ORIGINAL RESEARCH

Training Needs of Community-based Rehabilitation Workers for the Effective Implementation of CBR Programmes

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ABSTRACT

Purpose: *This review investigates the training needs of Community-based Rehabilitation (CBR) workers that would enable them to effectively facilitate CBR programmes. Emphasis was placed on identifying: (a) the skills that CBR workers require, (b) the training currently available for them, and (c) the gaps in current training.*

Method: *A scoping review was conducted using on-line database searches (Medline, Embase, CINAHL, PsycInfo, Global Health) for English articles from 2006 onwards. A combination of keywords related to CBR, personnel, and training were applied. Hand searches of reference lists and the DCID journal were also conducted. Grey literature related to training, from the World Health Organisation (WHO), CBR Regional Networks and organisations affiliated with CBR were included as secondary data. Thirty-three articles and thirty-five sources from the grey literature were included. Data was organised under the three objectives outlined above – i.e., required skills, available training, and training gaps.*

Results: *CBR workers represent a diverse group requiring a broad range of skills. A new cadre of mid-level workers is also necessary to effectively implement the CBR guidelines. There is currently no standardised training for CBR workers and training varies widely, depending on context. CBR workers require further training in various clinical, social, management, communication, and cultural competence skills across the spectrum of the CBR Matrix, and specifically in empowering persons with disabilities and facilitating community development. They also need to develop critical reasoning, creativity, and compassion.*

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Conclusion: *A standardised approach to training CBR workers would be beneficial to ensure basic standards and quality services, to allow meaningful comparison and evaluation across contexts, to recognise the role of mid-level CBR workers, and to strengthen the workforce. Further research is required to determine minimal competencies, define the roles of various CBR workers, and evaluate the effectiveness of training.*

Key words: *Community-based Rehabilitation (CBR), training, education, skills, competencies, CBR workers.*

INTRODUCTION

Following the Alma-Ata declaration of 'health for all' from the International Conference for Primary Health Care in 1978, the World Health Organisation (WHO) introduced Community-based Rehabilitation (CBR) in 1981 as "a strategy within general community development for the rehabilitation, equalisation of opportunities and social inclusion of all people with disabilities" (ILO, UNESCO and WHO, 2004). CBR was designed specifically for low- and middle-income countries where 80% of persons with disability live and are significantly more disadvantaged due to a general lack of governmental support (WHO, 2011).

Human resources are fundamental to the successful implementation of CBR. Several papers delineate CBR workers into three main levels: grass-roots workers, mid-level rehabilitation workers, and professionals (Wirz, 2000; Dunleavy, 2007; Chappell and Johannsmeier, 2009; Dawad and Jobson, 2011; Rule, 2013). However, CBR workers are a diverse group and the distinction between roles is not always clear, particularly between grass-roots workers and mid-level rehabilitation workers. Both grass-roots and mid-level workers can work directly with persons with disabilities and their communities to promote accessibility and inclusion. They are both involved in assessing function, providing information, and educating persons with disabilities and their families in daily living tasks and communication, basic equipment provision, and physical rehabilitation, as well as advocacy, liaising with the community and referring to appropriate specialist services (ILO, UNESCO and WHO, 2004; Finkenflügel, 2006; Dawad and Jobson, 2011). The main distinction appears to be determined by the amount of training and the skill level. Grass-roots workers (also referred to as Community Health Workers, Village Health Workers, Community Rehabilitation Workers, local supervisors, or CBR consultants) are often volunteers and may have several weeks or sometimes several months of local training that is not formally

accredited (Rule, 2006; Lehmann and Sanders, 2007; Dawad and Jobson, 2011; Rule, 2015). Meanwhile, mid-level workers (also referred to as Rehabilitation Assistants, Community Rehabilitation Workers, Community Disability Workers or Community Rehabilitation Facilitators) receive less training than professionals, but generally have some form of accredited training and perform rehabilitation tasks including clinical care, and health prevention and promotion (Lehmann, 2008; WHO, 2017). Also, mid-level workers often work independently in the community, without direct supervision from professionals, providing basic rehabilitation treatment, as well as supervising grass-roots workers and managing CBR programmes (Mitchell, 1999; Rule et al, 2006; Dunleavy, 2007; Lehmann, 2008; Dawad and Jobson, 2011). In contrast, health professionals have a certified degree and their primary role in CBR involves training, supervision and supporting mid-level workers through referral systems for specialised services (Finkenflügel, 2006; Finkenflügel and Rule, 2008; Dawad and Jobson, 2011). A global deficit in trained rehabilitation professionals, coupled with the training and retention costs of such workers, means that well-trained mid-level workers are considered a cost-effective approach to implement quality CBR services, particularly in low- and middle-income countries (Chappell and Johannsmeier, 2009; Deepak, 2011; WHO, 2011; Mannan et al, 2012a; van Pletzen et al, 2014; O'Dowd et al, 2015; Gilmore et al, 2017).

Ideally, CBR workers should be from the local community or have a disability themselves to foster acceptance, sustainability, and empowerment (ILO, UNESCO and WHO, 2004; Chappell and Johannsmeier, 2009; Deepak, 2011; van Pletzen et al, 2014). Rule et al (2015) investigated the characteristics of CBR workers in South Africa and found that childhood experiences, growing up in poor rural backgrounds, exposure to disability, knowledge of CBR work, and personal characteristics (e.g., a passion to help people), all contributed to workers' decision to pursue their career in CBR. They propose that knowing the characteristics of CBR workers can guide employment selection and the appropriate investment of training resources.

According to the Joint Position Paper, "CBR workers need to learn the skills used in training people with disabilities, and they need to learn how to provide this training in a competent manner" (ILO, UNESCO and WHO, 2004). However, there does not appear to be any standardised training to ensure that CBR workers are competent enough to effectively facilitate CBR programmes. The skill level of CBR workers varies widely due to diverse education and work experience,

and there is no consistent role description for them (Finkenflügel and Rule, 2008; van Pletzen et al, 2014). Training also varies, depending on the context and the objectives of specific CBR projects (Deepak, 2011; Mannan et al, 2012a; Raj and Thomas, 2015). Although context-specific and local training is necessary for maintaining relevance, a standardised training guideline would ensure that CBR workers attain a minimal competency level to equip them with the skills required to provide quality services (Gilmore et al, 2017). With the publication of the CBR guidelines and the CBR Matrix in 2010 (WHO, 2010), several researchers have highlighted the need to develop a system of training and support, and to expand the curriculum to broaden the skill-set of mid-level CBR workers to effectively implement these guidelines (Chappell and Johannsmeier, 2009; Deepak, 2011; MacLachlan et al, 2011; Mannan et al, 2012a; Mannan et al, 2012b; Rule, 2013; Rule et al, 2015; Gilmore et al, 2017).

Objective

The objective of this scoping review therefore, is to **determine the training needs of CBR workers to effectively facilitate CBR programmes.**

METHOD

As described by Arksey and O'Malley (2005), a scoping review is useful for summarising and disseminating research findings and identifying gaps in the literature related to a specific field.

Stage 1: Identifying the Research Question

For the purpose of this review on training needs, all CBR workers who are working directly with persons with disabilities and their communities were broadly included.

Aligning with the purpose of a scoping review, a broader research question – What are the training needs of CBR workers to effectively facilitate CBR programmes? – was developed with several objectives to focus the selection of sources:

- Identification of the various skills/competencies CBR workers require,
- Identification of what training is currently available for CBR workers to acquire the relevant skills, and
- Identification of the further training required by CBR workers.

Stage 2: Identifying Relevant Sources

In consultation with a Health Sciences librarian, the researchers conducted on-line searches of five main databases: CINAHL, Embase, Medline, Global Health, and PsycInfo. Search terms included: "community-based rehabilitation" and "health personnel", "train*", "education*", "curric*", "module*", "credential*", "qualification*", "certification*", and "professional development". In addition, we hand-searched the reference lists of selected articles as well as the Disability, CBR and Inclusive Development (DCID) Journal for "training", "education", and "CBR workers", to identify relevant articles.

The publication of the UN Convention on the Rights of Persons with Disabilities (CRPD) in 2006 marked a turning point for disability services; hence sources prior to 2006 were excluded. Only full text articles in English were included. Recognising that the majority of CBR training is not published or discussed in peer-reviewed articles, it was important to include "grey literature". Due to the difficulty in systematically searching through the vast number of organisations involved with CBR, the search was limited to the WHO (as the initiators of CBR), key International disability and development Non-Government Organisations (NGOs) affiliated with CBR, and regional CBR networks. The search of websites focussed on CBR "training", "education", and "courses". Relevant information was sourced from:

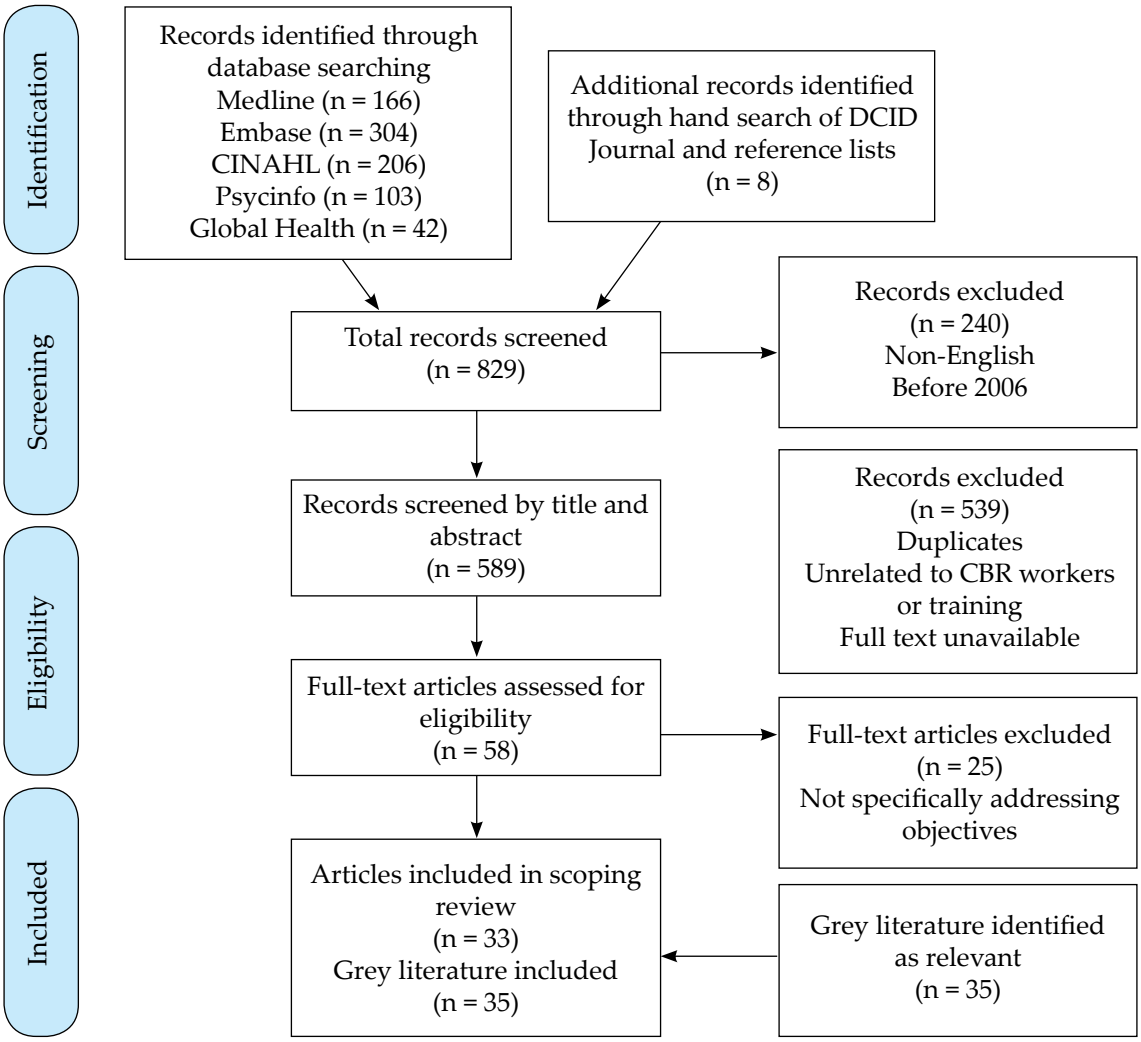
- World Health Organisation (WHO)
- Christian Blind Mission (CBM)
- Light for the World
- Enablement
- Humanity and Inclusion (HI)
- 'Source' – HI's International on-line resource centre on disability and inclusion
- CBR Network South Asia
- CBR Network Africa

Stage 3: Study Selection

The database searches elicited 821 results in total. The articles were initially screened by title and abstract, according to inclusion criteria. Articles were

also screened from reference lists and the DCID Journal and an additional 8 articles were included, identifying a total of 33 relevant articles (Figure 1). The articles were imported to Endnote Web to enable systematic management of the references. From the grey literature, 35 additional relevant sources were selected. Due to the difficulties associated with systematically identifying data, as well as the large amount of content and limited access to full training curricula within the grey literature, this data was used as secondary information to contribute to an overall understanding of available CBR training rather than specifically answering the research question on training needs.

Figure 1: PRISMA Flow Diagram of Article Selection Process



Stage 4: Charting the Data

After selecting relevant articles and other sources from the grey literature, an MS Excel spreadsheet was used to organise the data under the following headings: author, year published, location, design/type of study, study objectives, participants/population, methodology, key findings, and relevance to this review's objectives. Some headings proved irrelevant for certain articles including editorials, correspondence, and commentaries. For the grey literature, information was recorded under the same headings if it was an article, but for websites, reports, manuals etc., only the source, title, web link, and a summary (date and author were included if stated) were noted down.

Stage 5: Collating, Summarising and Reporting the Results

First, the overall data was examined to determine the nature and distribution of the articles, including which geographical locations were addressed, the design/type of study and the main participants/populations. Thereafter the key findings of the sources were collated, based on relevance to each of the study objectives and further discussion points.

RESULTS

There were 33 articles from the databases and hand searches, as well as 35 additional sources from the grey literature. Most of the articles related to CBR workers in Africa, followed by articles on workers in Asia. Only a small proportion of articles represented high-income countries – one each from the UK and Australia, and two from the US – and these focussed more on the roles of professionals or coordinators in CBR rather than on mid-level workers who were the predominant focus in articles from low- and middle-income countries. Most of the peer-reviewed articles were qualitative studies, and the rest were commentaries/discussion papers. The grey literature comprised websites from specific NGOs with information about training/courses/workshops, PDF documents of training manuals/tool-kits, and reports from the WHO, CBM, and 'Source' database.

What Skills/Competencies do CBR Workers require?

The literature highlights the critical role of CBR workers and the diverse skills they require to promote inclusive development for persons with disabilities and their communities (Table 1). Several authors discuss the need for developing a

'new/alternative cadre' of mid-level CBR workers to effectively implement the CBR guidelines (Mannan and MacLachlan, 2010; Mannan et al, 2012a; Mannan et al, 2012b; Lewis Gargett et al, 2016). However, to achieve this, CBR workers need a broad range of clinical, management and social skills, a supportive working environment, and a strong professional identity (Mannan and MacLachlan, 2010). Due to the global shortage of health professionals, particularly in low- and middle-income countries, a number of authors emphasise the importance of 'task-shifting', whereby mid-level workers are trained in a broad range of basic 'professional' rehabilitation skills including components from Occupational Therapy, Physiotherapy, and Speech Pathology (Mannan and MacLachlan, 2010; Dawad and Jobson, 2011; Mannan et al, 2012b; O'Dowd et al, 2015).

Table 1: Skills/Competencies required by CBR Workers

Broad Skills Required	Examples	References
Disability knowledge	Understand health conditions, basic diagnostic skills	Finkenflügel and Rule, 2008; van Pletzen et al, 2014
Generic clinical skills	Assessment, needs identification, goal setting, education of persons with disabilities/families, implementing interventions that address inclusion barriers	Finkenflügel, 2006; Como and Batdulam, 2012; Lorenzo et al, 2015; Gilmore et al, 2017
Specific clinical skills	Gait training, manual therapy, positioning, exercises, upper body rehabilitation	O'Dowd et al, 2015
	Functional skills training, prescribing assistive devices	Chappell and Johannsmeier, 2009; van Pletzen et al, 2014
Communication skills	Counselling, advocacy, networking/ collaboration, mobilising communities (e.g., forming self-help groups), health promotion	Finkenflügel and Rule, 2008; Kendall et al, 2011; Moran, 2014; Lorenzo et al, 2015; O'Dowd et al, 2015
Management skills	Record keeping, referrals,case management, evaluation/monitoring	Moran, 2014; Gilmore et al, 2017
	Using local resources	Kotbungkair, 2010
Cultural competence	Identifying biases, respecting others' values and beliefs	Chipps et al, 2008; Taylor-Ritzler et al, 2008; Kendall et al, 2011
Higher-level cognitive skills	Creativity, reflexive reasoning, and critical thinking	Kendall et al, 2011; Kuipers and Cornielje, 2012

What Training is Currently Available for CBR Workers?

The review identified a tremendous variation in the CBR training that is currently available (Table 2). Several official diplomas and degrees have been accredited by national institutions, e.g., in Uganda (Kyamboga University, n.d.), East Timor, and Nigeria (Enablement, n.d.). However, the literature predominantly discusses training within specific CBR programmes or contexts. Most articles only briefly mention the type of training CBR workers had received, without analysing the effectiveness of the training, although several studies demonstrate the positive impact of various CBR training on improving workers' knowledge and skills (Chipps et al, 2008; Narayan and Reddy, 2008; Shamrock, 2009; Magallona and Datangel, 2011; Rule, 2013; Raj and Thomas, 2015). Evaluation methods ranged from questionnaires (Narayan and Reddy, 2008; Raj and Thomas, 2015; Yeap et al, 2017) to participant reflection and interviews (Shamrock, 2009), and interviews and focus groups (Rule, 2013). Chipps et al (2008) conducted a systematic review of cultural competence training evaluations in CBR and found rigorous empirical evidence was minimal, with small sample sizes and poor study designs. Although the WHO declares that one aspect of its role is developing training tools, it does not attempt to prescribe a mandatory training approach (WHO, n.d.). Its most recently developed on-line programme, INCLUDE, is based on the CBR guidelines, primarily to support CBR managers and other stakeholders to reflect on current practice and develop action plans based on each of the domains (WHO, n.d.). NGO websites provide freely accessible on-line manuals/toolkits, which tend to be more generic, focusing on the CBR guidelines or principles of disability and inclusion, and not tied to a specific country, e.g., Light for the World's CBR manual and CBM's Disability and Inclusive Development toolkit. In contrast, the training manuals from 'Enablement' are primarily context specific, e.g., CBR manuals for the Philippines, Indonesia, Sudan, and South Africa.

Table 2: Available Training for CBR Workers

CBR training programmes from specific countries	**South Africa, Zimbabwe, Botswana, and Malawi**	**Rule et al, 2006; Rule, 2013; van Pletzen et al, 2014; Lorenzo et al, 2015**
	Mongolia	Como and Batdulam, 2012
	Philippines	Magallona and Datangel, 2011
	Thailand	Kotbungkair, 2010
	India	Narayan and Reddy, 2008; Raj and Thomas, 2015
	Cambodia	Dunleavy, 2007
	Malaysia	Yeap et al, 2017
	East Timor	Shamrock, 2009
	Papua New Guinea	Karthikeyan and Ramalingam, 2014
	Pacific Islands	Lewis Gargett et al, 2016
Studies measuring effectiveness of specific training courses for CBR workers	Cultural competence training	Chipps et al, 2008; Taylor-Ritzler, 2008
	Multiple disabilities training	Raj and Thomas, 2015
	Communication disability training	Yeap et al, 2017
	Pilot CBR course (East Timor)	Shamrock, 2009
	Training in intellectual disability	Narayan and Reddy, 2008
	Training for empowerment of persons with disabilities	Rule, 2013
WHO on-line training manuals	INCLUDE Wheelchair service training Training manual on disability statistics	http://www.who.int/social_determinants/publications/9789241507981/en/
	'Health in All Policies' training manual	http://www.who.int/disabilities/publications/cbr/en/
	WHO/ILEP Technical guide on CBR and leprosy	http://www.who.int/disabilities/capacity_building/en/

CBR Network South Asia training	Certificate in Inclusive Education (1 month on-line) Training adolescents to live in the community (3 months) International on-line training on community based Inclusive Development (1 year) Indian portage on Early Childhood development (3 months on-line) Inclusive Education (3 months on-line) Planning and management of NGOs and Self-Help groups (3 months on-line).	http://cbr-network.org/research-training-programs/courses/
CBR Network Africa training	Post-graduate Diploma and Bachelor of CBR (Kyamboga University, Uganda) Epilepsy action on-line training Bridge CRPD-SDG course (Ugandan course on the Convention on the Rights of Persons with Disabilities and Sustainable Development Goals)	http://afri-can.org/include-a-community-based-rehabilitation-cbr-learning-community/
	Global Health and Disability course (3 weeks on-line)	http://afri-can.org/global-health-and-disability/
NGO manuals/ courses	CBM – Disability Inclusive Development toolkit and Disability Inclusive Development series one and two, resources on various health conditions	http://www.cbm.org/Publications-252011.php
	Light for the World – CBR training manual	https://www.light-for-the-world.org/cbr-training-manual

	Enablement – CBR Diploma courses (East-Timor - 1 year, Nigeria - 2 years), various international CBR workshops 'Roads to Inclusion' toolkit, 'Participatory Inclusion Evaluation' toolkit.	http://www.enablement.nl/
HI's 'Source' on-line manuals: http://asksource.info/resources/search?fulltext=community+based+rehabilitation+training&=Search	Sudan – Empowering communities through knowledge transfer: training guide for community-based rehabilitation	Ferrante, 2014
	Indonesia – Finding out about CBR; training materials for community-based rehabilitation workers	CBR Development and training centre, 2010
	Philippine CBR manual: an inclusive strategy	McGlade and Mendoza, 2009
	Skills development through community- based rehabilitation (CBR): a good practice guide	International Labour Office, 2008
	South Africa – The HELP guide for community-based rehabilitation workers: a training manual	Loveday, 2006
	Kenya, Tanzania, Malawi – Inside voices: CBR workers' stories	Okune, 2006
	Promoting Empowerment: emancipatory research in community-based rehabilitation programmes: a guide for CBR programme managers	Deepak, 2012

What are the Training 'gaps'?

Most of the sources indicated a crucial need for further training of CBR workers, with many recommending training directly correlated to the identified skills required. Identified training needs include both 'hard' clinical skills such as knowledge about health conditions, specific rehabilitation techniques, and organisational management, and 'soft' skills such as communication, advocacy, cultural competence, and critical thinking (Table 3). Although most identified training needs are relevant to grass-roots or mid-level workers as they tend to implement CBR on 'the frontline', several articles recommend the benefits of incorporating CBR training into existing professional educational programmes, for example nursing and allied health courses, to improve their understanding and exposure to CBR (Magallona and Datangel, 2011; Como and Batdulam, 2012; Karthikeyan and Ramalingam, 2014). Reflecting its medical roots, existing CBR training primarily focuses on the health domain of the CBR Matrix (Como and Batdulam, 2012); however, the primary goal of CBR is inclusive development for persons with disabilities and their communities, thus CBR workers need to be skilled across the whole CBR Matrix spectrum (Dawad and Jobson, 2011; Rule, 2013). CBR workers tended to overlook issues in livelihood, such as advocating for equitable wages, as well as social aspects including sexual relationships and families, and recreational/social activities (Deepak, 2011; Como and Batdulam, 2012; van Pletzen et al, 2014). Perhaps the most significant 'gap' in CBR workers' skills was identified in the empowerment domain, where workers require further training in understanding the oppression of persons with disabilities, human rights, social justice, gender equality, advocacy, and understanding relevant political institutions and policies (Deepak, 2011; Magallona and Datangel, 2011; Como and Batdulam, 2012; Rule, 2013; van Pletzen et al, 2014). CBR workers also need training in facilitating development at the community level rather than focusing only on individual interventions (Chappell and Johannsmeier, 2009; Magallona and Datangel, 2011). Technical skills in each of the CBR domains is necessary; however, training must develop reflective, critical thinkers who demonstrate compassion and creativity in their approach to empowering persons with disabilities and their communities (Magallona and Datangel, 2011; Kuipers and Cornielje, 2012; Rule, 2013).

Table 3: Further Training required by CBR Workers

Broad Training Needs	Examples	References
Specific disability areas	Knowledge of rehabilitation, specific health conditions and causes of disability	Shamrock, 2009; Mannan et al, 2012a; Lewis Gargett et al, 2016
	Elderly people	Magallona and Datangel, 2011
	Vision, hearing/speech, mobility, convulsions, sensation loss, 'strange' behaviour, learning disabilities	Deepak, 2011
	Communication disabilities	Yeap et al, 2017
	Intellectual disability	Narayan and Reddy, 2008
	Multiple disabilities	Raj and Thomas, 2015
	Mental health	Raja et al, 2008
Generic clinical skills	Needs identification, community interventions	Chappell and Johannsmeier, 2009; Raj and Thomas, 2015
	Health promotion and prevention	Lewis Gargett et al, 2016
	Appropriate referrals	Dunleavy, 2007; Lewis Gargett et al, 2016
Specific clinical skills	Alternative communication devices, physiotherapy activities, self-care, injury prevention, medication use	Deepak, 2011
	Rehabilitation exercises, managing severe disability	Como and Batdulam, 2012
	Vocational rehabilitation skills	Kotbungkair, 2010
	Psychosocial interventions	Dawad and Jobson, 2011; Pfaller et al, 2016
	Mental health management	Raja et al, 2008
	Equipment prescription and repairs	Shamrock, 2009; Deepak, 2011
Social roles	Addressing sexual relationships, establishing families, participation in recreation/leisure	van Pletzen et al, 2014

	Early childhood development and inclusive education, income generation, vocational training, organising cultural activities	Deepak, 2011
	Work support, facilitating social gatherings	Como and Batdulam, 2012
Communication	Advocacy, networking, interpersonal skills, communication with families/ communities (e.g., conflict/ misunderstandings)	Shamrock, 2009; Deepak, 2011; Como and Batdulam, 2012; Mannan et al, 2012a
	Community participation and development	Magallona and Datangel, 2011
Management	Report writing and organisational management	Shamrock, 2009
	Obtaining/managing resources	Kotbungkair, 2010
	Evaluation	Dunleavy, 2007
Cultural competence	Language and culture, disability attitudes/beliefs, appropriate assessment tools, understanding past experiences with rehabilitation services, acknowledging issues with majority/minority groups	Chipps et al, 2008; Taylor-Ritzler et al, 2008
Higher-level cognitive skills	Creative problem solving, adaptability, reflexive practice, critical thinking	Lehmann, 2008; Shamrock, 2009; Kuipers and Cornielje, 2012
Evidence-based practice	Confidence using evidence-based practice	Pfaller et al, 2016
	Practical internet skills	Yeung et al, 2011
Empowerment	Social justice and human rights, viewing persons with disabilities as people first (not clients) and working **with** and not **for** them	Deepak, 2011; Magallona and Datangel, 2011; Como and Batdulam, 2012; Rule, 2013; van Pletzen et al, 2014
	Policy and institutional structures, addressing gender inequality and environmental sustainability	van Pletzen et al, 2014
	Organising self-help groups, legal training	Deepak, 2011

DISCUSSION

On-going Training Needs

Due to the complex and dynamic nature of CBR, the CBR workers need a broad range of skills to effectively implement CBR programmes. However, initial training is insufficient; CBR workers need ongoing professional development and support whilst 'on the job' (Dunleavy, 2007; Lehmann and Sanders, 2007; Lehmann, 2008; Narayan and Reddy, 2008; Mannan et al, 2012a; Moran et al, 2015; Gilmore et al, 2017). Capacity building, mentoring, supervision, assessment, and experiential learning are all important aspects of training to ensure quality service provision (Heinicke-Motsch, 2010). A lack of training can lead to workers' dissatisfaction and a high staff turnover (Moran, 2014). Conversely, ongoing training can enhance retention of CBR workers, thus maintaining a committed, consistent, and quality workforce (WHO, 2011; Rule, 2015). CBR workers tend to work in isolation, particularly in remote communities, and training can provide them with opportunities to collaborate and network as well as to develop new skills (Lewis Gargett et al, 2016). However, training programmes should also acknowledge the diversity of CBR work by recognising and addressing the daily challenges that many CBR workers face (Rule et al, 2006; Shamrock, 2009; Como and Batdulam, 2012). Insufficient time and resources can impede access to training (Moran, 2014). Therefore, training needs to be flexible and accessible and not based solely in urban centres. Interestingly, Yeung et al (2017) identified internet use as a contemporary issue for CBR workers, highlighting the benefits of internet access for them; and this could be particularly beneficial in providing access to ongoing professional development. The scoping review of Dagys et al (2015) on the applicability of e-Learning in CBR found that e-Learning could be a useful method for capacity building because of its efficiency, cost effectiveness, sustainability, and accessibility. The WHO's recent development of an on-line training programme, INCLUDE, seeks to foster a global CBR learning community and provide practical training tools, irrespective of location or context (WHO, n.d.). However, e-Learning is not without its challenges, particularly in low-income countries, due to limited technical infrastructure and familiarity with technology as well as cultural and language barriers, and CBR workers need further training in basic internet skills (Yeung et al, 2011; Dagys et al, 2015). Internet access is particularly pertinent with regard to evidence-based practice (EBP), providing CBR workers with up-to-date information and research that can inform their practice. A recent study of Ethiopian health professionals found

that only 64% had knowledge of EBP, and this is likely to be even less for mid-level CBR workers (Beshir et al, 2017). CBR workers need further training to improve their knowledge and confidence in effectively using EBP (Pfaller et al, 2016). Ongoing CBR training also needs to be grounded in EBP. Determining clinical competencies to guide training curriculum based solely on the skills currently used by CBR workers does not necessarily imply best practice (O'Dowd et al, 2015). To inform the development of future training, additional research is required to clearly define minimal competencies for each CBR worker's role based on current EBP.

Who should be Involved in CBR Training?

In line with CBR's principles of participation and empowerment, the inclusion of persons with disabilities in developing and delivering training appears to be widely acknowledged; however, limited details are provided with respect to the actual implementation of this (Deepak, 2011; Kuipers and Cornielje, 2012; O'Dowd et al, 2015; Gilmore et al, 2017). Kuipers and Cornielje (2012) argue that CBR should not only be concerned with the "supply" of human personnel but also with meeting the "demand"; i.e., that persons with disabilities and their communities should identify the competencies/training requirements of CBR workers in accordance with their support needs. The active involvement of persons with disabilities and their communities in all aspects of CBR, including training, fosters ownership which leads to commitment, empowerment and sustainability, with less dependence on external aid and direction (Brandsma et al, 2008; Pollard and Sakellariou, 2008; Morrison et al, 2017). As empowerment was one of the significant gaps in the CBR workers' skill-set, receiving training from persons with disabilities would enhance their understanding and practically demonstrate 'empowerment in action'. Several articles highlight the benefits of local trainers and a bottom-up approach to training, to ensure that CBR workers obtain relevant skills and are acceptable to the community (van Pletzen et al, 2014; Lewis Gargett et al, 2016; Yeap et al, 2017). Local communities know what works best for them, can identify relevant needs, and provide practical experience and resources to develop and strengthen CBR training (Sharma, 2007a). As CBM affirmed in their 2015 CBR report on Latin America: "the best training comes from persons with disabilities and their organisations (DPOs)" (Grech, 2015).

Although local community trainers are beneficial in ensuring that training is relevant and contextual, health professionals have crucial skills and knowledge

to impart which can benefit persons with disabilities and their communities. Their role tends to focus on training and supporting mid-level CBR workers rather than directly implementing CBR (Finkenflügel, 2006; Finkenflügel & Rule, 2008). However, since the focus of CBR is on inclusion, participation and human rights as well as medical/mental health (Hartley et al, 2009), other professionals such as social workers and community development personnel, along with those with non-traditional expertise, such as people with lived experience of disability, also need to be involved in training (Finkenflügel and Rule, 2008; Dawad and Jobson, 2011). CBR workers benefit from ongoing training by professionals across a multidisciplinary spectrum (Moran, 2015). Regardless of who facilitates the training, for it to be done effectively CBR trainers need to establish a learning environment that consistently promotes empowerment and respect for persons with disabilities (Rule, 2013).

Government leadership and support is also important in establishing credible and sustainable training programmes to ensure both national and international commitment to pursue inclusive development through CBR (Lehmann, 2008; Hartley et al, 2009; Kuipers and Cornielje, 2012; Lewis Gargett et al, 2016; M'kumbuzi and Myezwa, 2016). Since governments are responsible for developing and implementing policies as well as for the coordination and provision of resources (M'kumbuzi and Myezwa, 2016), CBR programmes need to maintain effective collaboration with governmental bodies when developing comprehensive policies on training and the role of mid-level CBR workers (Chappell and Johannsmeier, 2009).

Evaluation of Training

A large body of literature highlights the need to monitor and evaluate CBR programmes in order to build an evidence base for the effectiveness of CBR (Hartley et al, 2009; Madden et al, 2015; Weber et al, 2016; Grandisson et al, 2014; 2017). This is also true of CBR training programmes as there is currently minimal evaluation of the effectiveness of training (Sharma, 2007b; Cornielje et al, 2008). A number of articles emphasise the need for more rigorous evaluation of the content, methods, and impact of training on service provision; however, the same studies provide limited information on their methods of evaluation or how further evaluation should be conducted (Rule et al, 2006; Finkenflügel and Rule, 2008; Narayan and Reddy, 2008; Shamrock, 2009; Rule, 2013; Raj and Thomas, 2015). Several other reviews on the conceptualisation, characteristics,

and impact of CBR consistently report concerns with the methodological quality of evaluation in CBR (Cleaver & Nixon, 2014; Iemmi et al, 2016; M'kumbuzi and Myezwa, 2016). However, the complexity and diversity of CBR creates challenges in monitoring and evaluation of training, including cost, limited capacity and time, and multiple methodological approaches (Cornielje et al, 2008; Lukersmith et al, 2013; Weber et al, 2016). As beneficiaries of CBR services, persons with disabilities should also be involved in the evaluation and monitoring of training to determine its effectiveness (Lukersmith et al, 2013; Madden et al, 2015; Grandisson et al, 2017). Further systematic and rigorous research, using both qualitative and quantitative methods, is needed to evaluate the effectiveness of current training and its long-term impact on persons with disabilities and their communities.

Recognition of Mid-level CBR Workers

Although training mid-level workers is considered a cost-effective and appropriate approach to implementing CBR, several articles and reports highlight that these mid-level workers often receive inadequate recognition and lack due respect (Finkenflügel and Rule, 2008; Lehmann, 2008; Chappell and Johannsmeier, 2009; Lorenzo et al, 2015). This can give rise to conflict with professionals when there is a perceived role overlap and fear of incompetent or unethical practice (Mullan and Frehywot, 2007). In particular, 'task shifting' may lead to unclear delineation of CBR workers' roles. Incorporating CBR modules into professional training programmes may help to increase professionals' understanding and recognition of mid-level workers, minimising professional role protection and enhancing collaboration which ultimately leads to better service delivery (Rule et al, 2006; Pollard, 2008; Chappell & Johannsmeier, 2009; Magallona and Datangel, 2011; Como and Batdulam, 2012; Karthikeyan and Ramalingam, 2014; Moran, 2014; Naidoo et al, 2016). However, further research is needed to understand the roles of professionals and mid-level workers in various CBR contexts and to develop clear role descriptions. There is also a need to increase community awareness of the mid-level workers' role in order to minimise miscommunication and unrealistic expectations (Chappell & Johannsmeier, 2009; Shamrock, 2009; Rule, 2015). Developing a recognised CBR qualification would assist in clarifying the role of mid-level workers, which could ultimately improve retention, job satisfaction, and effectiveness (Rule et al, 2006; Moran, 2015).

Standardised Training … or Not?

Due to the complexity and diversity of CBR, implementing standardised training is somewhat controversial. Standardisation would allow for comparison and evaluation across countries and programmes to ensure continual monitoring and evaluation of CBR training and to facilitate dissemination of training to other regions (Mullan and Frehywot, 2007; Lukersmith et al, 2013; Weber et al, 2016; Grandisson et al, 2017). It would also increase role recognition of mid-level CBR workers and minimise 'brain drain' where workers move abroad to enhance their skills and career opportunities (WHO, 2011; Lewis Gargett, 2016). Many authors are strongly in favour of developing a baseline level of competency standards and consistency to ensure quality services; however, several caution against a generic approach to training that ignores the context and uniqueness of each CBR programme (Rule et al, 2006; Mullan and Frehywot, 2007; Lehmann, 2008; Chappell and Johannsmeier, 2009; Kendall et al, 2011; MacLachlan et al, 2011; O'Dowd et al, 2015; Gilmore et al, 2017). Kuipers and Cornielje (2012) argue that uniform protocols and competencies do not allow for reflexivity and creativity, whilst asserting that varying approaches regarding staffing and training are inadequate, and that comprehensive policies on training and the role of mid-level workers are required. Although seemingly contradictory, perhaps some standardised approach to training of CBR workers does not necessarily negate local, contextually-relevant training. For example, developing a basic standardised mandatory training programme would ensure that all CBR workers obtain minimal competencies across the five Matrix domains. Generic information about disability aetiology, human rights, and principles of inclusion as well as skills in communication, advocacy, management, report writing and networking could be incorporated into a standardised training programme. Subsequently, further training modules could be developed for targeted areas, e.g., specific clinical skills, disability groups or cultural contexts. Establishing a central coordinating body that could approve and accredit proposed training courses so that a suite of programmes and tools is readily available would also maintain quality training, whilst allowing variation for contextual relevance. Other health professions already have similar central governing boards, for example the World Federation of Occupational Therapists (WFOT, n.d.) and the World Confederation for Physical Therapy (WCPT, n.d.). These federations provide policies, guidelines, and minimal standards for accrediting training programmes, acknowledging the diversity of the profession in response to unique contextual needs whilst maintaining quality internationally-recognised standards. However, developing

a standardised approach to CBR training is certainly not something that can be implemented easily or quickly and would require input, collaboration and compromise from all stakeholders.

Limitations

Although this review attempts to incorporate a broad range of literature and other sources related to the training needs of CBR workers, the authors acknowledge several limitations. The date range of published literature was restricted to 2006 and onwards; older training resources that may still be in use were therefore excluded. All the sources were in English, potentially excluding sources from non-English speaking, low- and middle-income countries where CBR is in fact more likely to be implemented. Only full-text accessible articles were included, therefore abstracts/conference proceedings were excluded even if they seemed relevant. As is usual practice in a scoping review, no attempt was made to systematically appraise the quality of the evidence; therefore some sources may have provided more useful and rigorous information than others. Determining which grey literature to include was difficult due to the large volume of content; hence it was subsequently decided to use these sources only as secondary information to gain a broad overview of current CBR training, without going into detail about each training course/manual. In addition, simply identifying available training does not necessarily imply that CBR workers are actually receiving this training and that the programmes effectively meet their training needs. Further research is required to determine the effectiveness and outcomes of current training programmes.

CONCLUSION

CBR workers are crucial to promoting inclusion, equalisation, and development for persons with disabilities globally. They require a broad range of skills to effectively implement the CBR guidelines and context-specific training is essential to ensure they acquire these skills. However, a consistent standardised approach to CBR training is needed to maintain minimum competency standards, strengthen the workforce, recognise the value of mid-level workers specifically, and ultimately provide high-quality services to persons with disabilities and their communities. To develop standardised training, further research is required to determine core competencies, define the roles of various CBR workers, and evaluate the effectiveness of current training across a broad range of CBR programmes and contexts.

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