitation associated with community services compared to institution based services has made community based interventions more desirable as they are also less expensive to the system (Kendall et al., 2009, Mitchell, 1999b). As a response to the inadequacy of rehabilitation services in serving PWDs, the WHO came up with CBR (Mitchell, 1999b). Rehabilitation is not the sole focus of CBR, necessitating a change in the health system to incorporate non-medical services for example social and educational services (Dawad and Jobson, 2011). Analysing and re-organising the system in the CBR context is important to facilitate collaboration between government structures, non-governmental organisations and disabled people's organisations (Dawad and Jobson, 2011) in order to address the social, educational, health and livelihood needs of PWDs.

Systems thinking, a multi-pronged approach to service provision, if applied to CBR will lead to both technical and allocative efficiency leading to better health outcomes (Tanner, 2005). Systems thinking is important when planning and introducing new innovations aimed at improving health outcomes or evaluating the uptake of proven innovations (Atun, 2012). Systems analysis requires consideration of the interaction of the system elements and the context in which the programme operates (Atun, 2012). The elements of a system are the different components that interlink to define the behaviour of the system (Atun, 2012). The way the services are organised impacts positively or negatively on the outcome and impact of the particular services.

1.1.2 Organisation of CBR Programmes

The organisation of CBR programmes is product of the system that is in place and affects the extent to which they achieve their objectives (Mitchell, 1999b, International Labour Organisation, United Nations Educational, Scientific and Cultural Organisation and World Health Organisation, 2004). It is important according to Mitchell (1999b), to integrate CBR into the health system and social services for effective service delivery. CBR programmes aligned to government structures have been observed to have greater impact than those working in isolation (Mitchell, 1999a). The International Labour Organisation (ILO), United Nations Educational Scientific and Cultural Organisation (UNESCO), and the World Health Organisation (WHO) in the joint position paper, (International Labour Organisation et al., 2004), recommended that the following common elements that contribute to successful CBR programmes be in place:

"i) National level support through policies, co-ordination and resource allocation.
ii) Recognition of the need for CBR programmes to be based on a human rights approach.
iii) The willingness of the community to respond to the needs of their members with disabilities.
iv) The presence of motivated community workers."

(*International Labour Organisation et al., 2004 pg. 9*)

In addition to the CBR policy framework, clarity in the approach, community participation and supportive community workers, effective rehabilitation systems should have three operating tiers associated with the different levels of government (Dawad and Jobson, 2011, Mitchell, 1999a). These are a community level (CBR), a

middle level (district) and a specialist rehabilitation level. Three levels of personnel that can be part of the workforce in the CBR initiative have also been identified to ensure efficiency in CBR programmes, these are grassroots workers/field workers who are members of the local community, who understand the availability of local resources, services, language and culture; middle level rehabilitation workers who have had more specialised training and have obtained some qualification, and professionals mostly found at the tertiary level and act as consultants for the community workers at grassroots level (Chappell and Johannsmeier, 2009, Zambone and Suarez, 2010). The three levels of government are thus manned by these different levels of personnel to ensure successful programme implementation. Seventy percent of disability services should be conducted in the PWDs homes or community by local CBR workers (Mitchell, 1999b).

1.1.3 CBR Programme Evaluation

Community-based rehabilitation has been practiced for a long time and is implemented in more than 90 countries (Grandisson et al., 2014a). It is perceived to have benefits associated with improving the livelihoods of PWDS, but in spite of the widespread implementation, evaluation of CBR programmes is not common (Grandisson, Thibeault, Hebert and Templeton, 2014b, Mitchell, 1999b). Research on CBR evaluation is scanty with only 18 research papers on impact of CBR published in journals over a period of 20 years (Velema, Ebenzo and Fuzikawa, 2008a). It is noteworthy, however, that there are reports being generated in CBR programmes but there still remains insufficient evidence on the effectiveness of the CBR strategy and the conditions under which it is most effective (Finkenflugel, Wolffers, Huijsman, 2005a). The evaluations that have been done tend to describe the CBR strategy rather than to assess the effectiveness of the CBR programme (Wirz and Thomas, 2002).

According to Chung, Packer and Yau, (2011), a variety of methods have been used to evaluate CBR programmes with qualitative and post-test designs being most common. The lack of consistency in outcome measures and the lack of focus on evaluation have been pointed out as weaknesses in these evaluations. The development of robust indicators for evaluation and research purposes has not taken place (Chung et al., 2011), necessitating the development of a framework of indicators for CBR programme evaluation. In order for CBR to survive as a strategy, it is important that a more effective evaluation system be in place in order to document the outcomes achieved (Boyce and Ballantyne, 2000) which could, in the

long run improve funding for CBR programmes and thus strengthen its implementation.

1.2 RESEARCH PROBLEM

Literature points out that although CBR has been in existence for a long time, there is very little evidence that demonstrates its effectiveness (Grandisson et al., 2014b, Mitchell, 1999b). Where research has been done, indicators are lacking to objectively assess the programmes (Wirz and Thomas, 2002, Chung et al., 2011, Skempes and Bickenbach, 2015). The lack of evidence on the effectiveness of CBR programmes may eventually lead to lack of support for the CBR strategy (Boyce and Ballantyne, 2000). A lack of support for the CBR strategy will result in reduced funding for CBR programmes thereby disadvantaging the majority of PWDs who are in developing countries where resources are limited and poverty more pronounced (Mitchell, 1999b).

It is of importance, therefore, as pointed out by Boyce and Ballantyne (2005), to come up with an evaluating strategy that will ensure the continued support for CBR programmes and therefore ensure the existence of the CBR strategy. The evaluation strategy includes indicators that can assess the organisation and implementation of CBR programmes (Skempes and Bickenbach, 2015) which is the system in place for CBR programmes.

Cleaver and Nixon (2013) noted that there are a few articles on CBR from low to middle income countries and that most of them were descriptive and theoretical, with the main themes being implementation and stakeholders. Finkenflugel et al. (2005a) concluded in their systematic review, that there were few systematic reviews done on CBR and that research in CBR had no real focus. The evidence base for CBR was as a result described as fragmented and incoherent across all the aspects of CBR thus justifying the need for CBR focused systematic reviews.

1.3 STATEMENT OF PURPOSE

This study reviewed the literature to identify the specific system-related elements that have been used in different CBR programme evaluations in order to come up with an evaluation standard for CBR programme systems. With most of the research on CBR evaluation having been identified to be mostly descriptive and/or qualitative it was

also important to assess the quality and type of research on CBR programme evaluation.

1.4 RESEARCH QUESTION

According to CBR evaluation literature, what are the system-related elements that can be used to evaluate a CBR programme?

1.5 AIM OF THE STUDY

To identify, from literature, the system related elements that were used to evaluate CBR.

1.6 OBJECTIVES OF THE STUDY

- To determine the availability of literature on CBR evaluation.
- To determine the quality of literature on CBR.
- To determine the types of elements used in CBR evaluation literature.
- To document the system related elements that were used to evaluate CBR programmes.

1.7 SIGNIFICANCE OF THE STUDY

The significance of this systematic review was:

- To contribute to the body of knowledge on evaluation of CBR. This study through content analysis assessed literature to identify and document the key system elements that can be used to evaluate CBR.

- To contribute to the availability of clear indicators in CBR evaluation, so that there may be an improvement in consistency when measuring programme outcomes thus eliminating subjectivity in CBR programme evaluation (McColl et. al. 2009).

- To provide a basis for further research in order to verify and test the documented elements.

- To contribute to the ability to quantitatively assess CBR which will ensure the continued existence of CBR and may increase support for CBR in terms of both financial and human resources.

1.8 TYPE OF STUDY

A qualitative systematic review was done. Four databases and the World Health Organisation were searched systematically using key words. Titles were reviewed and abstracts of relevant articles were retrieved. Full articles of those that were appropriate to the topic were obtained and read to determine eligibility based on inclusion criteria. The full articles were then assessed for methodological quality. Content analysis of the suitable articles was done manually and with the aid of a computer programme (N-Vivo™). The PICO approach guided the review. The full methodology is given in chapter 3.

1.9 SUMMARY

To summarise, chapter one introduced CBR what it is and its relevance to PWDs. A brief background on the effects of disability on the individual, family and community was highlighted. The importance of the system in CBR programmes and an introduction to system elements was given. The rationale, purpose and objectives of the study were also presented. Chapter 2 presents a review of the literature relevant to the research problem and objectives. Chapter 3 gives the full methodology from search strategy to data analysis with the results obtained presented in chapter 4. In chapter 5 the results are discussed while chapter 6 documents the conclusion and recommendations of this study.

CHAPTER 2

2. LITERATURE REVIEW

This literature review critically examines literature on disability, its causes and its effects on the people with disabilities (PWDs). It introduces Community Based Rehabilitation (CBR) as a method of addressing these problems, shows how CBR evaluation has taken place and identifies the indicators that have been used for the process of monitoring and evaluation (M & E). The process of M & E, what it is and why it is important in CBR is then discussed. Furthermore, the definition of what a system is and how the system affects service delivery in CBR is reviewed. Lastly, content analysis, different research appraisal methods and their relevance to systematic reviews are discussed.

Articles reviewed in this chapter were sourced from EBSCHO HOST through multiple data bases including PUBMED, PsychINFO and Embase. Keywords that guided the literature search were disability, disability and poverty, disability and attitudes, community-based rehabilitation, community based rehabilitation and evaluation, community-based rehabilitation and indicators, health systems, content analysis, CASP, STROBE and AGREE II,. Google scholar was used to search for guidelines and literature from organisations like the World Health Organisation.

2.1 DISABILITY

Disability is an umbrella term for impairments, activity limitations and participation restrictions, denoting the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual (environmental and personal) factors (Mont, 2007, World Health Organization, 2001, Madden, Dune, Lukersmith, Hartley, Kuipers, Gargett and Llewellyn, 2014). According to the World Health Organization (2014) disability action plan, it is estimated that one billion people live with disability worldwide. Between 110 million and 190 million of these are in need of rehabilitation as they experience difficulties in functioning (World Health Organization, 2014). Trends in environmental and health conditions of communities affect national patterns of disability including factors such as the incidence of falls, road traffic accidents, violence, chronic diseases, congenital conditions and natural disasters (World Health Organization, 2014). The World Bank in the disability prevalence report (Mont, 2007), noted that disability is no longer viewed as medical condition based on the medical model but a socially generated problem. A person

with impairments is disabled not because of the impairment but because of the social and environmental factors that limit their ability to function (barriers). These can be in the form of negative attitudes towards PWDs and/or inaccessibility of buildings and facilities, which prohibit one from participating in activities considered normal for them. This is the social model which advocates for a holistic approach towards addressing issues faced by PWDs (Wade and Halligan, 2004, Pollard and Sakellariou, 2008).

2.1.1 The Effect of Disability on PWDs

People with disabilities, whether acquired or congenital, face stigma which impacts negatively on their emotions, thoughts, behaviour and relationships (Lusli et al., 2015). Lusli et al. (2015) used in-depth interviews of seven PWDs and seven people affected by leprosy; as well as focus group discussions with 13 participants (seven affected by leprosy and six PWDs) to explore the effect impact of disability on PWDs. The participants alluded to their feelings of being shy, powerless, sad, confused, hopeless and inferior as a result of the stigma they faced. This stigma led to feelings of social isolation. Some felt like they were a burden to their families, with most expressing a lack of motivation as a result of stigma which deterred them from seeking gainful employment. While this was a study on a small sample size of PWDs and leprosy in Indonesia, it gave insight into the attitudinal barriers that lead to social exclusion in people considered ‘abnormal’. This is consistent with literature that highlights that PWDs face stigma as a result of beliefs which for example associate disability with sin leading to PWDs being kept hidden from the world (Simkhada Shyangdan, van Teijlingen, Kadel, Stephen and Gurung, 2013). PWDs also face problems with being socially accepted, aggressive behaviour towards them, lack of physical rehabilitation and inaccessibility of disability identification cards which would enable them to receive some services for free (Nualnetr, 2009). Groce (2004), concludes by saying that the biggest challenges faced by young people with disabilities are social isolation, prejudice and discrimination.

People with disabilities are subjected to health rights violations, denied access to healthcare and receive bad treatment within the healthcare system (Skempes and Bickenbach, 2015). For example PWDs who test positive for the Human Immune-deficiency Virus (HIV) or get pregnant find themselves facing stigma, discrimination and prejudice which hinder them from accessing care (Parsons, Bond and Nixon, 2015, Hanass-Hancock et al., 2011). They are subjected to scornful looks from other patients in queues (Parson et al., 2015) and remarks from healthcare providers that

imply that they are considered asexual (Parsons et al., 2015, Hanass-Hancock et al., 2011). Due to the fact that PWDs are perceived to be asexual, no efforts are made to give them information in the areas of HIV prevention, treatment, care (Hanass-Hancock et al., 2011, Parsons et al., 2015), and reproductive health services (Parsons et al., 2015). The resultant lack of knowledge on reproductive health issues leads to increased risk of sexually transmitted infections, including HIV, and unwanted pregnancies especially amongst young women with disabilities (Groce, 2004; Parson's et al., 2015). When then confronted with the reality of HIV infection, some PWDs end up choosing to die at home rather than face the negative attitudes from healthcare service providers (Parsons et al., 2015).

Problems in accessing health services which PWDs face are worsened by the effect of disability on health and functioning. When compared to the general population, PWDs will in most cases have disability-related impairments which reduce the amount of spontaneous and unstructured physical activity related to work and household tasks on a day to day basis (Black, Rudkin, Goodwin and Markides, 1999, Rimmer, Schiller and Chen, 2012). This reduced physical activity leads to a reduction in total energy expenditure predisposing PWDs to conditions associated with sedentary lifestyles. Sedentary behaviour is associated with cardio-metabolic risk factors such as obesity, reduced insulin sensitivity, hypertension and increased dyslipidaemia which increases the chances of PWDs acquiring cardiovascular morbidities (Rimmer et al., 2012, Black et al., 1999). Inactivity/reduced activity is also associated with fitness decline in the form of reduced muscle strength, reduced aerobic fitness and reduced flexibility which may lead to pain, fatigue, depression, pressure ulcers, contractures, osteopenia, gastrointestinal haemorrhage, increased falls and injuries (Rimmer et al., 2012, Black et al., 1999). The resultant medical problems faced by PWDs lead to increased healthcare utilisation, increased healthcare cost, increased mental health problems, self-care deficits, loss of independence, increased institutionalisation, and a reduction in quality of life (Rimmer et al., 2012, Lahariya, Khander and Pradhan, 2012, Black et al., 1999). The health effects of disability subsequently impact negatively on longevity amongst PWDs.

People with disabilities have been shown to have a reduced life expectancy and higher mortality rates compared with the general population (Eide and Loeb, 2005, Skempes and Bickenbach, 2015) which could be attributed to the health risks they face. Where PWDs live longer than expected, they continue to be treated and looked

after like children even when they are young adults. Where this does not happen they may find themselves on the street (Groce, 2004). The treatment PWDs receive from their family members has been described as negative and patronising, these negative attitudes lead to PWDs being discriminated against resulting in them dropping out of school, receiving treatment and rehabilitation late and not accessing disability services as this is a low priority for the family (Dalal, 2006).

A quantitative, descriptive, cross sectional study comparing youth with disability and the non-disabled in South Africa, revealed that most youth with disabilities have only attained primary education compared to their non-disabled counterparts who complete at least four years of secondary education (Adams, de Witt, Franzsen, Maseko and Lorenzo, 2014). The study participants were fifty PWDs aged between 19-35 years who were matched with a non disabled person of the same age in the same neighbourhood. The study also revealed that age at onset of disability affected completion of school, with most of those who became disabled in the adult years having completed at least three years of secodary school and only 42% of those who were born with a disability or became disabled as a child ever attended school. The most common reason for not attending school was family attitude followed by lack of finances then physical access as most of the mainstream schools had no adaptations to help accommodate PWDs. A higher percentage of youth with disability (89.9%) were unemployed compared to 54.1% of youth without disability (Adams et al., 2014). The strength of this study is that it compared youth from the same residential areas of the same age. The figures obtained are consistent with Groce (2004) who states that unemployement rates amongst PWDs are between 40-60% higher than the general population, and further shows that young women with disabilities have 50% higher rates of unemployment compared to young men with disabilities with the same qualifications. In support, Simkhada et al. (2013) further highlight the problems faced by women with disabilities. They found that the societal expectation that women should stay at home further reduces the chances of a woman with disabilities getting employment. Women with disabilities thus find themseves in a worse situation than their male counterparts as they are in most instances regarded as second class citizens being subjected to double discrimination based on their gender and disability (Simkhada et al., 2013).

In general, PWDs face problems associated with stigma and discrimination which deprive them in some instances, of education, healthcare and rehabilitation services, community participation and employment. The nature of the impairments in PWDs

lead to reduced physical activity which affects their personal, social and economic function. Reduced physical activity also predisposes PWDs to disorders associated with sedentary lifestyles such as obesity, hypertension and heart disease. These medical conditions require frequent hospital visits leading to increased healthcare expenditure. All these problems have a negative effect on the quality of life of PWDs.

While these are the problems faced by PWDs in general, children experience other dimensions of the effect of disability. Karangwa, Miles and Lewis (2010), through a community based ethnographic study in Rwanda concluded that children with disabilities were more active and visible family members in economically disadvantaged families compared to the affluent who tend to hide and isolate them. The study went on to show that inclusive education while it is a policy on paper, is not being adhered to due to factors like inaccessibility of the schools and lack of training of the teachers. Only those with mild disabilities attended schools and those with more severe disabilities were left out. The study highlights the many barriers to participation faced by children with including lack of knowledge on the part of the teachers on how to help them cope in the school environment, lack of infrastructure for example sanitation facilities and being subjected to derogatory names. The strength of this study is that in-depth interviews took place in three communities where 35 community members, 89 community leaders, 201 school community members (headmasters, teachers, pupils) and 35 families with children with disabilities were visited, making the results of this study generalizable to similar communities due to the large sample size and representation from all community groups. The results obtained by Karangwa et al. (2010) are consistent with Reynolds (2010) whose study in Ghana revealed that there is social stigma and spiritual beliefs associated with having a child with disabilities which lead to these children not being accepted not only in the rural areas but also in the more educated regions. This was also supported by Simkhada et al. (2013), who found in their study that Asian parents tend to hide the existence a child's disability due to religious beliefs that see having a child with disabilities is a punishment from God. Children are also faced with the problem of limited access to community programmes (Schleien, Miller, Walton and Pruett, 2014). Where access is granted the parent has to supervise their child throughout bringing fatigue to the parents who has to support their child's participation actively (Schleien et al., 2014).

In summary disability in children affects both the children and the parents (Schleien et al., 2014, Reynolds, 2010, Karangwa et al., 2010, Ministry of Health, 2011). The

children are not be able to attend school, access play areas with other children, may be hidden from the community and be called derogatory names. The parents have to constantly supervise their child without a break, are viewed as cursed that is why they have a child with disabilities and may have to forego employment in order to take care of the child with disability (Schleien et al., 2014, Reynolds, 2010, Mitchell, 1999a, Karangwa et al., 2010).

2.1.2 Disability and Poverty

The presence of disability has been linked with increased poverty and vice versa, and with significantly higher rates of unemployment and underemployment (Groce, 2004, International Labour Organisation et al., 2004). Poverty amongst PWDs, is further compounded by lack of access to rehabilitation and healthcare services, education and skills training (Joint Position Paper, 2004). In most instances one family member has to stay at home and care for the PLWDs. This reduces the financial resource base of the family, further impoverishing the individual, family and community (Mitchell, 1999a). In addition to the basic needs for human survival which include food, shelter, healthcare, education and livelihood, PWDs have needs that are a result of impairments (Khasnabis and Motsch, 2008). These additional needs in the form of healthcare, transport and assistive devices, come at a cost further depleting their financial resource base (Khasnabis and Motsch, 2008, Mitchell, 1999a). This is consistent with the findings of Yeo and Moore (2003) as quoted in (Eide and Loeb, 2005), who presented a theoretical model that showed that chronic poverty predisposes one to higher risks of accidents, illness and impairments. Impairments lead to exclusion which then leads to poverty. Pollard and Sakellariou (2008), concur and point out that in addition to the above, poverty predisposes one to malnutrition, limited healthcare access and work environments that are hazardous contributing to the increased incidence of disability among the poor.

In conclusion, PWDs face a myriad of problems most of which have to do with participation restriction issues as a result of social and environmental barriers that lead to social isolation of PWDs (Vornholt, Uitdewilligen and Nijhuis, 2013, Groce, 2004, Reynolds, 2010, Karangwa et al., 2010, Chappell and Johannsmeier, 2009, Dalal, 2006). The non-disabled population creates these barriers to participation (Dalal, 2006, Mont, 2007, Vornholt et al., 2013) which deprive PWDs education and employment leading to poverty amongst PWDs (International Labour Organisation et al., 2004, Karangwa et al., 2010, Groce, 2004). People with disabilities also face problems accessing healthcare services especially those to do with sexual and

reproductive health thereby increasing their risk of getting HIV infection and unwanted pregnancies (Parsons et al., 2015). Problems associated with accessing health services are further compounded by the health problems PWDs face which make them frequent users of healthcare services (Black et al., 1999, Rimmer et al., 2012). Societal prejudices which PWDs are subjected to are a greater problem than the disabling condition and it is this prejudice that prevents them from participating fully in education, health and employment (Dalal, 2006). The problems faced by PWDs can be addressed by a coordinated approach which will impact on the PWDs, their families, communities and policies (Barker and Ziino, 2010, Wade and Halligan, 2004). This approach is Community-based rehabilitation.

2.2 COMMUNITY-BASED REHABILITATION

Rehabilitation is the process aimed at restoring function through the coordination of medical, social, psychological and vocational measures with the ultimate goal of social integration and positive health (Saurabh, Shrivastava and Jegadeesh, 2015). Rehabilitation is a multifaceted process that is dependent on the clients needs which determine the types of services they access (Mitchell, 1999a). Rehabilitation should not be dispensed to passive recipients but all involved should participate actively in the process (World Confederation of Physical Therapists, 2003, Nualnetr, 2009). Literature points out that there are different models of rehabilitation service delivery such as institution based and outpatient services (McColl et al., 2009, World Confederation of Physical Therapists, 2003, New South Wales Rehabilitation Redesign Working Group, 2015, Models of Care Working Group, 2010). These models of rehabilitation service delivery are generally serviced and designed by professionals according to what they perceive as the client's needs (Models of Care Working Group, 2010, McColl et al., 2009, New South Wales Rehabilitation Redesign Working Group, 2015, World Confederation of Physical Therapists, 2003). In institution based and outpatient models, the professional provides treatment to the consumer imparting expert knowledge in the process (Kendall et al., 2009). Management of clients in the institution based and outpatient models of service delivery is based on the biomedical model which focuses on addressing impairments and to some extent function (Kendall et al., 2009).

Community-based rehabilitation is an inclusive strategy in community development that is aimed at rehabilitation, social inclusion, and equalization of opportunities assisting in poverty reduction of PWDs (International Labour Organisation et al., 2004). Community-based rehabilitation is another model of rehabilitation service

delivery, which priorities the client's perception of their needs rather than the professional's idea of what is best for the client. The emphasis is on community participation in the rehabilitation process (World Confederation of Physical Therapists, 2003, McColl et al., 2009, Kendall et al., 2009). Service is provided by a number of different professionals, paraprofessionals and community volunteers with training of significant people in the lives of PWDs to provide rehabilitation. Community-based rehabilitation is used in developing countries to provide cost effective rehabilitation in the clients' home or community with the aim of reducing morbidity which failure to rehabilitate may cause (World Confederation of Physical Therapists, 2003). Failure to rehabilitate PWDs would have a more profound effect on developing countries as the cost of morbidity is higher (World Confederation of Physical Therapists, 2003, Khasnabis and Motsch, 2008). In CBR, rehabilitation professionals function as community development workers, advocating for issues of people with disabilities, mobilising community resources and support thereby providing increased access to rehabilitation services (McColl et al., 2009). Without CBR, only two percent of those in need of rehabilitation services would access them (Nualnetr, 2009, World Confederation of Physical Therapists, 2003). Community-based rehabilitation addresses the problem of scarcity of human and material resources using the community development philosophy, while rehabilitation services are dependent on the availability of professionals to provide services (McColl et al., 2009, Chappell and Johannsmeier, 2009, World Confederation of Physical Therapists, 2003).

It is important to note that there is a difference between rehabilitation in the community where rehabilitation treatment is given in the community and community-based rehabilitation where there is not only treatment but advocacy, early identification of disabilities, education and skills development aimed at achieving wider social and system changes (Kendall et al., 2009, Velema, Finkenflugel and Cornieljie, 2008b). The latter is more comprehensive and would require more input in terms of financial and multi-sectoral human resources with community involvement (International Labour Organisation et al., 2004, Chappell and Johannsmeier, 2009, Pollard and Sakellariou, 2008). The key elements that differentiate CBR and other forms of rehabilitation are:

1) the degree to which the PWDs/community drive the process, the consumers are considered equal partner/active directors of the rehabilitation process;
2) transfer of skills to the community;

3) change in the system (usually the health system) to facilitate integration of PWDs;
4) strong networking between PWDs, their families, communities, and appropriate services for example social, health, vocational and educational services (Kendall et al., 2009).

In order to guide practice in CBR programme implementation, the CBR guidelines were developed (Khasnabis and Motsch, 2008). The aim was for CBR programmes to adequately address the multidimensional needs of PWDs and avoid a vertical approach limited to one or two domains of life (Khasnabis and Motsch, 2008). For community integration of PWDs to be achieved, an integrated community development approach is offered around the CBR matrix which includes five domains (World Health Organisation et al., 2010). The five domains constitute the holistic wellbeing of an individual and the major components of CBR namely: health, education, social life, livelihoods and participation (Khasnabis and Motsch, 2008, World Health Organisation et al., 2010). The "matrix provides a framework for a coherent CBR programme" (Khasnabis and Motsch, 2008 pg. 22) the vehicle through which the CBR strategy is implemented. Each of these components is divided into five elements as depicted in Figure 1 below:

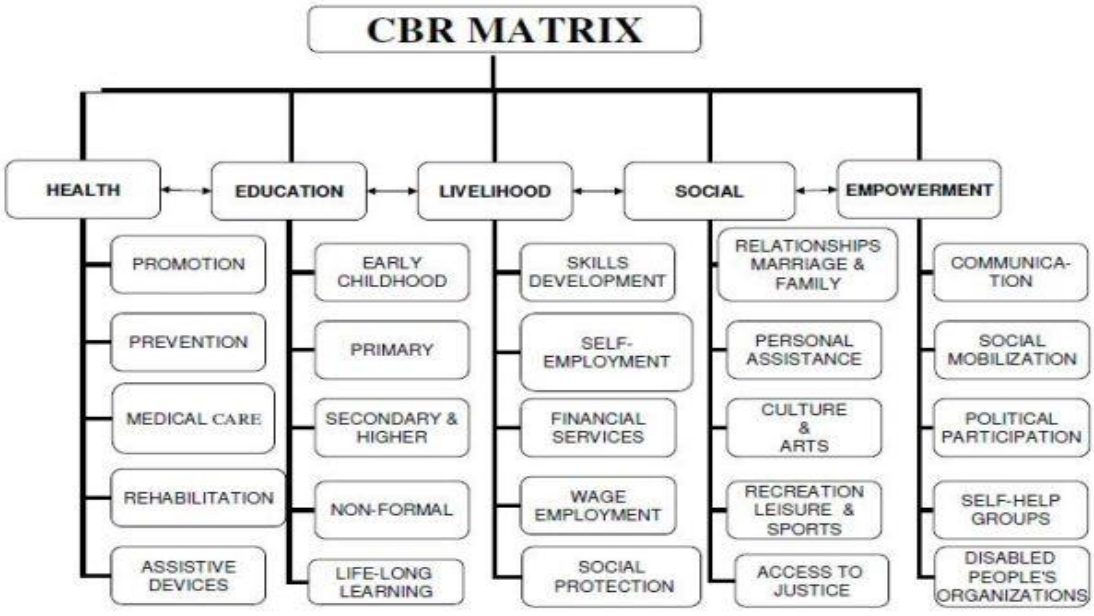

Figure 2.1: CBR Matrix

(WHO, 2010)

The CBR guidelines acknowledge that communities differ based on cultural, socio-economic, political and other factors therefore no single model of CBR will be

appropriate for everyone. Using the CBR matrix communities can choose the focus of CBR based on their needs (Khasnabis and Motsch, 2008, World Health Organisation et al., 2010).

The objectives of CBR, are “to ensure that people with disabilities can: achieve maximum possible function both physically and mentally, access regular services and opportunities in order to become active and contributing members of the community and society at large and to mobilise the community so they can protect the rights of people with disabilities” (International Labour Organisation et al., 2004, Pollard and Sakellariou, 2008). Community-based rehabilitation empowers PWDs to become fully contributing members of community whose value is recognised through tackling the cause and effects of disability (Pollard and Sakellariou, 2008). Community based rehabilitation is relevant wherever barriers exist environmentally, economically, where there are limitations in resources and services and where there is restriction in participation in all areas of life for PWDs (Lukersmith, Hartley, Kuipers, Madden, Llewellyn and Dune, 2013). The principles of CBR are:

1) Inclusion of PWDs in mainstream society;
2) Empowerment which enables PWDs to speak up for themselves, and be included in community activities;
3) Sustainability
4) self-advocacy;
5) barrier free environment (Velema and Cornieljie, 2003, World Health Organisation et al., 2010).

Sustainability of CBR programmes does not only refer to availability of funds but requires the presence of good organizational structures (systems) which enable the programmes to thrive (Velema and Cornieljie, 2003, Chung et al., 2011). Organisations in CBR need to assess whether things are being done the correct way (Velema and Cornieljie, 2003) to ensure the cost effectiveness of CBR programmes (Chung et al., 2011) and determine the effectiveness and sustainability of the intervention (Buchanan, Lorenzo and Law, 2015).

2.3 MONITORING AND EVALUATION (M&E)

The first step towards demonstrating the effectiveness of CBR is monitoring and evaluation (Lukersmith et al., 2013). Through monitoring and evaluation one is able to provide justification for the actions and decisions made, secure allocation for

limited resources and ensure provision of relevant practice (Buchanan et al., 2015, Stubbs and Achat, 2011). Monitoring and evaluation provide a review of inputs, processes, outputs and outcomes, provide feedback on how efficiently resources were utilised and what was achieved in order to improve on the CBR programme (Velema and Cornieljie, 2003, Stubbs and Achat, 2011, Lukersmith et al., 2013, Buchanan et al., 2015). The core factors to be considered when evaluating CBR are relevance, effectiveness, efficiency, sustainability and impact (Zhao and Kwok, 1999). Monitoring and evaluation as processes are often described together but fulfil different objectives and are done at different times and levels (Lukersmith et al., 2013).

2.3.1 Difference between Monitoring and Evaluation

Monitoring is a systematic process that continuously assesses progress. It is normally an internal process which is ongoing and conducted on a regular basis with the aim of observing progress and identifying problem areas of the program so that change may be implemented if necessary (Lukersmith et al., 2013). Monitoring provides information on the efficiency and effectiveness with which inputs are utilised, processes undertaken and outputs realised (Lukersmith et al., 2013, Stubbs and Achat, 2011). Evaluation is used to assess the outcome of a programme on a once off basis (Lukersmith et al., 2013). The aim of evaluation is to establish whether the predetermined goals, objectives and standards have been achieved. The focus of evaluation is on program outcome with consideration of policies, systems and national level implications (Velema and Cornieljie, 2003, Lukersmith et al., 2013). Through evaluation one is able to assess the quality of services provided and improve on these services (Velema and Cornieljie, 2003). Evaluation can also be used to identify strengths and weaknesses of the programme (Lukersmith et al., 2013). Conflict of interest may affect internal evaluations especially where the results obtained affect the program's continuity (Merson, Black and Mills, 2012). External evaluations are thus considered to be more credible with the evaluation process being normally funded by a third party for example international researchers and funding agencies (Merson et al., 2012, Lukersmith et al., 2013).

2.3.2 CBR Evaluation

Community-based rehabilitation is a complex intervention whose evaluation requires the buy-in and participation of all levels of staff as in any large scale community development programme (Stubbs and Achat, 2011). Unlike other programmes like primary health care and community development, CBR has a dearth of literature that

addresses evaluation (Wirz and Thomas, 2002, Velema et al., 2008a, Stubbs and Achat, 2011). Most programme evaluations describe practice or the social process of CBR rather than focus on impact of CBR (Wirz and Thomas, 2002, Grandisson et al., 2014a, Velema and Corneljie, 2003). The lack of focus on impact evaluation makes the field of CBR data rich with numerous descriptive analyses but evidence poor, with a lack of experimental studies, systematic reviews and randomized control trials (Grandisson et al., 2014b, Kuipers and Hartley, 2006). There is little agreement in the scanty literature on evaluation regarding the best way to conduct the CBR evaluation (Wirz and Thomas, 2002, Grandisson et al., 2014a, Lukersmith et al., 2013). Part of the reasons for the disagreement, are that they are differences in the outcome measures used in evaluations making it difficult to compare programmes and give an overall assessment of the effectiveness of CBR (Grandisson et al., 2014a, Grandisson et al., 2014b). As such, there is a growing need to provide evidence that supports the intervention and policy to strengthen the weak evidence base (Lukersmith et al., 2013, Grandisson et al., 2014a, Kuipers and Hartley, 2006). A stronger research base in CBR will improve resource allocation, measurement processes and enhance information provision (Lukersmith et al., 2013, Boyce and Ballantyne, 2000). There are barriers to CBR evaluation that make it difficult for organisations to carry out evaluations in CBR programmes. These include:

1. Lack of resources.

The conditions under which most CBR programmes operate are characterised by limited financial and human resources hence the tendency is to try and meet the rehabilitation needs of PWDs rather than utilise the scarce resources in evaluation (Mitchell, 1999b). In most cases there is no budget availed for research and evaluation from the beginning. All resources are put into programme implementation (Velema et al., 2008a).

2. Lack of baseline data which makes it difficult to monitor change taking place over time (Grandisson et al., 2014a).

3. Lack of indicators against which to measure outcome (Wirz and Thomas, 2002).

4. Lack of indicators that can be used to examine structural and organisational achievements or failures in planning and delivery of rehabilitation services (Skempes and Bickenbach, 2015).

5. Lack of indicators to facilitate system analysis (Skempes and Bickenbach, 2015).

2.3.3 CBR Evaluation Process

Stubbs and Achat (2011), evaluated a large scale home visiting programme and came up with recommendations for overcoming barriers to evaluation. Through a description of the process from program implementation to evaluation they were able to give these recommendations based on what they identified during the evaluation process. One weakness of this study is that it is based on experiences drawn from the program in question with no comparator. However, the researchers' involvement in the process allowed for reflection on what happened and what could have been done better. Their recommendations were as follows:

- Involve staff in developing evaluation plan and developing instruments for data collection.

- Incorporate data collection into routine activities so that staff does not feel the need to choose between doing the evaluation and attending clients.

- Collect baseline data in order to monitor progress over time.

- This is consistent with literature which states that:
  1) evaluation should be incorporated into the regular activities of CBR programmes (Grandisson et al., 2014a, Zhao and Kwok, 1999);
  2) it is important to have baseline data in order to monitor change over time (Grandisson et al., 2014a, Cornieljie, Velema and Finkenflugel, 2008, Velema et al., 2008b, World Health Organisation et al., 2010);
  3) staff should be involved throughout the whole process (Stubbs and Achat, 2011).

Different elements should be considered when evaluating CBR (Velema and Cornieljie, 2003, Velema et al., 2008b). Evaluation should look at the society at large which is the environment in which the CBR programme operates. The social environment can prove to be restrictive to the PWDs leading to lack of integration into society of PWDs (Velema and Cornieljie, 2003, Velema et al., 2008b, Wirz and

Thomas, 2002). Evaluation should also be done at an individual level within a CBR programme where outcomes in the form of quality of life can be assessed (Velema and Cornieljie, 2003, Velema et al., 2008a, Wirz and Thomas, 2002). Involvement of the rest of the community and family in the CBR programme should be evaluated as they are key stakeholders in the CBR programme (Velema et al., 2008a, Velema and Cornieljie, 2003, Lukersmith et al., 2013). The services provided are also assessed with reference to the interventions used, partnerships formed and referrals systems in place within the program (Velema and Cornieljie, 2003, Wirz and Thomas, 2002). CBR programme outcomes can therefore be classified into three domains namely, 1) maximising potential of people with disabilities; 2) service delivery 3) the environment where the PWD lives (Wirz and Thomas, 2002, Chung et al., 2011, Velema and Cornieljie, 2003).

Grandisson et al. (2014a), carried out a systematic review on how to conduct CBR evaluations. The processes that should be followed, who should be involved and when the evaluation should be done were outlined. The need for the community, including PWDs in the process is emphasised so that the evaluation is relevant to the local community (Boyce and Ballantyne, 2000, Grandisson et al., 2014a). This is consistent with Lukersmith et al. (2013), who noted with concern that PWDs were used only as informants in CBR evaluations but did not themselves give input into these evaluations as evaluators. With regards to when evaluations should take place in CBR, it is recommended that they be part of the regular activities of the programme (Grandisson et al., 2014a, Zhao and Kwok, 1999). Effectiveness, efficiency, relevance, social impact and sustainability questions can be used to guide the evaluation (Zhao and Kwok, 1999, World Health Organisation et al., 2010).

2.4 SYSTEM

The World Health Organization (2007 pg. 2), defines a health system as “all organisations, people and actions whose primary intent is to promote, restore or maintain health.” The functions of health systems are:

1) stewardship;
2) financing;
3) resource generation; and
4) health service delivery (Seitio-Kgokgwe, Gauld, Hill and Barnett, 2014, Tanner, 2005).

The above functions form the 6 building blocks of health systems which are necessary regardless of organisation of the system. They are:

1) service delivery,
2) health workforce,
3) information,
4) medical products, vaccines and technologies,
5) financing; and
6) leadership/governance (World Health Organization, 2007).

The identifying features of a health system impacts directly and significantly on the health outcomes of individuals and communities (Ako-Arrey et al., 2016, Atun, 2012), thus strengthening health systems is the backbone for achieving and sustaining improved population (Seitio-Kgokgwe et al., 2014) health outcomes. It is also a way of improving patient satisfaction and ensuring prudent use of financial resources (Ako-Arrey, Brouwers, Lavis and Glacomini, 2016, World Health Organization, 2007).

Health, is defined as “a state of complete physical, mental, social and emotional wellbeing and not just the absence of disease or infirmity” (WHO, 1948). Rehabilitation is an important way of promoting health for PWDs by integrating them in communities. It is an important part of the healthcare system which focusses on enhancing human potential physically, socially and economically thereby ensuring that PWDs attain good health (Skempes and Bickenbach, 2015). It is therefore important to ensure that health systems are enabled to deliver quality public health interventions and health care (Ako-Arrey et al., 2016) which include rehabilitation services for PWDs. Challenges like existing service delivery, governance and financial arrangements, hinder the attainment of health goals in many countries and affect policy processes and context-specific features which are economically, politically, socially and culturally related (Ako-Arrey et al., 2016). Buchanan et al. (2015), suggest that CBR be placed under the district health system with the involvement of other sectors like transport, communication and education as per CBR matrix. Aligning CBR programmes to the domains and elements of the CBR matrix enables comprehensive CBR service provision and facilitates coordination and collaboration amongst different stakeholders involved in the CBR programme.

2.4.1 Elements of a Care Delivery System and Their Importance

Pina et al. (2015), noted that the effectiveness of an intervention depends to a large extent on the setting i.e. a large integrated system or a small practice, the type of

remuneration for example salaried or commission, however there is no established standard that can describe this large pool of different settings under which care delivery occurs. According to Atun (2012), health systems are complex, open systems characterised by interlinks of different components interacting within the environmental context of the system. These interlinking elements are interconnected and interdependent providing negative and positive feedback with the sum of this interaction manifesting as the behaviour of the system. It is important therefore to think critically of the results of policies and actions considering the interaction of the system and the environment or context (Atun, 2012).

The Delivery Systems Committee, a group of 7 consisting of researchers, patient advocates, policymakers and clinicians involved in different health care delivery organisations in the United States of America, decided to come up with a framework of describing health care systems after realising the challenges of a fragmented, complex and dynamic system (Pina, Cohen, Larson, Marion, Sills, Solberg and Zerzan, 2015). Through a literature review and focus group discussions a framework of 6 domains with 28 elements for describing health care systems was developed. These elements would result in ease of measurement in research and help categorise different types of health service delivery organisations. The domains and elements are as shown in table 2.1 below:

Table 2.1: Showing Domains and their Elements as Identified by Pina et.al. (2015)

Domain	**Elements**
Capacity	Size, capital assets, comprehensiveness of service
Organisational structure	Organizational configuration, leadership, structure, governance, research and innovation, professional education
Finances	Payment received for services, provider payment systems, ownership and financial solvency.
Patients	Patient characteristics, geographical characteristics
Care processes and infrastructure	Integration, standardization, performance measurement, public reporting, quality improvement, health information systems, patient care teams, clinical decision support, care coordination
Culture	Patient-centeredness, cultural competence, competition-collaboration continuum, community benefit, innovation diffusion, working climate

They acknowledge that some of the elements identified are difficult to measure as they are more subjective for example culture and patient-centeredness but they however provide important information that relates to service delivery. The elements

they came up with can be applied to different size organisations and even to public health interventions. The identified elements contribute positively to the organisation's ability to achieve its objectives and fulfil its mandate. The identified elements allow for comparison of health care organisations. This is essential especially for research processes where fragmentation of information has been identified. The strength of this study was that the Delivery Systems Committee was made up of different stakeholders of the health care system. It makes it representative of the stakeholders' expectations of health delivery systems. In addition, Atun (2012) identified the capacity of people and institutions, ability to make use of opportunities, stewardship and contextual factors like economic set up, sociocultural beliefs, history of the nation under consideration as factors that influence the achievement of good health for communities in an efficient manner. In order to obtain information on the state, distribution and efficiency of service provision within a system, it is necessary to carry out research which focuses on the system. Health system research is one way in which the distribution, efficiency and effectiveness of CBR services are evaluated.

2.4.2 **Health Systems Research**

Health systems research is important because it establishes whether health services are equitably distributed, if not why and whether they engage communities actively in all processes (Pratt, 2014). The aim of health systems research is to reduce differences between rich and poor states, and ensure that within low and middle income countries the marginalised access and receive health services (Pratt, 2014). One key question asked by investors in health systems is whether progress is being made and how to tell when achievements are made (World Health Organization, 2007). Making it imperative to have convincing indicators to measure change taking place on the ground (World Health Organization, 2007, Pina et al., 2015).

A study by (Thomas et al., 2015a), showed that strengthening health systems can translate into improved health outcomes by closing the health and nutrition gap in Odisha, India. They identified key factors that enabled this to happen as:

- An enabling environment - created by the readiness of the health sector to make reforms and political will which put the agenda of social inclusion as a priority.
- Geographical focus on the poorest district – this made the intervention worthwhile as it addressed real problems affecting the population
- Improving service delivery

- Tackling malaria – this would equate to tackling poverty in CBR as the association between Disability and poverty is well known.
- Increasing women's access to health services – in a CBR programme this would be the same as increasing access of vulnerable groups for example women and children with disabilities to CBR.
- Human resources for health – ensuring adequate resources
- Importance of evidence – to enable to mobilisation of support, both political and financial and inform programme design.

The study shows how policy makers who are committed and are backed by political will can achieve health system reforms that address issues affecting the marginalised groups in poorly resourced areas. It emphasizes on the need for focussing monitoring and evaluation of health care outcomes, processes and systems on health equity (Thomas, Sarangi, Garg, Ahuja, Meherda, Karthikeyan, Jodder, Kar, Pattnaik, Druvasula and Rath, 2015a). With CBR being a strategy that is used widely in underserved areas for a marginalised group of people (Wirz and Thomas, 2002, Mitchell, 1999b), it will succeed as a programme with systems strengthening informed by equity-focused systems research (Thomas, Sarangi, Garg, Ahuja, Meherda, Karthikeyan, Jodder, Kar, Pattnaik, Druvasula and Rath, 2015b). A framework of indicators/elements will enable stakeholders to evaluate, disseminate, understand, and implement service delivery innovations to the benefit of the service users. It will also enable comparisons between systems and help identify gaps thus enhancing service provision (Pina et al., 2015).

2.5 SYSTEM INDICATORS (ELEMENTS) IN CBR

The performance of health systems and the extent to which human rights principles are adhered to in rehabilitation requires reliable and objective indicators in order to quantify achievements (Skempes and Bickenbach, 2015). Indicators are defined as "numerical or textual values that provide information about a phenomenon. They are essential elements of monitoring and evaluation systems that allow for assessment of progress towards the achievement of goals, enabling comparisons of the same unit over time." (Skempes and Bickenbach, 2015 pg. 4). The behaviour of a system is defined by the interlink of the different components of the system which constitute the elements of the system (Atun, 2012). The field of CBR has been criticized for the poor indicators as a means of measuring success (Wirz and Thomas, 2002, Sharma, 2007). Liebel, Powers, Friedman and Watson (2011) also lament the absence of standardised disability measures and the lack of qualitative evidence on disability outcomes. In a study protocol entitled 'Developing human rights based indicators to

support country monitoring of rehabilitation services and programmes for people with disabilities', Skempes and Bickenbach (2015), provide information on the importance of indicators in assessing achievement as ratified in the Convention on the Rights of Persons with Disabilities (CRPD) (United Nations General Assembly, 2006). It has been observed that while WHO has developed a lot of indicators for measuring essential health services, there is a gap identified in the area of rehabilitation making standard monitoring and evaluation difficult (Skempes and Bickenbach, 2015). This difficulty is further compounded by the rights based approach that is needed when providing services to PWDs (Skempes and Bickenbach, 2015).

The CRPD (UN General Assembly, 2006) in Skempes and Bickenbach (2015) states that it is imperative that data is obtained on rehabilitation and health, including data that sheds light on barriers to access rehabilitation. It also says that states should ensure that rehabilitation services are available, accessible, affordable, acceptable, of good quality, with availability of products and technologies and an adequate workforce. All these are therefore elements within the health system that can be looked at during monitoring and evaluation of CBR programmes. Skempes and Bickenbach (2015) conclude that for consistent health system accountability, there is need for feedback to be given using performance and compliance indicators. Compliance indicators will measure the extent to which the health system adheres to set standards in the CRPD. It is thus important in this regard to identify what to measure and how to measure it (Skempes and Bickenbach, 2015).

Velema and Cornieljie (2003), proposed that indicators should be a product of the program's own goals and objectives. They also acknowledge, however, that the existence of uniform indicators would make this easier as one would simply select the indicators that are relevant to their program. Lukersmith et al. (2013), agree and recommend that CBR programs should come up with clear goals, activities and programme outcomes so that monitoring and evaluation become part of the processes within the programme. Indicators that can demonstrate the achievements of CBR programmes are essential so that benefits of the programme can be noted (Wirz and Thomas, 2002). McLaren and Philpott (1999) in Wirz and Thomas (2002), suggest five groups of disability indicators. These are: childhood disability indicators, general indicators, rehabilitation service indicators which are further divided into input, output and effect indicators.

Grandisson et al. (2014a), noted that the evidence base for CBR is fragmented and incoherent. There is no consensus with regards to the framework that should be used in CBR evaluations. They propose that a comprehensive framework that is clearly defined and which can be adapted to local needs be used. This framework should be developed by experts in the field and it should incorporate indicators that are derived from the elements of the CBR matrix. This is supported by Wirz and Thomas (2002) who advocate for a framework of indicators for CBR evaluation. Grandisson et al. (2014a), do however point out that some authors such as Velema and Cornieljie (2003) and Lukersmith et al. (2013) advocate for locally generated indicators.

2.6 CONCLUSION

This review of literature has shown that the area of CBR evaluation is an area that still needs to be examined. The lack of a framework of indicators has been identified as a major problem in CBR evaluation. It is also evident that the system and how it is organised can facilitate the evaluation process and help improve outcomes at the patient and community level. There is no literature identified in the review that specifically looks at evaluating the system in CBR although some aspects of system have been evaluated. To facilitate CBR evaluation, through coming up with appropriate system related indicators, the next section is the literature review of the methods used in this systematic review.

2.7 LITERATURE REVIEW OF METHODOLOGIES USED IN THE SYSTEMATIC REVIEW

For this study the following methodologies have been identified as suitable for understanding the study:

- Content analysis
- Methodological quality assessment
- Evaluation of levels of evidence

Each methodology will be reviewed for its relevance, purpose and applicability to the systematic review. The method used to carry out the systematic review will not be reviewed in this section but will be described in chapter three.

2.7.1 Content Analysis

There have been numerous efforts to come up with rigorous methods to carry out qualitative systematic reviews, however, the description of data analysis processes remains scanty (Finfgeld-Connet, 2014, Elo and Kyngas, 2007). Content analysis has

been identified as one such process that can be used to analyse data in qualitative systematic reviews (Finfgeld-Connet, 2014). Content analysis is the systematic coding and categorizing of raw data unobtrusively into categories that are conceptually congruent (Finfgeld-Connet, 2014, Vaismoradi, Turunen and Bondas, 2013). Zhang, Ding and Milojevic (2013), describe content analysis as not only a systematic process but an objective one too that should make valid, repeatable, and replicable inferences from text. It is a method used to analyse verbal, written or visual messages to determine the patterns of words, establish trends, determine the relationships of words and identify the structure of communication (Zhang et al., 2013, Vaismoradi et al., 2013, Elo and Kyngas, 2007).

Content analysis enables one to objectively quantify and describe phenomena (Elo and Kyngas, 2007, Vaismoradi et al., 2013). A descriptive approach is used in both coding of the data and its interpretation of quantitative counts of the codes (Vaismoradi et al., 2013). Conversely, thematic analysis provides a purely qualitative, detailed, and nuanced account of data (Braun & Clarke, 2006). Content analysis enables the qualitative researcher to get insight into the reasons why for example services are used, concerns about events or any topical issue affecting them. It examines communication content to identify who spoke, to whom, where and why, it establishes the effect of what was spoken and what is happening (Vaismoradi et al., 2013, Elo and Kyngas, 2007). It is a scientific method used to evaluate qualitative data obtained using qualitative methods like interviews, focus group discussions, ethnographic observation and videography (Kondracki, Wellman, Fada and Amundsen, 2002). In systematic reviews the research findings are the text which is extracted systematically from the identified research reports which maybe qualitative or quantitative in nature. The objectives of the research are used to guide content analysis (Kondracki et al., 2002, Elo and Kyngas, 2007, Finfgeld-Connet, 2014).

2.7.1.1 **Approaches to content analysis**

Literature describes two approaches to content analysis, these are the inductive and deductive approaches (Finfgeld-Connet, 2014, Elo and Kyngas, 2007, Kondracki et al., 2002, Vaismoradi et al., 2013). The inductive approach is used where there is no pre-conceived categories on the topic. It is also used where there are no existing studies on the topic. The framework and categories one comes up are based on the raw data (Vaismoradi et al., 2013, Kondracki et al., 2002, Finfgeld-Connet, 2014, Elo and Kyngas, 2007). New insights are obtained as analysis and reanalysis of texts is done resulting in shifts in direction as the analysis progresses (Elo and Kyngas,

2007, Kondracki et al., 2002, Vaismoradi et al., 2013). The deductive approach is used where evidence on the phenomena exists or there is a preconceived coding template with key words, variables and categories which are based on literature data (Vaismoradi et al., 2013, Kondracki et al., 2002, Finfgeld-Connet, 2014, Elo and Kyngas, 2007). Deductive content analysis may also be used to compare categories between different authors or time periods. It moves from general information to specific while the inductive method moves from specific to broader more general information (Elo and Kyngas, 2007, Finfgeld-Connet, 2014, Kondracki et al., 2002, Vaismoradi et al., 2013). Threats to validity exist whether an inductive or deductive approach is used (Finfgeld-Connet, 2014). There is a tendency to verify what is obvious and skip opportunities to refute or expand theories with the deductive approach (Hsieh and Shannon, 2005) in (Finfgeld-Connet, 2014). On the other hand the inductive approach may result in one overlooking the obvious and doing what has been done before leading to stagnation of knowledge (Finfgeld-Connet, 2014). The data obtained using the deductive approach tends to be less rich overall although there some aspects of the data may be analysed in more detail (Vaismoradi et al., 2013). According to (Kondracki et al., 2002), the two approaches are not mutually exclusive therefore both can be applied at the same time.

It is important to determine on the onset whether the content analyst will examine manifest or latent content (Kondracki et al., 2002, Vaismoradi et al., 2013). Manifest content is text that is present and can be read, listened to or seen (developing categories), it is visible, while latent content is what is inferred from use of voice, facial expression. It is implied meaning (developing themes) (Vaismoradi et al., 2013, Kondracki et al., 2002). The identification of manifest content is through coding and searching for key words. Manifest content is easier to manipulate although latent meaning makes communication more interesting. Qualitative researchers advocate for a mixture of the two in content analysis (Kondracki et al., 2002).

Thirdly it is important to decide whether one will use manual or computerised techniques for content analysis. In many cases, two or more methods may be used in order to adequately address the research question (Kondracki et al., 2002, Finfgeld-Connet, 2014). Factors that determine the best methods to use include amount of data to be analysed, the number of researchers involved in the analysis, their level of experience with related methodologies, and long term goals (Kondracki et al., 2002). The availability of software and computers add to expense and this should be considered before deciding on what to use. One should be aware that limitations of

computer software may inadvertently shape the research question and thus weaken the study (Kondracki et al., 2002). Use of computer software can also become mechanistic “resulting in the loss of flexibility and oversimplification of the data analysis process” (Finfgeld-Connet, 2014 pg. 349). It is advised to do as much as possible manually, however, this may not always be possible considering the volume of work and accuracy required (Finfgeld-Connet, 2014, Kondracki et al., 2002). In the coding process computer analyses have been found to be more consistent and faster than manual techniques. (Kondracki et al., 2002).

2.7.1.2 **The process of content analysis**

The process of content analysis is a three phase process as described by Elo and Kyngas (2007) and Vaismoradi et al. (2013). The first phase is the preparation phase which is characterised by familiarising oneself with the data through reading it several times, followed by selection of unit of analysis. This can be a word, a sentence, a phrase, a paragraph or part of a page depending on the research question (Finfgeld-Connet, 2014, Elo and Kyngas, 2007, Vaismoradi et al., 2013). During this phase one decides on whether to use latent or manifest content or both. The second phase is when one then uses the inductive or deductive approach to analyse the content. Using the inductive approach the steps followed are “open coding, creating categories and abstraction” (Elo and Kyngas, 2007 pg. 109). In deductive approach the next step is developing structured analysis matrix followed by data coding according to category then hypothesis testing. The final phase is reporting where the analysis process is given and the results are availed (Elo and Kyngas, 2007, Vaismoradi et al., 2013).

Content analysis is therefore a method that can be used in the analysis of multiple sources of data to come up with a qualitative and quantitative deductions (Vaismoradi et al., 2013). Content analysis can be used in systematic reviews which are considered high quality evidence (Mundi, Chaudhry and Bhandari, 2008, Finfgeld-Connet, 2014), however, to ascertain the quality of the systematic review it is necessary to appraise the reports to be included in the review (Dixon-Woods, Sutton, Shaw, Miler, Smith, Young, Bonas, Booth and Jones, 2007, Mundi et al., 2008). Various appraisal methods exist dependent on the type of study (Dixon-Woods et al., 2007).

2.7.2 Methodological Quality Assessment Methods

There number of studies that are being published keeps increasing constantly thereby necessitating the summarising of results of these different reports on a specific topic in one paper (Finfgeld-Connet, 2014, Mundi et al., 2008). Through systematic reviews data from original articles is synthesised and critically appraised in order to come up with the single best way to manage a condition or procedure to achieve best patient outcomes (Mundi et al., 2008, Finfgeld-Connet, 2014). The quality of a systematic review is dependent on the quality of the studies included in the review hence the need to establish the quality of studies before including them in the systematic review (Mundi et al., 2008).

A study by Dixon-Woods et al. (2007) compared 3 methods for evaluating the quality of qualitative studies namely;

1) Unprompted judgement where quality assessment is based solely on the expertise of the experienced qualitative researcher;
2) A quality framework published by National Centre for Social Research. It is a synthesis of 29 frameworks used interrogate various features of qualitative research;
3) The Critical Appraisal Skills Programme for qualitative research.

The results showed that reviewers agreed on which papers to include on four of the 12 papers irrespective of the method of appraisal. When the three methods were used by same reviewer inconsistent results were obtained suggesting that the method of appraisal influenced the assessment outcome. This was because of dilemmas reviewers faced when deciding on the contribution the research would make to the field versus the perceived quality of the research based on the study execution or reporting. The evaluation of studies using structured approaches cued the reviewers towards papers that complied with good research practice even though their contribution to the body and knowledge had been deemed less insightful. Using the unprompted judgement the same papers were not excluded completely. The study concluded that disagreements over whether to include a report or not exist in spite of the approach used more so when using structured approaches. Structured approaches however give a good analysis of the methodological quality of the report. The sample size used was small (12 reports and 3 reviewers) giving it little power to make a definite conclusion on the difference between the three methods of evaluation used. The fact that the reviewers were experienced in research makes it difficult to generalise the outcome of the study to those who are inexperienced. They concluded that for inexperienced reviewers, it is advisable to use structured

approaches to assess the quality of reports. Masood, Thaliath, Bower and Newton (2011) say the use of quality guidelines enables the systematic and scientific review of qualitative research and helps improve the research quality. Watine and Bunting (2008) on the other hand argue that it has not been established whether methodological quality translates to recommendations that are more valid.

2.7.2.1 The critical appraisal skills programme (CASP) for qualitative studies

The value and contribution of qualitative research to the evidence base of practice and policy is increasingly being acknowledged (Dixon-Woods et al., 2007, Masood et al., 2011). Until recently, quantitative research methods were seen as the cornerstone of the evidenced based movement in the form of randomised control trials and their systematic reviews (Masood et al., 2011). Through the Cochrane qualitative methods group, qualitative research has now started to be incorporated into systematic reviews indicating the rise of qualitative research into evidence-based practice (Masood et al., 2011). There still is disagreement, however, on the best method of establishing the quality of qualitative studies to be included in systematic reviews (Masood et al., 2011, Dixon-Woods et al., 2007). Given that the general perception is that qualitative study is loosely structured, it is important to provide assurance that the research has been rigorously done before including it in a systematic review (Dixon-Woods et al., 2007, Masood et al., 2011).

The Critical Skills Appraisal Programmes (CASP) is a tool used to assess the quality of qualitative research (Masood et al., 2011, Dixon-Woods et al., 2007). CASP is a checklist of 10 questions which has been used widely to inform decisions on inclusion/exclusion of papers (Dixon-Woods et al., 2007). There are about 30 tools available to assess qualitative research most of which were reviewed by Spencer et al. (Masood et al., 2011). The CASP was chosen amongst them to appraise dental qualitative research based on its validity, reliability and the fact that it is based on rigorous research. It is simple to use and comprehensive and emphasises rigour in reporting (Masood et al., 2011). The CASP is generic enough to be used on different qualitative methods. It can also be used for some theoretical approaches. The CASP has three broad categories namely, rigour, credibility and relevance. The extent to which the criteria is met during evaluation determines the quality of the paper under examination (Masood et al., 2011).

2.7.2.2 **The appraisal of guidelines, research and evaluation (AGREE II)**

Guidelines have been developed to help decision making in clinical settings (clinical guidelines) and to assist in formation of health policy at system level according to the National Collaborating Centre for Methods and Tools, (NCCMT, 2011). Clinical guidelines inform clinicians on how to intervene in specific situations thereby filling the gap between policy and the actual practice (Kredo, Gerritse, van Heerden, Conway and Siegfried, 2012). A guideline is a statement that is systematically developed in order to assist practitioners to make clinical decisions with the purpose of improving the quality of care especially where one is uncertain of the intervention to make (NCCMT, 2011, Esand, Ortiz, Chapman, Dieguez, Mejia and Bernztein, 2008). The quality of these guidelines varies due to the differences in the development process thereby making it necessary to have a method to select the guideline to be adopted (NCCMT, 2011) (NCCMT-National Collaborating Centre for Methods and Tools).

The AGREE II is an instrument that:

- is used to assess the quality of guidelines
- provides a strategy on how to develop guidelines
- gives guidance on the information to be included in guidelines and how it should be reported.

(*NCCMT, 2011*).

It has three sections namely, the introduction, user manual and the AGREE II instrument. The AGREE II has 23 items and six domains which are, scope and purpose – an assessment of whether the overall aim of the guideline is described and the target group identified; stakeholder involvement – assesses whether appropriate stakeholders where involved in the guideline development and extent to which the views of intended users were incorporated; rigour of development – assesses how the evidence was gathered and summarized and the methodology for developing the recommendations; clarity of presentation – looks at the format of the guideline, its language and structure; applicability – looks at whether they give barriers and facilitators to its use, and contains information on how the guidelines can be implemented and the resources required; editorial independence – assesses whether competing interests were examined. These are scored on a 7-point, Likert scale from strongly disagree to strongly agree (NCCMT, 2011, Polus et al., 2012, Kredo et al., 2012).

The AGREE II instrument is widely used (Kredo et al., 2012, Esand et al., 2008, Polus et al., 2012). It has been assessed for inter-rater reliability and met the required standard. The construct validity was seen as promising, and content validity was found to be good. The methodological rating was moderate (Polus et al., 2012, NCCMT, 2011, Kredo et al., 2012, Esand et al., 2008). Making it a fair instrument to measure quality of practice guidelines.

2.7.2.3 The strengthening the reporting of observational studies (STROBE) statement

Although randomised control trials are considered to be the highest level of evidence, most of public health and clinical evidence is from observational studies (Mundi et al., 2008, Vandenbroucke, von Elm, Altman, Gotzche, Mulrow, Pocock, Poole, Schlesseman and Egger, 2007, von Elm, Altman, Eggar, Pocock, Gotzche and Vandenbroucke, 2007). There are three types of observational studies namely cohort studies, cross-sectional studies and case-control studies (von Elm et al., 2007, Vandenbroucke et al., 2007, Mundi et al., 2008). In some instances these study designs are described using synonyms like longitudinal study and follow-up study for cohort study and prevalence study for cross-sectional study (Vandenbroucke et al., 2007). Observational studies are prone to bias due to lack of randomisation (Mundi et al., 2008). In order to address the problem of lack of detail and clarity in observational studies, a checklist was developed, the Strengthening the Reporting of Observational Studies (STROBE) checklist (Vandenbroucke et al., 2007). The STROBE statement is a 22 item checklist providing recommendations on how to report observational studies for all sections of the article. Of the 22 items, 18 are applicable to all three study designs while the last 4 are specific to study design and will thus have to be assessed based on the study design (von Elm et al., 2007, Vandenbroucke et al., 2007, Mundi et al., 2008). Using the STROBE checklist is possible to get a score out of 22 based on what items one has fulfilled in the article thus making it easy to score.

The aim of the STROBE statement is to ensure that observational research is well reported through the guidance it provides (von Elm et al., 2007). Although not regarded as a measure that evaluates observational studies (von Elm et al., 2007), it has been used as such in a number of studies (Mundi et al., 2008, Grandisson et al., 2014a). von Elm et al. (2007), while emphasizing that the STROBE checklist is not a measure of quality, also say that it can be used to critically appraise published articles by readers, reviewers and editors when they want to publish such articles. It is in this vein that the STROBE checklist was used as a method to critically appraise

observational studies in this systematic review. The quality of the study is not the only factor that is considered when assessing studies for inclusion in systematic reviews. It is also important to include studies that have good validity in the systematic review. Validity of studies is ranked according to different hierarchies of evidence (Evans, 2003).

2.7.3 Evaluation of Level of Evidence

The quality of a research study is generally judged according to the extent to which it adheres to the randomized controlled trials (RCTs), the gold standard of study designs, which provides the best evidence for practice (Siu, Shek and Poon, 2009a). The RCT is regarded as the most reliable evidence when evaluating the effectiveness of an intervention due to the small risk of the results being influenced by confounding variables (Evans, 2003). The risk of bias and error in research study results is not the same across the different types of studies but the validity of a study results is dependent on the research method (Evans, 2003). There are limitations that exist in carrying out RCTs in clinical settings and within community rehabilitation settings where it is difficult to create an optimum environment for the intervention which includes blinding and randomisation (Siu et al. 2009b). RCTs have been criticised for stating the outcomes of an intervention without giving insight into how the intervention works, why it does not work or how it could be improved (Siu et al., 2009b). Qualitative research on the other hand may give clarity to relevant issues, for example explain why patients respond differently to the same treatment (Daly, Willis, Small, Green, Welch, Kealy and Hughes, 2007).

The difficulties with creating an optimum environment for RCTs and the need for feedback from service users make qualitative evaluation methodologies appropriate for community rehabilitation programmes (Siu et al., 2009b). The problem that exists in assessing level of evidence for qualitative studies is that even though qualitative methodologies differ, they are treated as one method in the hierarchies of evidence (Daly et al., 2007). The hierarchies of evidence disregard the diverse types of qualitative studies such as ethnography, personal interviews and participant observation which also have samples of varying sizes (Daly et al., 2007). Most hierarchies of evidence are thus biased towards quantitative research.

Different hierarchies of evidence exist which are based on assessing effectiveness of interventions and because of this, RCTs commonly top the list giving an indication that they provide the highest level of evidence (Evans, 2003). The problem

encountered with most hierarchies of evidence is that they classify the different aspects that determine research quality under the same grade (Daly et al., 2007) with the main focus being on effectiveness (Evans, 2003). Effectiveness has to do with whether the intervention works as it should. While this is important, hierarchies for evaluation should go beyond assessing cause and effect (Evans, 2003). The emphasis of the hierarchies of evidence on effectiveness undermines the value of qualitative research (Daly et al., 2007), which perform better on the dimensions of appropriateness and feasibility (Evans, 2003). Appropriateness refers to whether the intervention is acceptable to the recipient and the impact it has on the consumer. It thus assesses to what extent the consumers would use the intervention (Evans, 2003). The feasibility aspect is concerned with the impact of the intervention on the service provider taking into consideration the resources, environment and cost of implementation (Evans, 2003). Due to the limitations noted in the existing frameworks, Evans (2003) developed a hierarchy of evidence that recognises the contribution different types of research methodologies used in evaluating healthcare interventions. Figure 2.2 shows the hierarchy of evidence according to (Evans, 2003).

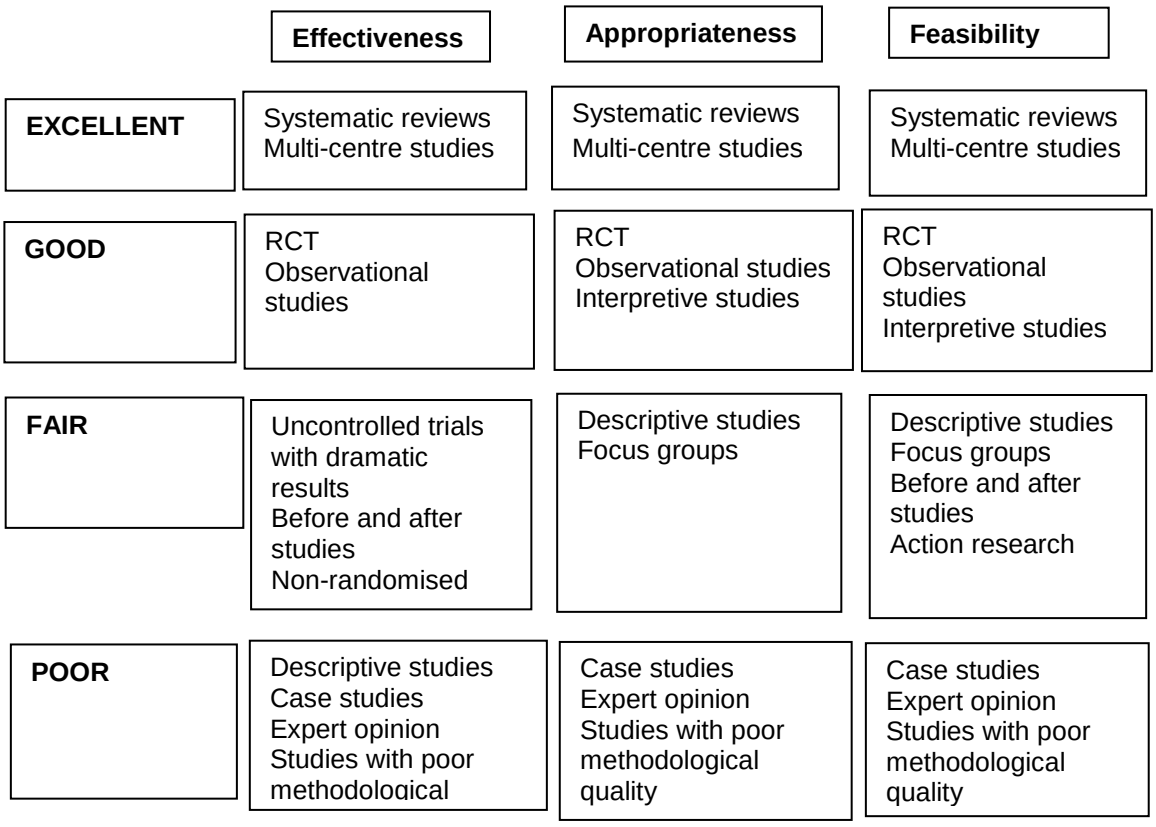

Figure 2.2: Showing the Hierarchy of Evidence

(*According to Evans (2003) pg. 79*)

The approach proposed by Evans (2003) does not reduce the value of RCTs nor diminish the importance of effectiveness as a predictor of validity of research. On the contrary, the (Evans, 2003) hierarchy of evidence acknowledges the other factors that can be used to determine the success of an intervention namely feasibility and appropriateness. As such it recognises the contribution of observational and interpretive research to practice and systematic reviews. Accordingly the (Evans, 2003) hierarchy of evidence was used to assess the validity of the research included in this systematic review.

In conclusion, this section of the systematic review presented a literature review of the methods used in the extraction of data from the identified research reports, the methods of methodological quality assessment used and the methods used to determine the level of evidence in the studies. Chapter 3 describes the methodology used in the systematic review.

CHAPTER 3

3. METHODOLOGY

Study methods used in this systematic review are outlined in this chapter. The objectives of the study were to determine the availability of literature on CBR evaluation, to determine the quality of literature on CBR and to determine the types of elements used in CBR evaluation literature. The study aimed to identify system-related elements for evaluation of CBR. A detailed description of the study design, study population, sample source and selection, quality assessment and data analysis are discussed.

3.1 STUDY DESIGN

A qualitative systematic review which provided a narrative synthesis of the content of the literature included in the systematic review was done. Qualitative synthesis unlike quantitative synthesis, does not convert "information into a common metric nor does it synthesise the data to test a theory using statistical meta-analysis" (Snilstveit, Oliver & Vojtkova, 2012 pg. 414). On the contrary, a narrative rather than statistical approach is used to generate new insights and come up with recommendations. The qualitative approach was used because it goes beyond just providing the summary of findings obtained from the different studies (Snilstveit et al., 2012), thereby enabling greater detail and understanding of the subject under review

3.2 STUDY POPULATION

The Population, Intervention, Comparator Outcome (PICO) approach was used to guide the structuring of the review.

1. For quantitative studies the mnemonic was defined as follows:
   - Population (P) - all literature that refers to CBR programme evaluation globally
   - Intervention (I) - the methods of monitoring and evaluation employed in these studies
   - Comparator (C) - the baseline before implementation of CBR or since last evaluation report
   - Outcome (O) - the identified elements that are used to evaluate the programmes.

2. The PICo mnemonic was used for qualitative studies, defined as follows.

Population (P)	- literature that refers to CBR globally
Phenomena of Interest (I)	- evaluation of CBR
Context (C)	- global, African and local
Outcomes (O)	- the identified elements.

(*Joanna Briggs Institute, 2011*)

It is important to note that literature on evaluation of CBR may look at different outcomes for example quality of life and functional outcomes. However the thrust of this review was to find out what are the system-related elements that are used in CBR evaluations.

3.2.1 **Inclusion Criteria**

This systematic review considered all titles that referred to CBR evaluation both quantitative and qualitative studies (Joanna Briggs Institute, 2011). Articles with information on methods, processes, models and indicators used for evaluation of CBR were included in the review. Only articles published in English between 2005 and 2015 were considered for inclusion. The protracted period of eleven years was chosen to ensure that all relevant and up to date literature could be obtained. A longer period was not considered beneficial given the paucity of literature that measured the effectiveness of CBR prior to that period (Finkenflugel et al. 2005a, Velema et al., 2008a, Wirz and Thomas 2002).

3.2.2 **Exclusion Criteria**

Articles in newsletters and book chapters were excluded from the review. Systematic reviews and literature reviews were not included. Systematic and literature reviews were excluded from the study on the basis that knowledge in reviews is generalised and generated from different sources and unlike primary sources reviews do not report the original research material (Finkenflugel, Wolffers and Huijsman, 2005b).

3.3 **SAMPLE SOURCE AND SELECTION**

3.3.1 **Key Words and Data Bases**

A systematic search was done on SCOPUS, MEDLINE, PsychINFO and PubMed data bases through the University of the Witwatersrand online library, the World Health Organisation website and Google scholar. Other databases like EMBASE were not accessible through the online library and thus could not be used in the

systematic review. The key words used in the literature search were community-based rehabilitation, evaluation, indicators, framework, monitoring, disability (Grandisson et al., 2014a, Wirz and Thomas, 2002). The review was guided by the research question 'According to CBR evaluation literature, what are the system-related elements that can be used to evaluate a CBR programme?' Grey literature was sourced from local non-governmental organisations. The literature search period was July to December 2015 with each of the databases searched up to three times.

3.3.2 Selection of Studies

Titles of articles obtained though the literature search were read through by the principal reviewer to ascertain appropriateness of topic. Those articles that mentioned evaluation of CBR had their abstracts retrieved. The abstracts were read through independently by principal reviewer (PK) and secondary reviewers (VM) and (SP) to allow for triangulation. Each of the three reviewers selected the appropriate abstracts based on the study inclusion criteria. Where disagreements arose discussions were held amongst the three reviewers until an agreement was reached. Full articles of the selected abstracts were then retrieved and read through by the principal reviewer and secondary reviewers and those articles relevant to community based rehabilitation evaluation were selected. Disagreements were also discussed amongst the three reviewers and agreements were reached for inclusion or exclusion of the papers under consideration. The references of the chosen articles were then screened so as to identify more articles for inclusion.

3.4 HIERARCHY OF EVIDENCE

The Evans (2003) level of evidence (Appendix D) was used to determine validity of the evidence based on its effectiveness, appropriateness and feasibility of study designs as influenced by methodological quality. Evans (2003) level of evidence was used because unlike other hierarchies of evidence, it considers the aspects of appropriateness and feasibility in order to rank the evidence (Evans, 2003). Other hierarchies of evidence focus only on effectiveness as the sole determinant of the level of evidence. Appropriateness assess the extent to which the consumer would use the intervention and the impact of the intervention on the consumer (Evans, 2003). Feasibility considers the impact of the intervention on the service provider taking into account the resources, environment and cost of implementation. The Evans (2003) hierarchy gives an outline of how the different studies and the methods of data collection should be ranked on effectiveness, appropriateness and feasibility.

The outline was used in this study in order to come up with an overall assessment of the level of evidence of the included literature.

3.5 METHODOLOGICAL QUALITY ASSESSMENT

The Critical Appraisal Skills Programme (CASP) for qualitative studies was used for assessing the methodological quality of the qualitative studies including case studies (Appendix A). The CASP was chosen because it is readily available, easy to use, valid, reliable, and it is based on rigorous research (Masood et al., 2011). The Strengthening the Reporting of Observational Studies (STROBE) checklist was used to assess the methodological quality of the observational study (Appendix B). The STROBE checklist was chosen because it is readily available, easy to use and has been used in other studies and systematic reviews (von Elm et al., 2007, Vandenbroucke et al., 2007, Mundi et al., 2008). The methodological quality assessment was done by PK and checked by DS.

The hierarchy of evidence was used to determine inclusion of the studies in the systematic review. The overall ranking on the Evans hierarchy of evidence was determined by the study's performance on the different methodological quality assessment scores. CASP performance scores between zero and four were considered poor, between five and six fair, between seven and eight good and between nine and ten, very good. The ranking on the Evans hierarchy of evidence dropped as a result of a poor score on the methodological quality assessment. Where the overall ranking on the Evans hierarchy of evidence was poor after assessing methodological quality, the study was excluded from the sample. The studies already ranked poor on the Evans hierarchy of evidence were not assessed for methodological quality and were subsequently excluded from the sample.

3.6 DATA ANALYSIS

The selected articles were read through several times by the principal reviewer to come up with main findings in relation to elements of CBR evaluation. These findings were then transcribed into word documents for ease of transfer into N-Vivo™ (N-Vivo 1.2 for Windows: Qualitative Solutions and Research, Melbourne, Australia 2000), a data analysis software used to assist in analysing data. Characteristics of the articles were identified with reference to country and continent of origin, author affiliation and profession of the author and were transcribed into NVivo™. Analysis of data with respect to the aforementioned characteristics was done using NVivo™. NVivo™ was

also used to identify the areas of focus of different studies. The area of focus of the studies were then analyzed with relation to author affiliation and profession.

In order to come up with elements used in the evaluation of CBR inductive content analysis was used (Finfgeld-Connet, 2014). Emerging themes relating to elements used in CBR programme evaluations were identified manually, using open coding and recorded. Constant comparison was used to identify and classify the elements into categories (Hallberg, 2006, Elo and Kyngas, 2007). A three step process was followed in order to draw up the final list of elements used in evaluation of CBR programmes.

Step one - The principal reviewer identified the emerging themes in CBR evaluation using open coding. The identified themes were then categorized into higher order headings independently using constant comparison as guided by the process of inductive content analysis (Elo and Kyngas, 2007, Vaismoradi et al., 2013).

Step two – the principal reviewer then invited HM and SP (student's supervisors) to go through a validation process, to ensure rigour and trustworthiness. A second process of constant comparison and categorization was carried out with the two secondary reviewers to come up with a final list of elements and categories.

Step three- Analysis and synthesis of the identified themes was done by the panel of three (PK, HM and SP) to identify major themes relating to system-related elements for CBR emerging from the articles through an abstraction process. The abstraction process involved organising the elements into related categories by making evidence based inferences and assigning a heading to each of the categories. A list of identified system related elements from the articles was recorded (Daly et al., 2007, Grandisson et al., 2014a, Kuipers and Hartley, 2006, Elo and Kyngas, 2007, Finfgeld-Connett, 2014). The data analysis process ran from December 2015 to February 2016.

3.7 ETHICAL CONSIDERATION

Ethical clearance exemption was obtained from the University of Witwatersrand, Johannesburg, South Africa, Human Research Ethics Committee (Appendix C). All sources of information used in the systematic review were cited within the text and a comprehensive list of the sources given at the end of the dissertation. Where there was need to reproduce a table or figure from a study under review, the researcher undertook to contact the authors of the article and made a formal request, in writing, for permission to reproduce the item (Appendix E).

3.8 CONCLUSION

This chapter presented the methodology used in this study. A qualitative systematic review was carried out using data obtained from four data bases and WHO website. Data was generated through content analysis of the included studies using more than one reviewer in the process as is the standard for systematic reviews. Exemption from ethical clearance was obtained from the University of the Witwatersrand Human Research Ethics Committee. Chapter 4 presents the findings of the research.

CHAPTER 4

4. RESULTS

This systematic review looked at literature that referred to evaluation of CBR from all over the world published between 2005 and 2015. The objective was to establish the availability and quality of literature on CBR evaluation. The review sought to identify the elements used to evaluate CBR and classify these elements with reference to what aspect of CBR they evaluate. The ultimate goal was to identify the elements that focus on evaluation of the system aspect of CBR. This chapter presents the results of the systematic review process. To enable the presentation of the results in a concise and logical manner, the results are structured under the following headings: Identification of appropriate studies; Description of studies; Level of evidence of eligible studies; Definition of CBR across studies; Identification of system related CBR evaluation elements (Kuipers and Hartley, 2006, Grandisson et al., 2014a).

4.1 IDENTIFICATION AND SELECTION OF STUDIES

The first objective of the study was to determine the availability of literature on CBR evaluation. A systematic search was conducted on the four data bases and yielded 1734 titles based on the key words CBR and evaluation, these were further streamlined to 296 on addition of the search term indicators see Table 2 below. There were no articles obtained on the WHO website and on Google scholar.

Table 4.1: Search Results from the Different Databases Based on Search Terms

Search term	Medline	Scopus	PsycINFO	PUBMED	TOTAL
CBR	190	3209	546	531	4476
+ EVALUATION	10	1697	12	15	1734
CBR + evaluation + indicators	10	244	27	15	296
CBR+evaluation+ indicators+ framework		61	88		149
	9	13	12	15	49

In order to ensure that relevant articles were not left out, all the 1734 titles were read through by the principal reviewer for appropriateness of topic after which 49 were categorised as potentially suitable.

The 49 titles had their abstracts retrieved and read through independently by the principal and secondary reviewers. A further 34 were excluded for the following reasons: systematic review (n=3); literature review (n=6); article not on CBR (n=15); outside of included dates (n=6); no abstract (n=1); article not on CBR evaluation (n=1); article not in English (n=2). The articles that were excluded on the basis that they did not focus on CBR evaluated rehabilitation in the community where rehabilitation services were provided by professionals in the community without using the CBR approach. The three systematic reviews focussed on 1) How to conduct systematic reviews on CBR evaluation; 2) How to conduct CBR evaluations; 3) A proof of CBR concept study investigating the viability of conducting a systematic qualitative study using CBR evaluation reports. Full text of the remaining 16 articles were sought and 15 were obtained and read through resulting in the exclusion of six more articles because there was duplication of the same articles across data bases (PubMed record 6 was the same as Medline record 3 and Scopus record 10; Scopus record 7 was the same as PubMed record 4; Scopus record 12 was the same as Medline record 6; PsychINFO record 1 was the same as PubMed record 3) (List available upon request). One article could not be accessed through the University of Witwatersrand online library and through Google scholar (Mauro et al., 2014), leaving 9 articles for inclusion in the systematic review. Three articles were obtained through perusing the reference lists of the included studies making the total number of articles eligible for review twelve. Figure 4.1 below is a diagrammatic representation of the article selection process.

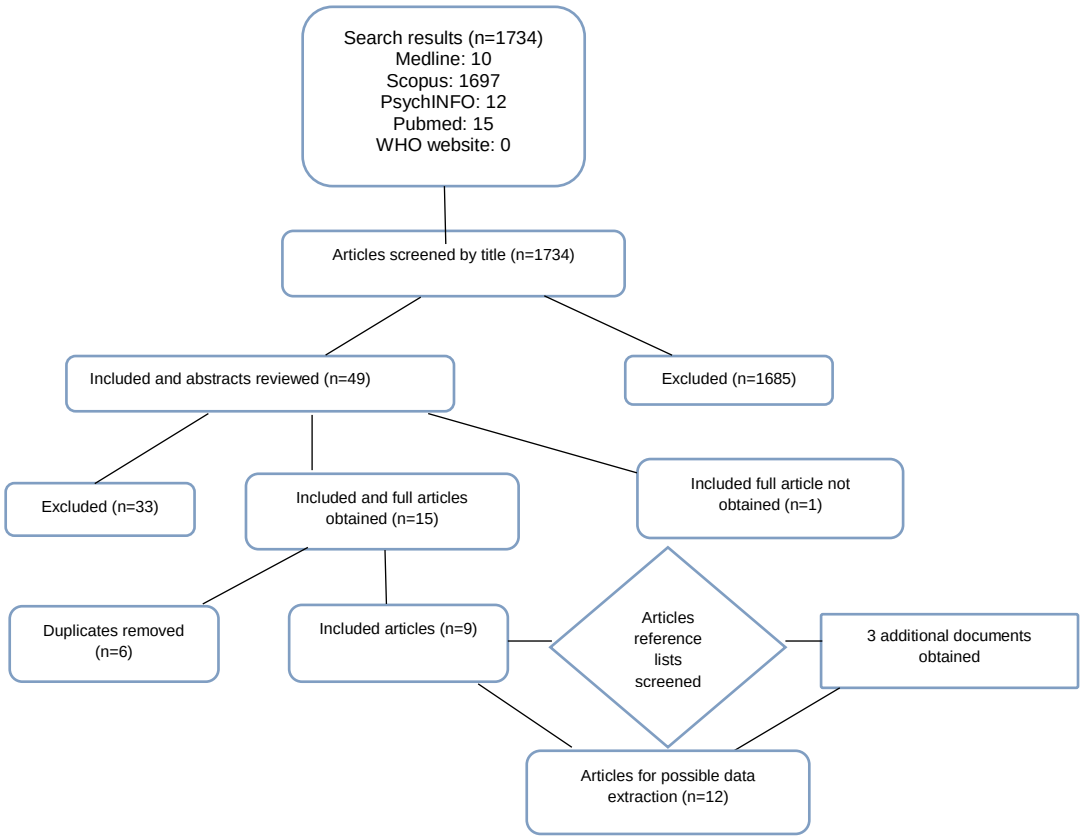

Figure 4. 1: Flow Chart for Article Selection

4.2 DESCRIPTION OF AVAILABLE STUDIES

The general characteristics of the studies covering author, title, country of research, country of origin of author, affiliation of author and discipline of author are given in Table 4.2 below:

Table 4.2: General Characteristics of Eligible Studies (n=12)

AUTHOR	TITLE	COUNTRY OF RESEARCH	COUNTRY OF ORIGIN OF AUTHORS	AFFILIATION OF AUTHORS	DISCIPLINE
Adeoye et al., 2011	Developing a tool for evaluating community-based rehabilitation in Uganda	Uganda	England	University	Social science, health science
Chappell & Johannsmeier, 2009	The impact of community based rehabilitation as implemented by community	South Africa	South Africa	NGO	

AUTHOR	TITLE	COUNTRY OF RESEARCH	COUNTRY OF ORIGIN OF AUTHORS	AFFILIATION OF AUTHORS	DISCIPLINE
	rehabilitation facilitators on people with disabilities, their families and communities within South Africa				
Chung et al., 2011	A framework for evaluating community-based rehabilitation programmes in Chinese communities	China	China	University	Occupational therapy
Cornieljie et al., 2008	Community based rehabilitation programmes: monitoring and evaluation to measure results	Netherlands	Netherlands	NGO	
Grandisson et al., 2014	Community-Based Rehabilitation programme evaluations: Lessons learned in the field.	South Africa	Canada, South Africa	University doctoral student, NGO involved in project	Occupational therapy
Hartman-Maeir (2007)	Evaluation of long-term community based rehabilitation program for adult stroke survivors	Israel	Israel	University	Occupational therapy
Higashida (2014)	Community mobilisation in a CBR programme in a rural area of Sri Lanka	Sri Lanka	Sri Lanka	Government department	Social work
Mijnarends et al., 2011	Sustainability criteria for CBR programmes - Two case studies of provincial programmes in Vietnam	Vietnam	Vietnam/Netherlands	University	
Mol et al., 2014	Children with Disability in Nepal: new hope through	Nepal	Netherlands	University, NGO involved in project	

AUTHOR	TITLE	COUNTRY OF RESEARCH	COUNTRY OF ORIGIN OF AUTHORS	AFFILIATION OF AUTHORS	DISCIPLINE
	CBR				
Raja et al., 2008	Success indicators for integrating mental health interventions with community-based rehabilitation programmes	Sri Lanka, India, Nepal, Bangladesh	UK 1, Canada 3	Universities	
Reimer & LeNavenec 2005	Rehabilitation outcome evaluation after severe brain injury	Canada	Canada	University	Nursing
Roe et al., 2014	Community-Based Rehabilitation in Southern Belize	Belize	Belize	NGO	Physiotherapy

All of the articles were obtained from peer reviewed journals. There were three CBR evaluation reports that were obtained from local rehabilitation centres. The three could not be used in the systematic review because they focussed on process indicators for example number of appliances issued, number of outreaches done, number of clients seen. No grey literature was thus identified for inclusion in the review. Of the twelve studies that could be included in this systematic review, 6 were conducted in Asia (Chung et al., 2011, Mijnarends et al., 2011, Raja et al., 2008, Mol et al., 2014, Hartman-Maeir et al., 2007, Higashida, 2014); three studies were conducted in Africa (Grandisson et al., 2014b, Chappell and Johannsmeier, 2009, Adeoye, Seeley and Hartley, 2011); one study each was conducted in North America (Reimer and LeNavenec, 2005); South America (Roe et al., 2014) and Europe (Cornieljie et al., 2008).

4.2.1 **Quality of Eligible Studies**

The second objective of the study was to determine the quality of CBR evaluation literature. Evans (2003) hierarchy was used to assess the level of evidence for all the studies. The Critical Skills Appraisal Programme (CASP) for qualitative studies and the Strengthening The Reporting for Observational studies (STROBE) checklist were used to assess the methodological quality of the studies.

4.2.1.1 **Level of evidence based on Evans (2003)**

The Evans (2003) classification ranks studies into poor, fair, good and excellent in terms of the level of evidence they produce based on assessment of three aspects namely effectiveness, appropriateness and feasibility as determined by study design. Table 4.3 below shows the ranking of the studies on these three aspects (See Appendix C for classification).

Table 4.3: Level of Evidence Based on Evans (2003) (n=12)

Study	Study design/ approach	Effectiveness	Appropriateness	Feasibility	Overall grading
Adeoye et al., 2011	Qualitative Case study	Fair- before and after study	Fair - use of FGDs	Fair– Use of FGDs	Fair
Chappell & Johannsmeier 2009	Qualitative study	Fair- before and after study	Fair- use of interviews, FGDs with programme participants	Fair- use of interviews, FGDs with programme staff	Fair
Chung et al., 2011	Qualitative study	Multi-centre study- evaluation framework tested in five CBR programmes. Excellent external validity.	Good - multi-centre study, FGDs used	Good - multi-centre study, FGDs used	Good
Cornieljie et al., 2008	Expert opinion	Poor- Expert opinion	Poor – Expert opinion	Poor – Expert opinion	Poor
Grandisson et al., 2014	Qualitative study	Fair - before and after study	Fair- use of interviews, FGDs with programme participants	Fair- use of interviews, FGDs with programme staff	Fair
Hartman-Maeir, 2007	Quantitative study	Good	Good	Good	Good
Higashida (2014)	Qualitative study	Fair- before and after study	Fair- use of interviews, FGDs with programme participants	Fair - use of interviews, FGDs with programme participants	Fair
Mijnarends et al, 2011	Qualitative Case study	Fair before and after study	Fair - use of FGDs	Fair - use of FGDs	Fair
Mol et al., 2014	Qualitative study	Fair- before and after study	Fair- use of interviews with programme participants	Fair - use of interviews with health workers	Fair
Raja et al., 2008	Qualitative Case study	Good – multi centre case study	Good – use of FGDs, multi-centre study	Good- use of FGDs, multi-centre study	Good
Reimer & LeNavenec 2005	Qualitative Case study	Fair- before and after study	Fair - use of interviews, FGDs with programme participants	Fair- use of interviews, FGDs with programme staff	Fair
Roe et al., 2014	Qualitative study	Poor- descriptive study	Fair - use of FGDs	Fair - use of FGDs	Fair

The 12 studies which met the inclusion criteria prior to methodological quality assessment included one quantitative study (Hartman-Maeir 2007); one expert opinion (Cornieljie et al., 2008); and ten qualitative studies (Roe et al., 2014, Chung et al., 2011, Mijnarends et al., 2011, Raja et al., 2008, Mol et al., 2014, Grandisson et al., 2014, Adeoye et al., 2011, Reimer and LeNavenec, 2005, Chappell and Johannsmeier 2009, Higashida, 2014). Based on the Evans (2002) hierarchy of level of evidence three (Chung et al., 2011, Hartman-Maeir, 2007, Raja et al., 2008) of the twelve studies were ranked good with reference to their effectiveness, appropriateness and feasibility. Eight studies were ranked fair (Roe et al., 2014, Reimer & LeNavenec, 2005, Mol et al., 2014, Higashida, 2014, Mijnarends et al., 2011, Grandisson et al., 2014, Adeoye et al., 2011, Chappell & Johannsmeier, 2009); and one was ranked poor (Cornieljie et al, 2008) an expert opinion.

4.2.1.2 **Methodological quality of the studies**

An appropriate tool to assess methodological quality (CASP) was used to assess the ten qualitative studies (Chung et al., 2011, Mijnarends et al., 2011, Raja et al., 2008, Mol et al., 2014, Grandisson et al., 2014; Adeoye et al., 2011, Reimer and LeNavenec, 2005; Chappell and Johannsmeier, 2009, Higashida, 2014, Roe et al., 2014).

Table 4.4 outlines the results of the analysis using CASP. The questions 1-10 analysed the areas:

1. Clear statement of research aims
2. Appropriate qualitative methodology
3. How research design addresses research aims
4. Recruiting strategy to address aims of research
5. Data collection to address research issue
6. Consideration of relationship between researcher and participants
7. Consideration of ethical issues
8. Sufficiently rigorous data analysis
9. Clear statement of findings
10. Value of the research. (See appendix A for tool)

Table 4.4: Table showing Performance of the Different Articles on the 10 CASP Questions (n=10)

Article	RESPONSE	1	2	3	4	5	6	7	8	9	10	Total
Chung et al., 2011	Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Can't tell											
	No											
Mijnarends et al., 2011	Yes	✓	✓	✓	✓	✓	✓		✓	✓	✓	9
	Can't tell							✓				
	No											
Raja et al., 2008	Yes	✓	✓	✓	✓	✓			✓	✓	✓	8
	Can't tell						✓					
	No							✓				
Mol et al., 2014	Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Can't tell											
	No											
Grandisson et al., 2014	Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Can't tell											
	No											
Adeoye et al., 2011	Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Can't tell											
	No											
Reimer & LeNavenec, 2005	Yes	✓	✓		✓	✓			✓	✓		6
	Can't tell			✓								
	No						✓	✓			✓	
Chappell & Johannsmeier, 2009	Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Can't tell											
	No											
Higashida (2014)	Yes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Can't tell											
	No											
Roe et al., 2014	Yes	✓	✓	✓	✓							4
	NO					✓			✓		✓	
	Can't tell						✓	✓		✓		

Scores obtained on the CASP ranged from 4 (Roe et al., 2014) to ten which is the maximum possible score. Six of the ten studies got a score of 10 (Mol et al, 2014, Grandisson et al., 2014, Adeoye et al, 2011, Chung et al., 2011, Chappell and Johannsmeier 2009, Higashida, 2014) while Mijnarends et al. (2011) scored nine, Raja et al. (2008) scored eight and Reimer and LeNavenec (2005) scored six as shown in Table 4.4 above.

A few CASP questions were not answered at all nor fully elaborated in four of the ten studies assessed. The relationship between researcher and participant was not clear in one study (Raja et al., 2008) and was not mentioned by Roe et al., (2014) and Reimer & LeNavenec, (2005). Ethical consideration was not clear in one study (Mijnarend et al., 2011) and was missing in three studies (Raja et al., 2008, Roe et

al., 2014 and Reimer and LeNavenec 2005). The appropriateness of research design was not clear in the studies by Reimer and LeNavenec (2005) and Roe et al., (2014) and they both did not state the value the research adds to existing knowledge. It was not clear whether the data collection method addressed research issue in the study by Roe et al., (2014).

Hartman-Maeir (2007), a quantitative observational study, was evaluated for methodological quality using the STROBE checklist. The results are shown in table 4.5 below. (See appendix B for tool).

Table 4.5: Showing the Results of STROBE Assessment (n=1)

	Item No	SCORE
Title and abstract	1	X
		✓
Introduction		
Background/rationale	2	✓
Objectives	3	✓
Methods		
Study design	4	✓
Setting	5	✓
Participants	6	✓
		✓
Variables	7	✓
Data sources/ measurement	8*	✓
Bias	9	✓
Study size	10	✓
Quantitative variables	11	✓
Statistical methods	12	✓
		✓
		✓
		✓
		✓

Results		SCORE
Participants	13*	✓
		N/A
		N/A
Descriptive data	14*	✓
		N/A
		N/A
Outcome data	15*	
		✓
Main results	16	✓
		N/A
		N/A
Other analyses	17	✓
Discussion		
Key results	18	✓
Limitations	19	✓
Interpretation	20	✓
Generalizability	21	✓
Other information		
Funding	22	X

The score obtained was 20 out of a possible 22. The two areas found wanting were that the study did not indicate study design in the title or abstract and did not mention source of funding for the research.

A summary of the overall ranking of the 12 studies using all three methods (Evans, CASP, STROBE) is given in Table 4.6 below:

Table 4.6: Ranking of Studies Across all Scales (n=12)

Author	Study design	Assessment tool	Score	Level of Evidence (Evans 2003)
Chung et al., 2011	Qualitative study	CASP	10	Good
Roe et al., 2014	Qualitative study	CASP	4	Poor (poor methodological quality)
Mijnarends et al., 2011	Qualitative case study	CASP	9	Fair
Raja et al., 2008	Qualitative case study	CASP	8	Good
Mol et al., 2014	Qualitative study	CASP	10	Fair
Grandisson et al., 2014	Qualitative study	CASP	10	Fair
Adeoye et al., 2011	Qualitative study	CASP	10	Fair
Reimer & LeNavenec 2005	Qualitative study	CASP	6	Fair (fair methodological quality)
Chappell & Johannsmeier 2009	Qualitative	CASP	10	Fair
Higashida (2014)	Qualitative	CASP	10	Fair
Cornieljie et al., 2008	Expert opinion	None		Poor
Hartman-Maeir 2007	Quantitative study	STROBE CHECKLIST	19	Good

Of the twelve studies that could be included in the review, ten were qualitative studies. Seven of them had very good methodological quality based on the CASP assessment (scored between nine and ten). One study had a good score (eight) while another had a fair methodological quality (scored six on the CASP). Roe et al., (2014) was ranked fair for level of evidence and scored four on CASP making it fall to poor on level of evidence ranking. Seven of the ten qualitative studies were ranked fair on Evans (2003) level of evidence ranking, while two ranked good. The one quantitative study was ranked good on the level of evidence and had a good methodological quality as shown by the STROBE checklist score. One study was ranked poor level of evidence based on study design (Cornieljie et al., 2008). The

two studies ranked poor overall on the Evans hierarchy of evidence were subsequently excluded from the systematic review leaving ten studies for inclusion in the review.

4.2.2 Definition of CBR and Focus of Evaluation across the Studies

In order to ascertain the relevance of the elements to CBR, content analysis was used to determine the CBR definition used in the ten studies under review. The focus of CBR evaluation was also determined as these would inform the indicators used in the evaluation.

Table 4.7 gives a summary of the definition of CBR and the focus of the CBR programmes.

Table 4.7: Summary of Definition of CBR and Focus of Evaluation across the Studies (n=10)

Study	Definition of CBR	Focus of Evaluation
Chung et al., 2011	WHO*	-Evaluated all aspects of CBR with the aim of developing a framework for evaluation.
Mijnarends et al., 2011	None - programme aligned to CBR matrix	-Conditions necessary for successful CBR programmes
Raja et al., 2008	None – mentioned CBR has shifted from service delivery to community development	-CBR success indicators for facilitating mental health services with CBR
Mol et al., 2014	None – programme aligned to CBR matrix	-Impact of CBR on children with disabilities and their families
Grandisson et al., 2014	WHO*	-Strategies for successful CBR evaluations
Adeoye et al., 2011	WHO*	-Evaluated all aspects of CBR
Reimer & LeNavenec 2005	None – programme description aligned to CBR	-Impact of CBR following head injury focussing on individual and family
Hartman-Maeir 2007	None - aligned programme to CBR guidelines	-Quality of life of stroke survivors in a CBR programme compared to those who are not
Chappell & Johannsmeier 2009	WHO*	-Impact of CBR on PWDs, their families and community
Higashida (2014)	None- aligned to CBR matrix	-Impact of community mobilisation as a strategy in CBR on the programme and community

**CBR is defined as a strategy for community development for the equalization of opportunities, rehabilitation, poverty reduction and social inclusion of people with disabilities (World Health Organisation et al., 2010).*

Four studies used the WHO definition (Chung et al., 2011; Grandisson et al., 2014; Adeoye et al., 2011; Chappell and Johannsmeier 2009). CBR was not defined in six

studies, all which either mentioned CBR matrix or aligned programme to CBR guidelines (Reimer LeNavenec, 2005, Hartman-Maeir, 2007, Mijnarends et al., 2011, Mol et al., 2014, Higashida, 2014, Raja et al., 2008). The focus of evaluation in four studies was quality of life of PWDs following CBR intervention (Mol et al., 2014, Reimer and LeNavenec, 2005, Hartman-Maeir 2007, Chappell and Johannsmeier, 2009). Two studies evaluated all aspects of CBR with the aim of coming up with an evaluation framework (Chung et al., 2011, Adeoye et al., 2011). One study each focussed evaluation on conditions necessary for successful CBR programmes (Mijnarends et al., 2011); impact of community mobilisation as a strategy in CBR on the programme and community (Higadisha, 2014); strategies for successful CBR evaluations (Grandisson et al., 2014) and CBR success indicators for facilitating mental health services with CBR (Raja et al., 2008).

4.3 IDENTIFICATION OF CBR EVALUATION ELEMENTS

The third objective of this study was to determine the types of elements used in CBR evaluation. Content analysis was therefore carried out on the ten articles included in the review using inductive content analysis. Open coding was used to identify the elements that were evident in the studies reviewed. A total of 44 elements were coded by the principal reviewer and subsequently checked by SP and HM to ascertain their completeness. The identified elements and their frequency across reports is shown in Table 4.8 below.

Table 4.8: Showing the Identified Elements and their Frequency across Reports (n=10)

Element	Chung et al., 2011	Mijnarends et al., 2011	Raja et al., 2008	Mol et al., 2014	Grandisson et al., 2014	Adeoye et al., 2011	Reimer & LeNavenec 2005	Hartman-Maeir 2007	Chappell & Johannsmeier, 2009	Higashida, 2014
Communication/ information system	✓	✓				✓			✓	✓
Training empowerment for field staff	✓	✓	✓		✓	✓			✓	
Impact on disabled people/improved quality of life	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Impact on families of PWDs	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Family involvement in rehabilitation	✓	✓	✓	✓		✓	✓		✓	
Impact on community	✓	✓	✓	✓	✓	✓	✓		✓	
Changing community attitudes	✓	✓		✓		✓			✓	✓
Impact of training on staff and community/Capacity building	✓	✓	✓	✓	✓					
Staff performance	✓	✓	✓		✓				✓	✓
Good balance between income and expenditure	✓	✓	✓		✓	✓				
Accessibility of services	✓		✓		✓	✓	✓			
Utilisation of services	✓					✓				
Empowerment of people with disabilities	✓	✓	✓	✓	✓	✓				✓
Participatory process	✓	✓	✓	✓	✓					✓
Structure of management of human resources	✓	✓				✓				
Networking/collaboration	✓	✓	✓		✓				✓	✓
Advocacy	✓	✓	✓	✓		✓			✓	✓

Element	Chung et al., 2011	Mijnarends et al., 2011	Raja et al., 2008	Mol et al., 2014	Grandisson et al., 2014	Adeoye et al., 2011	Reimer & LeNavenec 2005	Hartman-Maeir 2007	Chappell & Johannsmeier, 2009	Higashida, 2014
Addressing poverty	✓	✓	✓	✓	✓	✓			✓	✓
Early detection and intervention	✓			✓	✓					
Stable human resources	✓	✓	✓			✓			✓	✓
Continuous entry of new service users	✓				✓					
Quality assurance/M&E	✓	✓	✓		✓					
National/government level support	✓	✓	✓							✓
Training of community	✓	✓	✓			✓			✓	✓
Baseline study/needs assessment	✓	✓	✓			✓	✓	✓		✓
Management information system		✓	✓			✓				✓
Management/Leadership	✓	✓	✓							
Use of local resources		✓	✓	✓						✓
Integration into society	✓	✓	✓	✓	✓	✓		✓	✓	✓
Behavioural function							✓			
Cognitive function							✓	✓		
Psychological health				✓			✓	✓		
Emotion/mood							✓	✓		
Physical function				✓			✓	✓	✓	
Social interaction		✓		✓			✓	✓	✓	✓
Social/physical environment				✓			✓			

Element	Chung et al., 2011	Mijnarends et al., 2011	Raja et al., 2008	Mol et al., 2014	Grandisson et al., 2014	Adeoye et al., 2011	Reimer & LeNavenec 2005	Hartman-Maeir 2007	Chappell & Johannsmeier, 2009	Higashida, 2014
Participation in religious activities				✓						✓
Level of independence				✓				✓	✓	
Mobility								✓	✓	
Communication								✓		
Muscle strength								✓		
Global recovery								✓		
Self-awareness									✓	
Identification										✓

As shown in Table 4.8, the most commonly evaluated elements which appeared in nine studies were:

1. Impact on disabled person/improving quality of life
2. Impact on families of PWDs
    - all authors except Higashida (2014) evaluated these two elements;
3. Integration into society
    - all authors except Reimer and LeNavenec (2005) evaluated this element.

Other frequently used elements in the evaluation of CBR across studies were: empowerment of people with disabilities (n=7); impact on community (n=8); addressing poverty (n=8); advocacy (n=7), baseline/needs assessment (n=7). Improvement in behaviour, communication, strength, global recovery, identification and self-awareness were evaluated in one study each.

4.4 IDENTIFICATION OF SYSTEM ELEMENTS

A process of constant comparison (Hallberg, 2006, Elo and Kyngas, 2007) was then used as part of the categorisation and abstraction process undertaken in three stages.

Step 1: In order to identify categories under which elements fall open coding was used. Similar elements were grouped and categorised under five higher order headings by the principal reviewer. These were; access to services, personal function, involvement of the community, community participation and administration as depicted in table 4.9 below.

Table 4.9: Higher Order Headings of Identified Elements identified by principal reviewer

Access to services	Personal function	Involvement of Community	Community participation	Administration
-Continuous entry of new service users -Accessibility of services -Utilisation of services -Early identification & intervention	-Behavioural function -Cognitive function -Emotion/mood -Physical function -Level of independence - Mobility - Communication - Muscle strength -Global recovery -Self-awareness - Identification	-Changing community attitudes -Advocacy -Empowerment of people with disabilities -Training of community -Participatory process -Networking & collaboration -Use of local resources -Family involvement in rehabilitation	-Social interaction - Social/physical environment -Religion -Integration into society -Impact on disabled people /improving quality of life -Impact on families of PWDs -Addressing poverty -Including family in rehabilitation	-Management -Staff performance -Stable human resources -Training empowerment for field staff -National level/ government support -Structure of management of human resources -Quality assurance M&E -Baseline study/needs assessment -Impact of training on staff -Communication/ information system -Balance between income and expenditure -Management information system

Step two – the principal reviewer invited two secondary reviewers to participate in the process of constant comparison and categorisation of the elements. A second independent process of open coding was undertaken to validate the categorisation of the elements. A different set of five higher order headings namely management, human resources, service delivery, empowerment were identified. These are presented in Table 4.10.

Table 4.10: Finalised Categorisation of Elements for Evaluation of CBR

Management	Human resources	Service Delivery	Empowerment	Policy
-Utilisation of services -Communication -Balance between income and expenditure -Collaboration -Networking -Advocacy -Quality Assurance -Monitoring and Evaluation (M & E) -Management and Leadership -Use of local resources -Self identification INFORMATION SYSTEM -Management information system -Baseline survey -Needs assessment	-Training of field staff -Impact of training on the community/capacity building -Staff performance -Structure of management of human resources -Stable human resources -Training of community -Use of local resources	IMPACT ON PWDs -Improving quality of life -Accessibility of services -Early detection and intervention -Utilisation of services -Addressing poverty -Continuous entry of service users -Improved self-awareness - Integration into society - Communication -Cognitive function -Psychological health -Muscle strength -Emotion/mood -Social interaction -Social integration IMPACT ON COMMUNITY -Improving quality of life -Accessibility of services -Early detection and intervention -Utilisation of services -Addressing poverty -Continuous entry of service users	-Self-awareness -Family involvement in rehabilitation -Participatory process -Collaboration -Networking -Training of community -Use of local resources	-National/ government level support -Accessibility of environment

.

Step three- Further abstraction was then done inductively to come up with the classification of system related elements by constant comparison of similar elements, deriving meaning from the similar elements and assigning a title/heading based on the meaning derived. The following diagram was constructed in the process:

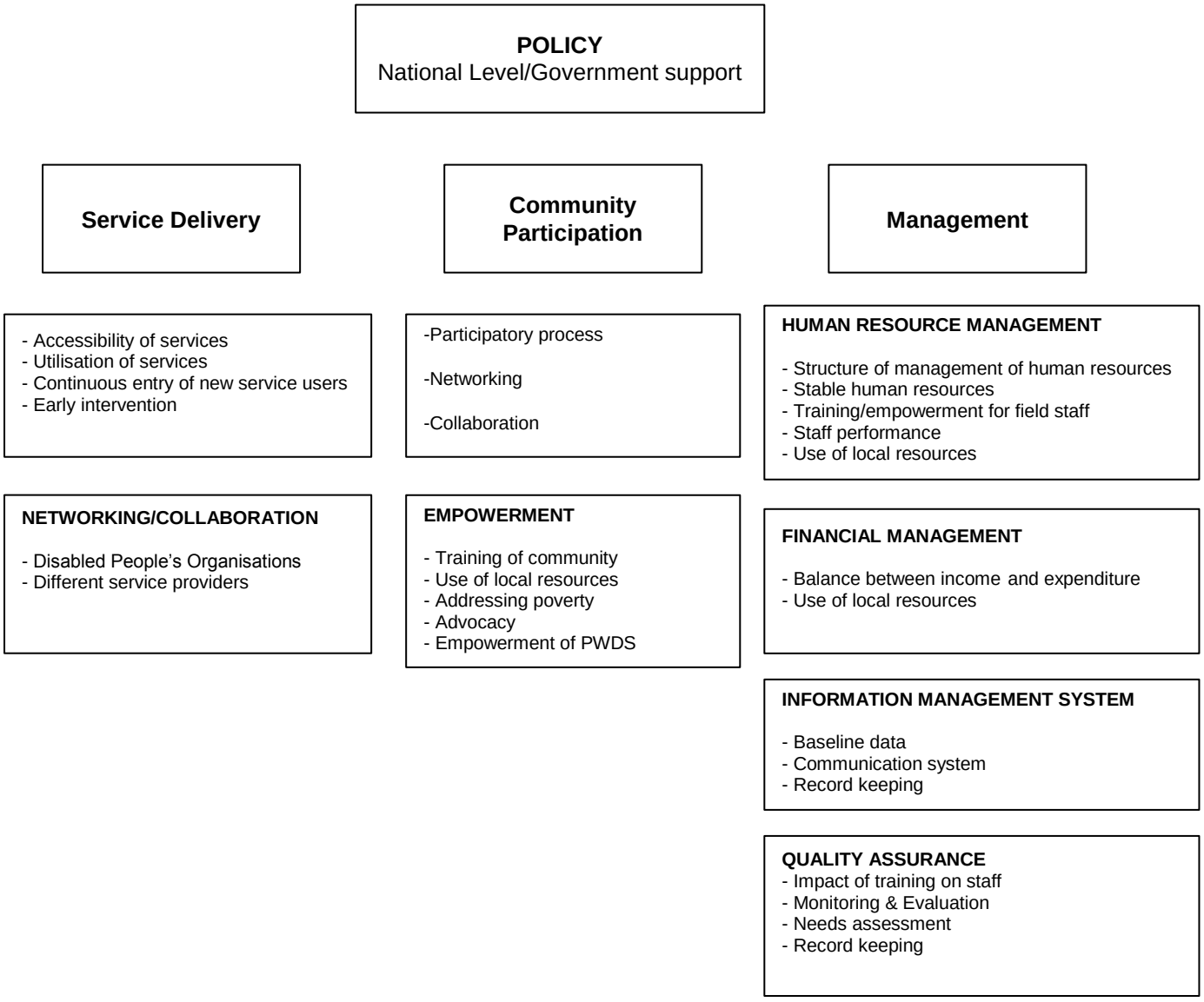

Figure 4.2: Showing Results of Abstraction Process

Three main categories were identified as categories that inform the system when evaluating CBR. These are service delivery, management and community participation with the overall support from government or national structures which influence policy. A total of 25 elements were identified and categorised under the four categories (Figure 4.4). Some elements appeared in more than one category due to their applicability to those categories.

4.5 Operational Definition of identified system evaluation elements

Through content analysis operational definitions of the system-related elements identified from this systematic review were then identified inductively by looking at what was evaluated across each of the studies. The following table of operational definitions was then produced.

Table 4.11: Operational definitions of the system-related evaluation elements

ELEMENT	OPERATIONAL DEFINITION
Accessibility of services	What percentage of PWDs access the service, and what are the problems faced in accessing the service.
Addressing poverty	Are there any activities geared towards addressing poverty amongst programme participants. How many have benefitted from them?
Advocacy	Are they any activities that the CBR programme undertakes to advocate for PWDs?
Balance between income and expenditure	What are the financial management systems in place? How is the budget and how is the expenditure.
Baseline data	Is there baseline information for the programme and the programme beneficiaries?
Communication system	What communication systems exist within the programme and with relevant stakeholders?
Continuous entry of new service users	How many new users are enrolled into the programme monthly, annually?
Collaboration	Is there evidence of collaboration with and access to different service providers/services such as education, social support, rehabilitation, prosthesis etc.
Early intervention	Is there evidence of mechanisms to ensure that PWDs are identified early?
Empowerment of PWDS	What mechanisms exist to ensure that PWDs are empowered eg. Provision of education, income generating projects, skills training
Evaluation	How often do evaluations take place? What is evaluated?
Impact of training on staff	What have staff benefitted from training if any?
Monitoring	What monitoring strategies exist in the programme? What is monitored and how often?
National level/Government support	Do the government/ national structures support the CBR programme? In what ways do they support the CBR programme?
Needs assessment	Was there an assessment done prior to starting the programme? Are individual client needs assessed on enrolment into the programme?
Networking	Does the programme help beneficiaries interact with Disabled People's Organisations and other relevant stakeholders?
Participatory process	To what extent are the PWDs involved in the CBR programme?
Record keeping	Is there a system for record keeping? How are records kept and what information is available?
Stable human resources	What is the staff turnover like? What influences staff turnover?
Staff performance	Is there a system of monitoring staff performance? How is staff performance evaluated?
Structure of management of human resources	What is the reporting structure within the CBR programme? Is there a structure for managing human resources?
Training/empowerment for field staff	Is training of field staff part of the CBR programmes activities? How many are trained and in what areas?
Training of community	Is training of community part of the CBR programmes activities? Has the community been trained and in what areas?

Use of local resources	To what extent does the programme use local resources in the programme? How are local resources used in the CBR programme?
Utilisation of services	To what extent is the CBR programme being utilised by the PWDs and community. How is this assessed/evaluated?

4.6 CONCLUSION

This chapter presented the results obtained in this systematic review. Twelve studies were identified for inclusion in the systematic review however two of these were excluded due to poor ranking on the hierarchy of evidence. The ten studies included nine qualitative studies and one quantitative observational study. Most of the studies were from low to middle income countries and were authored mostly by health workers. Universities carried out most of the evaluations followed by non-governmental organisations. Only one evaluation was carried out by a government department. The quality of included studies was good for three studies and fair for seven studies. From the ten studies 44 elements were identified for evaluation of CBR under the following categories: Empowerment, Service delivery, Policy, Management and Human resources. Further abstraction to identify system-related elements to evaluate CBR resulted in four categories of 25 elements. The categories are Policy, Management, Community participation and Service delivery. These results are discussed in Chapter 5.

CHAPTER 5

5. DISCUSSION

This chapter provides a discussion of the results presented in chapter four which are based on the objectives of the systematic review. The overall aim of the systematic review was to identify system-related elements that can be used for evaluating CBR programmes. The specific objectives focussed on assessing available literature, its quality and identification of system evaluation elements.

5.1 AVAILABILITY OF LITERATURE ON CBR

There were only 12 studies that could be included in the systematic review on CBR evaluation based on the inclusion criteria. The dearth in literature shows that there still is little documented evidence on the effectiveness of CBR. This statement concurs with literature (Grandisson et al., 2014b, Mitchell, 1999b, Cornieljie et al., 2008, Finkenflugel et al., 2005b) which asserts that although CBR has been practiced for a long time, there is little evidence that demonstrates its effectiveness. As such there is a call to use evaluation as a method to measure success or failure in CBR (Cornieljie et al., 2008).

Most of the studies were carried out by university affiliated authors (n=6), followed by NGO affiliated authors (n=3) and a collaboration between NGO and university (n=2) and only one by an author from a government department. These results show the significant role universities are taking in contributing to the evidence of CBR evaluation. It is therefore possible that CBR evaluations are being externally funded possibly due to the lack of human and financial resources within CBR programmes which deters them from carrying out evaluations as pointed out by Mitchell (1999b) and Velema et al. (2008a). The results show that most of the reporting is being done in Asia (n=6) followed by Africa (n=3) in concurrence with Lukersmith et al. (2013) who had 32 out of 34 reports from low to middle income countries in their literature review. The surge in reports from low to middle income countries could be attributed to the fact that CBR is a strategy that is being implemented mostly in the developing countries (McColl et al., 2009, Zambone and Suarez, 2010) and that universities have become actively involved in CBR evaluation reporting.

A high number of articles (n=15) were excluded on the basis that they were not referring to CBR strictly but to any form of rehabilitation in the community setting. The

reference to CBR in their titles attests to the confusion in understanding which exists between rehabilitation in the community and CBR (Kendall et al., 2009, Velema et al., 2008b, Finkenflugel et al., 2005b, Pollard et al., 2009). Only four studies included in this systematic review defined CBR using the WHO definition. However all the included studies did refer to CBR in their programmes either through aligning their programmes to the CBR matrix, referring to why CBR was started or using the CBR guidelines in programme implementation. An important characteristic of CBR programmes that was common amongst the programmes under review was that the PWDs were being supported by their communities in their communities (Finkenflugel et al., 2008), the characteristic which made the reviewed studies relevant to CBR. After identifying the articles that aligned to the inclusion criteria the articles were reviewed for quality using hierarchy of evidence by Evans (2003), The Critical Appraisal Skills Programme (CASP) for qualitative studies and the Strengthening The Reporting of Observational studies (STROBE) checklist (Grandisson et al., 2014a).

5.2 QUALITY OF REVIEWED LITERATURE

The majority of the studies that were eligible for inclusion in this review, eight out of twelve, were ranked as fair based on Evans (2003) hierarchy of evidence. All of these were qualitative studies. Three studies were ranked good and of these two were qualitative studies and one was a quantitative study. The two qualitative studies that were ranked good were multi-centre studies. The ranking of qualitative studies using the Evans (2003) hierarchy of evidence was therefore not good overall. This is despite the fact that the Evans hierarchy of Evidence does not focus only on effectiveness but considers appropriateness and feasibility in determining the level and quality of evidence. Ten of the studies were qualitative studies and in reviewing qualitative studies appropriateness and feasibility are important elements which assess whether an intervention will be used by recipients (appropriateness) and the resources needed for implementation (feasibility) (Evans, 2003). Most hierarchies of evidence focus on the dimension of effectiveness using empirical data therefore it would not be possible for the two qualitative studies to be ranked as good using them (Evans, 2003). This is supported by literature which says the quality of CBR research is low based on widely used hierarchies of evidence (Bowers, Kuipers and Dorset, 2015) and that there was a limitation in reviews that were done previously due to the low quality of existing research (Finkenflugel et al., 2005b, Velema et al., 2008a). The few identified systematic reviews on CBR therefore focus on assessing methodological quality as is the case in systematic reviews by Grandisson et al. (2014a), Iemmi, Gibson, Blanchett, Kumar, Rath, Hartley, Murthy, Patel, Webber and

Kuper (2015). One systematic review (Chipps, Simpson and Brysiewicz, 2008) ranked the studies as according to the Oxford Centre for Evidence Based Medicine (2011) and found that the studies under review had poor design and small sample sizes. No literature on CBR evaluation has been found that has used Evans (2003) hierarchy of evidence to rank CBR literature before. A ranking of good on the Evans (2003) hierarchy of evidence gives assurance that the evidence contributed by these articles is valid for CBR, however, the methodological quality of the studies impacts on the level of evidence. As such, studies with poor methodological quality would fall in ranking on the Evans (2003) hierarchy of evidence.

Methodological quality was assessed using the Critical Appraisal Skills Programme (CASP) for qualitative studies and Strengthening The Reporting of Observational Studies (STROBE) checklist. Nine of the included studies obtained a good score based on the CASP for qualitative studies and the STROBE checklist for observational studies. Comparison with the systematic review by (Grandisson et al., 2014a) shows that the qualitative studies obtained good scores using the CASP (scores between 7-10) and STROBE (score of 16 out of 22). The results of the methodological quality assessment between the study by Grandisson et al. (2014a) and this systematic review are therefore in agreement. Iemmi et al. (2015), included randomised and non-randomised control trials only in their systematic review on CBR. They assessed methodological quality using the Risk of Bias tool, and found that it was difficult to accurately assess risk of bias due to lack of information on the procedure used for randomisation. The studies included in the systematic review by Iemmi et al. (2015) could therefore be judged as having poor methodological quality using the Risk of Bias tool. The difference in methodological quality between the aforementioned studies and that by Iemmi et al. (2015) could thus be attributed to difficulties with randomisation in CBR programmes which may contribute to the judgement that the RCTs were of poor methodological quality. The very nature of CBR which is based on a community development approach, contributes to the difficulty of implementing an RCT as the outcome variables are diverse and influenced by multiple confounders.

Three studies did not perform well on either the hierarchy of evidence or the CASP or both. Cornieljie et al, (2008) was ranked poor on Evans hierarchy of evidence based on study design and was subsequently not evaluated for methodological quality (Evans, 2003). Roe et al. (2014) and Reimer and LeNavenec (2005) scored four and six respectively on the CASP. Roe et al. (2014) thus fell from fair to poor on the

hierarchy of evidence due to the poor methodological quality while Reimer and LeNavenec (2005) was regarded fair on both scales. The studies that were ranked poor after considering all methods of assessment were excluded from the review. This helped improve the validity of the results of this systematic review (Evans, 2003). The methodological quality in the studies that did not score well on the CASP was affected by how the studies addressed the different areas considered essential based on the CASP questions.

Ethical consideration was the most poorly reported area on the CASP with three qualitative studies not reporting on it**.** This can allude to poor methodological rigour and neglect of the basics of research especially given the fact that all studies involved human subjects. However, this could also be a result of poor reporting due to limited word count associated with writing the article. The methodological quality assessment also revealed that the most common methodology used in CBR evaluation is the qualitative method. This finding is consistent with literature which says that the field of CBR has been dominated by qualitative evaluation methodologies that describe practice with very few RCTs (Chung et al., 2011, Wirz and Thomas, 2002, Lukersmith et al., 2013, Grandisson et al., 2014a). This is supported by Cornieljie et al. (2008) who says that the source of information for management and development of CBR is key informants, transect walking and ethnographic descriptions informed by baseline surveys which are methods used in qualitative research. A comparison with literature reviews on CBR revealed that most CBR evaluations use mixed methods and qualitative methods with very few using quantitative methods (Lukersmith et al., 2013, Chipps et al., 2008, Finkenflugel et al., 2005b). The use of qualitative methodology in CBR evaluations could possibly be that qualitative methodology provides an opportunity for rich data to emerge on why things happen, what happens and how (Siu et al., 2009b), thereby providing insight into the context of the programme (Stubbs and Achat, 2011). On the contrary, quantitative methodology focusses on what and how much without giving insight into the reasons why (Siu et al., 2009b). The complexity of the questions asked in CBR evaluations in relation to the multiple components such as health, education and livelihoods that constitute the CBR matrix require multiple methods of data collection (Lukersmith et al., 2013). The involvement of multiple disciplines, PWDs and the community in CBR programmes (Mitchell, 1999b) also necessitates data collection on the views and experiences of the programme beneficiaries and participants in order for evaluations to be meaningful given that CBR is a social and not a medical issue (Velema et al., 2008a, Lukersmith et al., 2013, Chappell and Johannsmeier,

2009). The process of eliciting these views and experiences requires the use of qualitative methods which enables one to assess the performance of the CBR programme (Chappell and Johannsmeier, 2009) on the different domains of the CBR matrix as implemented in the particular programme (Chung et al., 2011). The differences that exist in the way that CBR programmes are implemented based on the specific and unique needs of the community being served, give rise to programmes with different areas of focus. The propensity for wide variation of focus areas makes CBR a complex intervention to evaluate and compare programmes (Bowers et al., 2015, Adeoye et al., 2011).

5.3 ELEMENTS USED IN EVALUATION OF CBR

The focus of evaluation differed across the ten studies included in the review which made it a very heterogeneous group of studies. As such, a wide range of elements were used in the evaluation of the CBR programmes. CBR as a strategy is based on the needs of PWDs which may not be similar across societies therefore each programme has the liberty to choose which aspects to focus on based on the CBR matrix (Khasnabis and Motsch, 2008, World Health Organisation et al., 2010).

A large number (44) of elements for CBR evaluation were identified in the ten studies reviewed. Of the identified elements only a small number occurred frequently across the studies. The wide variation in evaluation elements can be attributed to the difference in focus of evaluation which could also have been influenced by professional bias of the authors. For example the study by Higashida (2014), a social worker, focussed on community mobilisation and getting PWDs involved in the community. The programme did not address physical problems therefore the elements identified from the programme evaluation similarly do not focus on physical aspects of CBR intervention. Another example is in Reimer and LeNavenec (2005) in the nursing field, who evaluated functional change as a measure of quality of life with little reference to social life thus focussing the elements on that area of evaluation. The evaluations by Chung et al. (2011) (Occupational Therapists) and that involving multiple disciplines (a social scientist and a health scientist) (Adeoye et al., 2011) were more comprehensive when compared to the list of CBR evaluation elements identified in this systematic review. Scope of CBR therefore affected frequency of elements across reports. Of comfort is that nine of the studies aimed to integrate the PWDs and improve their quality of life which were the most common elements identified. Integration of PWDs into society and improving their quality of life are in

general the main aims of rehabilitation (Ministry of Health, 2011, Velema et al., 2008a) across the CBR matrix domains.

Comparing the elements identified in this systematic review to the CBR matrix (World Health Organisation et al., 2010), the identified elements evaluated health, social and empowerment domains of the CBR matrix as shown in Table 5.1 below:

Table 5.1: Showing Elements Identified in this review that can be used for Evaluation of the CBR Matrix Elements

COMPONENT	ELEMENTS OF CBR MATRIX	ELEMENTS FOR EVALUATION
HEALTH	Promotion	-Utilisation of services
	Prevention	-early detection and intervention
	Medical care	- Communication - Cognitive function - Psychological health - Muscle strength - Emotion/mood - Social interaction
	Rehabilitation	- Communication - Cognitive function - Psychological health - Muscle strength - Emotion/mood - Social interaction
	Assistive devices	
EDUCATION	Early childhood	
	Primary	
	Secondary & higher	
	Non-formal	
	Lifelong learning	
LIVELIHOOD	Skills development	-addressing poverty -use of local resources
	Self-employment	
	Wage employment	
	Financial services	
	Social protection	-advocacy
SOCIAL	Personal assistance	-Family involvement in rehabilitation
	Relationships marriage & family	-Family involvement in rehabilitation
	Culture & arts	-Religious
	Recreation, leisure & sports	-Social integration

COMPONENT	ELEMENTS OF CBR MATRIX	ELEMENTS FOR EVALUATION
	Justice	-Self identification
EMPOWERMENT	Advocacy & communication	-Advocacy -Communication -Self-awareness -National/government level support -Accessibility of environment
	Community mobilization	-Family involvement in rehabilitation -Training of community -Participatory process -Use of local resources -Training of field staff
	Political participation	-Social integration -National/government level support
	Self-help groups	-Networking
	Disabled people's organizations	-Collaboration

The spread of elements across the CBR matrix can be attributed to the focus of evaluation across the studies and the author affiliations most whom were health workers (n=6) and social workers (n=2). The biomedical roots of CBR could be the other reason why CBR programmes focus on health as noted in Bowers et al. (2015). Different focus areas in CBR reflect the complexity of CBR as an intervention which requires a large pool of indicators in order to evaluate all the aspects (Wirz and Thomas, 2002). Community-based rehabilitation programmes should therefore be evaluated according to their specific components of the CBR matrix, as stated by Finkenflugel et al. (2008). The areas of education and livelihoods were not commonly evaluated in the reviewed literature which is consistent with findings by Bowers et al. (2015) who also found out that these two areas were not addressed in the literature they reviewed. The lack of CBR evidence in the education and livelihood domains necessitates further research, as suggested by Bowers et al. (2015) which could assist in the identification of elements for evaluation of these two domains.

5.4 IDENTIFICATION OF SYSTEM RELATED ELEMENTS FOR EVALUATION

This study revealed 44 elements for evaluation of CBR. The elements were categorised into five higher order headings namely management, human resources, service delivery, empowerment and policy. The aforementioned categories were obtained through a constant comparison process which was validated by two experts. Adeoye et al. (2011) also came up with five themes that were considered important by participants in two CBR programmes. The themes are:

1) Participation of PWDs in planning/implementation of CBR
2) Changing community attitudes

3) Implementing disability policies
4) Promoting/increasing community awareness
5) Accessing services.

When Adeoye et al. (2011)'s five themes were compared to the themes that emerged from this study there was similarity and alignment as depicted in Table 5.2.

Table 5.2: Comparison of Identified Categories from Adeoye et.al. (2011) and this Review

Category by Adeoye et al. (2011)	Similar category from this systematic review
Participation of PWDs in planning/implementation of CBR	Empowerment Human resources
Changing community attitudes	Service delivery
Implementing disability policies	Policy
Promoting/increasing community awareness	Service delivery
Accessing services	Service delivery Management

Adeoye et al. (2011) derived these categories through interviews and focus group discussions with PWDs and therefore they can be considered priority areas according to PWDs. The priority areas as derived by Adeoye et al. (2011) have been addressed in the framework for evaluation identified in this systematic review.

The focus of this study was to identify system related elements for evaluation of CBR. Literature relating to health systems was reviewed and used to assess and compare our results with the literature. Two domains exist that are applicable to health systems, the health system building blocks (World Health Organization, 2007) and the health system domain and elements by Pina et al. (2015) have been used for this comparison. A comparison of the results with the two health system domains is presented and discussed.

The system related elements in this study were identified under four subheadings that is policy, service delivery, community participation and management. Comparing the identified system evaluation elements to existing domains could contribute to validation of these elements. Table 5.3 shows the arrangement of the elements into the existing domains when compared to WHO building blocks and the domains and elements by Pina et al. (2015).

Table 5.3: Showing how the Identified Elements fit into the Building Blocks and Domains and Elements of Health Systems

BUILDING BLOCKS OF HEALTH SYSTEMS (WHO, 2007)	DOMAINS (Pina et al. 2015)	ELEMENTS (Pina et al., 2015)	DERIVED ELEMENTS FROM THIS SYSTEMATIC REVIEW
Medical products, vaccines and technologies	Capacity	Size, capital assets, comprehensiveness of service	-Networking and collaboration (available services and organisations) - Monitoring & Evaluation
Leadership and governance	Organisational structure	Organizational configuration, leadership, structure, governance, research and innovation, professional education	-Management -National/government level support -Structure of human resource management -Participatory process - Training empowerment for field staff -Training of community
Financing	Finances	Payment received for services, provider payment systems, ownership and financial solvency.	-Balance between income and expenditure -Use of local resources
Information	Patients	Patient characteristics, geographical characteristics	-Baseline data -needs assessment - M & E -Communication system -Record keeping
Service Delivery	Care processes and infrastructure	Integration, standardization, performance measurement, public reporting, quality improvement, health information systems, patient care teams, clinical decision support, care coordination	- Management information system - M & E -Accessibility of services -Utilisation of services -Continuous entry of new service users -Early intervention -Collaboration -Networking -involvement of family in rehabilitation
	Culture	Patient-centeredness, cultural competence, competition-collaboration continuum, community benefit, innovation diffusion, working climate	COMMUNITY INVOLVEMENT -Training of community -Use of local resources -Addressing poverty -Advocacy -Empowerment of PWDS -Impact of training on staff -Involvement of family in rehabilitation
Health workforce			-Stable human resources -Staff performance -Training of field staff

Table 5.3 shows that the identified elements are relevant to health systems and that they are aligned to the health system domains using both the building blocks of

health systems (World Health Organization, 2007) and the domains by Pina et al. (2015). CBR as a programme can be domiciled in any ministry for example social services, education or health with collaboration between the other ministries (World Health Organisation et al., 2010) making this approach to system identification appropriate.

The identified system elements align with the building blocks of the health systems to the exclusion of elements which evaluate effect on PWDs, for example increased muscle strength. Exclusion of the evaluation elements that focus on effect is because such elements are better placed to assess individual outcomes rather than the system as a whole. The excluded elements contribute to evaluation of the service delivery component of the system. The elements could then be evaluated under an umbrella term such as patient need based outcomes.

The system elements identified in this study can be compared to related work on CBR evaluation (Mijnarends et al., 2011, Finkenflugel et al., 2008). A similar study which focussed on identifying the conditions necessary for sustainable CBR programmes (Mijnarends et al., 2011) identified the broad categories namely, human resources, organisational setting, social and political environment and financing and their elements as the core factors for sustainable CBR programmes to the exclusion of factors to do with impact on individuals. Finkenflugel et al. (2008) classified indicators as structure, process and outcome indictors. Structure in this case referred to project area and its relevant aspects including aspects such as existence of political support and linkages with other programmes. Process referred to whether procedures were being followed in carrying out tasks/activities and described the programme process while output referred to impact of the programme. In the case of this systematic review the system elements would thus be classified under structure and process indicators and therefore the output indicators would not be relevant. Agreement was found between the elements listed by Pina et al. (2015) and the system related elements identified in this review. Pina et al. (2015) derived a list of the elements that are applicable to systems through focus group discussions with different health service providers, which were used to guide the classification of the elements identified in this review as system elements.

5.5 APPLICABILITY OF SYSTEM ELEMENTS TO CBR EVALUATION

In order to verify whether the identified elements are applicable to CBR, an existing framework which was proposed by Chung et al. (2011) in CBR evaluations can be

used. The domains and elements identified as relevant to the system in the study by Chung et al. (2011) are given in Table 5.4 with a comparative list based on the elements identified in this review.

Table 5.4: Identified Elements as Compared to Chung et.al (2011)

Domains and Elements (Chung et al., 2011)	**Elements from this systematic review**
Domain Two – CBR related programme content Advocacy Networking Involvement of relatives and families of PWDs CBR manager CBR workers	-Management -Networking -Collaboration -Involvement of family in rehabilitation -local field workers (use of local resources) -Baseline/needs assessment -Advocacy
Domain three – participant empowerment/governance Leadership role in community Self-help and mutual help Autonomy in programme	*Empowerment* -Community involvement -Training of community -Use of local resources -Addressing poverty -Empowerment of PWDs -Networking e.g. with DPOs
Domain four – community ownership Community support and recognition National/government level support Collaboration and support among different sectors	-National/government level support -Participatory process -Collaboration among service providers
Domain Five Programme operation and development Compliance to relevant service standards Ethical practices Management issues Sustainability Continuous growth and development	*Human resource management* -Structure of human management of human resources -Stable human resources -Training empowerment for field staff *Financial management* -Balance between income and expenditure -Use of local resources *Quality assurance* -Impact of training on staff - M & E -Record keeping *Information management system* -Baseline data -Communication system *Service delivery* -Accessibility of services -Utilisation of services -Continuous entry of service users -Early intervention

All the elements identified for use in CBR evaluation in this systematic review have been proposed as CBR evaluation elements by Chung et al. (2011) although they are at times expressed in different terms such as collaboration and support among different sectors (Chung et al., 2011) is presented as collaboration among service providers in this systematic review. The identified system evaluation elements from

this study are consistent with the indicators used in the framework by Chung et al. (2011) under three domains:

1) CBR related programme content;
2) Participant empowerment/governance; and
3) Community ownership.

Similar elements were also suggested by Mijnarends (2011) in a study to establish conditions necessary for sustainable CBR programmes under four categories namely organisational setting, human resources, financing and social and political environment. The similarity in concepts under which the elements fall validates the system elements found from this review and could contribute to clarity in developing evaluation frameworks and tools for CBR.

5.6 CONCLUSION

There was a large pool of elements identified from the few studies included in this systematic review, which is evidence of the complexity of CBR programmes as guided by the CBR matrix. The system related elements were identified and compared to existing frameworks for validation. The following frameworks were used to discuss the findings of this systematic review: CBR matrix (World Health Organisation et al., 2010), WHO health systems building blocks (World Health Organization, 2007), Pina's health system domains and elements (Pina et al., 2015) and the CBR evaluation framework (Chung et al., 2011). Identified system elements which have been validated through these frameworks can be used in CBR evaluations and contribute to the formulation of indicators for CBR evaluation. The identified elements help address the problem of the lack of indicators in CBR as noted in literature (Wirz and Thomas, 2002, Skempes and Bickenbach, 2015).

Most of the elements for evaluation of CBR were derived from qualitative studies. Evans (2003), hierarchy of evidence showed that qualitative studies can be ranked good on the hierarchy of evidence and thus provide valid evidence to systematic reviews. Comparison of the derived CBR evaluation elements with the CBR matrix showed that health domain of the remains the key focus area of CBR programmes followed by empowerment and social domains. There is a dearth of literature addressing the education component and very few elements of the livelihood domain have been evaluated in the literature under review. Chapter 6 gives the conclusion and recommendations of this systematic review.

CHAPTER 6

6. CONCLUSION AND RECOMMENDATIONS

This chapter presents a summary of the research findings. The objectives of this systematic review were to establish the availability of literature on CBR, to assess the quality of literature on CBR evaluation and to identify the categories of elements used to evaluate CBR programmes with the focus of coming up with system-related elements on evaluation of CBR.

6.1 SUMMARY

The background information on CBR, what it is, its benefits and how it relates to systems thinking was presented together with the aims and objectives of the research. Literature was reviewed that presented the problems faced by people with disabilities (PWDs), the relationship between poverty and disability, monitoring and evaluation in CBR and the gaps that exist, systems and how they relate to CBR, systems research and its relevance to the development of CBR. The literature review also looked at the different frameworks for assessing quality of research on CBR and content analysis as a method of data extraction and analysis used in systematic reviews. A systematic review was carried out which addressed the aims and objectives of the research.

A systematic search of literature used four data bases, the WHO website and Google scholar revealed that there is a paucity of literature on CBR evaluation which is dominated by qualitative research. The quality of literature under review was fair overall according to Evans (2003). Two articles ranked poor due to the chosen study design and poor methodological quality respectively. These two studies were excluded from the review. There were 44 elements identified for evaluation of CBR. The identified elements evaluated mainly the health, social and empowerment domains of the CBR matrix. The evaluation elements were categorised into five domains namely empowerment, policy, service delivery, human resources and management. Twenty-five system-related elements for evaluation of CBR were identified under four domains that is policy (national/government level support), service delivery (accessibility of services, utilisation of services, continuous entry of new service users, early intervention, networking and collaboration), community participation (participatory process, training of community, use of local resources, empowerment of PWDs, advocacy, addressing poverty, networking and

collaboration) and management (structure of management of human resources, stable human resources, training/empowerment of field staff, staff performance, use of local resources, balance between income and expenditure, baseline data, communication system, record keeping, impact of training on staff, monitoring and evaluation, needs assessment). The presented findings were then discussed in the subsequent chapter.

The Discussion chapter reflected on the results presented in chapter 4. Most of the reviewed evaluation reports were carried out by university affiliated authors. The literature was predominantly from low to middle income countries and the authors were mostly health workers. The reviewed CBR evaluation literature focussed mainly on the health, empowerment and social domains of the CBR matrix and less on the education and livelihoods domains. There were a large number of elements identified for evaluation of CBR in spite of the fact two domains of the CBR matrix were excluded from evaluation. When compared to existing frameworks the elements identified for evaluation of CBR were found to be aligned to the frameworks used in health systems and CBR.

Alignment of evaluation elements to health system frameworks may indicate that CBR programmes have been driven by health sector participants. With the new CBR matrix there is need to drive programmes that are truly inter-sectoral and multidisciplinary in nature. Coordinated inclusion of other sectors would create more balanced CBR programmes that would result in balanced evaluation of any CBR programme. On the contrary CBR programmes are needs based and the most evident needs may influence the focus of which elements are used. However the development of CBR and the broader definition of health certainly calls for more balanced implementation and evaluation if a truly development approach is undertaken.

6.2 LIMITATIONS OF THE STUDY

The main limitation of this study was the inclusion of literature ranked as fair on the level of evidence thereby compromising the validity of the results of the study. Secondly, the sample size was small, as such, the identified elements were included on the basis of them being used in evaluation and not on how frequently they appeared in the evaluations. Thirdly the differences in focus of CBR across reports also presented a challenge as it gave rise to different areas of evaluation. It was therefore not possible to establish the common elements used in CBR evaluation

based on the heterogeneous studies under review. Most CBR programmes carry out evaluations which are never published in peer reviewed journals but could however, be important sources of information for the purposes of coming up with system-related evaluation elements for CBR. As such, the absence of grey literature from this systematic review is the fourth limitation which could compromise the results of this study.

6.3 CONCLUSION

In conclusion, 25 elements that can be used to evaluate the system in CBR programming have been identified in this study. However, it is evident that CBR still focusses on health predominantly possibly due to its biomedical roots. This could be why most of the evaluations in this study were by health workers. Other elements such as education and livelihoods need further focus so as to comprehensively address the CBR matrix elements. The evidence base of CBR as a strategy still needs to be further developed, pointing to the need to document the effectiveness of CBR as an intervention. CBR evaluation should therefore be taken as a priority when implementing programmes making it necessary to put systems in place that promote evaluation, research and development in CBR programmes.

6.4 RECOMMENDATIONS

- There is need for further research to validate and refine the system-related elements identified in this systematic review.
- Research to augment the findings of this review which focuses on other areas of CBR evaluation is recommended so that a complete set of evaluation elements is available.
- Once CBR evaluation elements are in place, a comprehensive evaluation tool can then be developed.
- There is also a need to implement CBR programmes that address the education and livelihoods domains of the CBR domains of the CBR matrix to enable full participation of PWDs in society. The comprehensive programmes will reveal the areas that need evaluation in the poorly reported domains.

  In order to achieve comprehensive CBR programmes it may be necessary to provide CBR training to CBR workers with an education and social work background for example special education teachers and social workers. This training will facilitate implementation of comprehensive CBR programmes.

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APPENDIX A

- **CRITICAL APPRAISALSKILLS PROGRAMMES**



10 questions to help you make sense of qualitative research

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of a qualitative research:

- **Are the results of the review valid?**
- **What are the results?**
- **Will the results help locally?**

The 10 questions on the following pages are designed to help you think about these issues systematically. The first two questions are screening questions and can be answered quickly. If the answer to both is “yes”, it is worth proceeding with the remaining questions.

There is some degree of overlap between the questions, you are asked to record a “yes”, “no” or “can’t tell” to most of the questions. A number of prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

There will not be time in the small groups to answer them all in detail!

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Screening Questions

1. Was there a clear statement of the aims of the research?

□Yes □Can‘t tell □No

HINT: Consider

- What was the goal of the research?
- Why it was thought important?
- Its relevance

---

2. Is a qualitative methodology appropriate?

□Yes □Can‘t tell □No

HINT: Consider

- If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants
- Is qualitative research the right methodology for addressing the research goal?

Detailed questions

3. Was the research design appropriate to address the aims of the research?

□Yes □Can’t tell □ No

HINT: Consider

- If the researcher has justified the research design (e.g. have they discussed how they decided which method to use)?

Is it worth continuing?



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4. Was the recruitment strategy appropriate to the aims of the research?

□**Yes** □**Can't tell** □**No**

HINT: Consider

- If the researcher has explained how the participants were selected
- If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study
- If there are any discussions around recruitment (e.g. why some people chose not to take part)

5. Was the data collected in a way that addressed the research issue?

□**Yes** □**Can't tell** □**No**

HINT: Consider

- If the setting for data collection was justified
- If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)
- If the researcher has justified the methods chosen
- If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews were conducted, or did they use a topic guide)?
- If methods were modified during the study. If so, has the researcher explained how and why?

- If the form of data is clear (e.g. tape recordings, video material, notes etc.)
- If the researcher has discussed saturation of data

---

6. Has the relationship between researcher and participants been adequately considered?

□Yes □Can't tell □No

HINT: Consider

- If the researcher critically examined their own role, potential bias and influence during
  (a) Formulation of the research questions
  (b) Data collection, including sample recruitment and choice of location
- How the researcher responded to events during the study and whether they considered the implications of any changes in the research design

7. Have ethical issues been taken into consideration?

□Yes □Can't tell □No

HINT: Consider

- If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained
- If the researcher has discussed issues raised by the study (e.g.

issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)

- If approval has been sought from the ethics committee

---

8. Was the data analysis sufficiently rigorous?

□Yes □Can't tell □No

HINT: Consider

- If there is an in-depth description of the analysis process
- If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data?
- Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- If sufficient data are presented to support the findings
- To what extent contradictory data are taken into account
- Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation

9. Is there a clear statement of findings?

□Yes □Can't tell □No

HINT: Consider

- If the findings are explicit
- If there is adequate discussion of the evidence both for and against the researchers arguments
- If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)
- If the findings are discussed in relation to the original research question

---

10. How valuable is the research?

HINT: Consider

- If the researcher discusses the contribution the study makes to existing knowledge or understanding e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature?
- If they identify new areas where research is necessary
- If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used

APPENDIX B

- **STROBE CHECKLIST**

STROBE CHECKLIST
STROBE 2007 (v4) Statement—Checklist of items that should be included in reports of *cohort studies*

Section/Topic	Item #	Recommendation	Reported on page #	
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract		
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found		
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported		
Objectives	3	State specific objectives, including any prespecified hypotheses		
Methods				
Study design	4	Present key elements of study design early in the paper		
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection		
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up		
		(*b*)For matched studies, give matching criteria and number of exposed and unexposed		
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable		
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group		
Bias	9	Describe any efforts to address potential sources of bias		
Study size	10	Explain how the study size was arrived at		
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why		
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding		
		(*b*) Describe any methods used to examine subgroups and interactions		
		(*c*) Explain how missing data were addressed		
		(*d*) If applicable, explain how loss to follow-up was addressed		
		(*e*) Describe any sensitivity analyses		

Section/Topic	Item #	Recommendation	Reported on page #	
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed		
		(b) Give reasons for non-participation at each stage		
		(c) Consider use of a flow diagram		
Descriptive data	14*	(a) Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders		
		(b) Indicate number of participants with missing data for each variable of interest		
		(c) Summarise follow-up time (e.g., average and total amount)		
Outcome data	15*	Report numbers of outcome events or summary measures over time		
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included		
		(*b*) Report category boundaries when continuous variables were categorized		
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		
Other analyses	17	Report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses		
Discussion				
Key results	18	Summarise key results with reference to study objectives		
Limitations				
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence		
Generalizability	21	Discuss the generalizability (external validity) of the study results		
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based		

*Give information separately for cases and controls in case-control studies and, if applicable,

For exposed and unexposed groups in cohort and cross-sectional studies

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article.

(freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

APPENDIX C

Human Research Ethics Committee (Medical)

Research Office Secretariat: Senate House Room SH10005, 10th floor. Tel +27 (0)11-717-1252
Medical School Secretariat: Tobias Health Sciences Building, 2nd floor Tel +27 (0)11-717-2700
Private Bag 3, Wits 2050, www.wits.ac.za. Fax +27 (0)11-717-1265

Ref: W-CJ-151016-1. 16/10/2015

TO WHOM IT MAY CONCERN:

Waiver: This certifies that the following research does not require clearance from the Human Research Ethics Committee (Medical).

Investigator: **Ms P Kusuwo (student number 886335)**

Project title: **A systematic review to identify system related elements that can be used to evaluate community-based rehabilitation (CBR) programmes.**

Reason: This study uses information in the public domain. There are no human participants.

UNIVERSITY OF THE WITWATERSRAND
PROFFE CLEATON - JONES
HREC (MEDICAL)
2015 -10- 16
JOHANNESBURG

Professor Peter Cleaton-Jones

Chair: Human Research Ethics Committee (Medical)

Copy – HREC (Medical) Secretariat: Zanele Ndlovu.

APPENDIX D

- **HIERARCHY OF EVIDENCE ACCORDING TO EVANS (2003)**

	Effectiveness	Appropriateness	Feasibility
EXCELLENT	Systematic reviews Multi-centre studies	Systematic reviews Multi-centre studies	Systematic reviews Multi-centre studies
GOOD	RCT Observational studies	RCT Observational studies Interpretive studies	RCT Observational studies Interpretive studies
FAIR	Uncontrolled trials with dramatic results Before and after studies Non-randomised controlled trials	Descriptive studies Focus groups	Descriptive studies Focus groups Before and after studies Action research
POOR	Descriptive studies Case studies Expert opinion Studies with poor methodological quality	Case studies Expert opinion Studies with poor methodological quality	Case studies Expert opinion Studies with poor methodological quality

APPENDIX E

- **LETTER OF PERMISSION**

University of the Witwatersrand
Faculty of Health Sciences
School of Therapeutic Sciences
Physiotherapy Department
7 York Road
Parktown
Johannesburg
South Africa
2193

23 February 2016

Dr Chung
Professional Development and Research Unit
SAHK
18/F
Pak Fuk Road
North Point
Hong Kong

RE: PERMISSION TO USE YOUR FRAMEWORK IN MY SYSTEMATIC REVIEW

I am writing to request permission to use your framework in the deductive content analysis of my MSc in Physiotherapy research report entitled 'A systematic review to identify system related elements for evaluation of community-based rehabilitation." I am a post graduate student at the above-mentioned university and would like to use your study entitled 'A framework for evaluating community-based rehabilitation programmes in Chinese communities'. I may have to reproduce all or parts of your framework in making comparisons with mine in the research report or appendix.

My student number is 886335. My supervisors are Professor Hellen Myezwa and Mrs Sonti Pilusa.

Looking forward to a positive response

Yours sincerely



Pauline Kusuwo (Miss)

APPENDIX F

- **TURN-IT-IN REPORT**

Turnitin Originality Report

AsystematicreviewtoidentifysystemelementsforevaluationofCBR.docx by Pauline Kusuwo

From Research Report -Public health (waDMt5az33rrPr4Mn0KNd71nR0K0xqAqxH516v0rsiIGSz46LjOpmvmx9q60pv9IDayv09O19y10687gXLiBE52Bz1EyN2r

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Health Education, Volume 116, Issue 2 (2016)

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Mudzi, Witness; Stewart, Aimee and Musenge, Eustasius. "Community participation of patients 12 months post-stroke in Johannesburg, South Africa", African Journal of Primary Health Care & Family Medicine, 2013.

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paper text:

A SYSTEMATIC REVIEW TO IDENTIFY SYSTEM RELATED ELEMENTS THAT CAN BE USED TO EVALUATE COMMUNITY- BASED REHABILITATION (CBR) PROGRAMMES. by PAULINE KUSUWO 886335 A RESEARCH REPORT

21**SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS** OF **THE MASTERS IN**

PHYSIOTHERAPY (COMMUNITY) DEGREE

21**FACULTY OF HEALTH SCIENCES UNIVERSITY OF THE WITWATERSRAND**

Johannesburg, South Africa MARCH 2016 SUPERVISORS: Associate Professor Hellen Myezwa,

12**Department of Physiotherapy, University of the Witwatersrand**

Mrs Sonti Pilusa,

12**Department of Physiotherapy, University of the Witwatersrand**

DECLARATION I, Pauline Kusuwo, do hereby declare that the work presented in this research report is my own work which has never been submitted to this or any other university. It is being submitted to the University of the Witwatersrand, South Africa in partial fulfilment of the MSc. Physiotherapy programme. This research report shall not be submitted to any other university or degree programme in the future.
Signature..... Date.....
ABSTRACT BACKGROUND