Community-Based Rehabilitation Programs: Integration Among Physical Therapy, Nursing, Radiology And Social Work Services For Improved Outcomes

Turki Mohammed Yayha Mashi[1], Abddullah Ahmed Yahya Najmi[2], Nouf Salem Safar Alharbi[3], Shifa Abdulrhman Alhinany[4], Mashah Thani Mirdas Alshammari[5], Muteb Thurayyan Almutairi[6], Mohammed Hamed Mohammed Kurdi[7], Mashal Dhafallah Ghafil Almutairi[8], Abdullah Eyadh Al-Mohammadi[9], Meshaal Abdulaah Al-Mzini[10], Saud Somihan Salem Al-Onazi[11], Faris Radah Mohammad Almalki[12]

1. Turki Mohammed Yayha Mashi, Physiotherapist, Samta General Hospital at Jazan
2. Abddullah Ahmed Yahya Najmi, Physiotherapist, Samta General Hospital at Jazan
3. Nouf Salem Safar Alharbi, Nursing Technician, Ministry of Health at Madinah
4. Shifa Abdulrhman Alhinany, Nursing Technician, Ministry of Health at Madinah
5. Mashah Thani Mirdas Alshammari, Nursing Technician, Health Care Center in Al- Shannan at Hail
6. Muteb Thurayyan Almutairi, Nursing Technician, Ministry of Health at Madinah
7. Mohammed Hamed Mohammed Kurdi, Nursing Technician, Ministry of Health at Madina
8. Mashal Dhafallah Ghafil Almutairi, Nursing Specialist, King Khalid Hospital at Almajmaah
9. Abdullah Eyadh Al-Mohammadi, Medical Social Worker, King Fahad Hospital at Madinah
10. Meshaal Abdulaah Al-Mzini, Medical Social Worker, King Fahad Hospital at Madinah
11. Saud Somihan Salem Al-Onazi, Radiologist, Ministry of Health at Madinah
12. Faris Radah Mohammad Almalki, Radiologist, King Faisal Medical Complex at Taif

Abstract

Access to proper CBR programs becomes challenging for persons living with disability. Functional disability may result in loss of independence, reduced quality of life and increased care needs. CBR programs are designed to provide proper rehabilitation interventions, equal opportunities and social inclusion in the community. Multidisciplinary approach to patients is vital through integrating physiotherapists, nurses, radiologists, and social workers in the planning, implementation, management, monitoring, and evaluation of CBR programs. This can lead to improved support, collaboration and mutual understanding among different stakeholders of CBR programs. CBR programs help persons with disabilities lead their daily life activities, fulfill meaningful roles, improve independence and maximize their well-being. Further research is required to evaluate the quality of CBR programs and explore potential roles of physiotherapists, radiologists, nurses and medical social workers in planning, applying, and evaluating CBR programs to get improved outcomes across healthcare settings.

Keywords: CBR programs, rehabilitation intervention & multidisciplinary team

Introduction

Access to proper Community-Based Rehabilitation (CBR) Programs is challenging for persons living with disability in most countries all over the world. While CBR programs are applied in several countries, geographical coverage remains limited and restricted. In addition, there is a high rate of morbidities in patient populations, leading to functional disability due to injury, illness, stroke, surgery, progression of chronic disease, or ageing process (Iemmi et al., 2016). Functional disability may result in loss of independence, reduced quality of life and increased care needs (Park& Lee, 2016). CBR programs benefits a person experiencing limitations in daily functioning due to a change in the health condition. CBR programs are designed to provide rehabilitation interventions for persons living with disabilities and improve their physical, mental and social needs and outcomes (Park & Lee, 2016).

CBR is firstly expressed by WHO as a strategy to boost access to rehabilitation services at the community level for persons with disabilities, but it has developed to a much multidisciplinary approach to community-based inclusive development (Gao et al., 2013). CBR is defined as a community development strategy that aims to enhance the quality of life for persons with disabilities and their families, and ensure their inclusion and participation in the community (Li et al., 2010). CBR aims to achieve rehabilitation, equalization of opportunities and social inclusion by involving persons with disabilities in community development processes (Bongo et al., 2018). CBR programs mobilize local competences, resources, and structures in order to fill community service gaps.

To ensure quality of rehabilitation services and achieve the preferred outcomes, clear roles and responsibilities in multidisciplinary teams and effective service delivery are principally essential to be integrated in CBR programs (Xin et al., 2022). In particular, integration among physical therapy, nursing, radiology and social work services in CBR programs that provide proper rehabilitation interventions to persons experiencing functional limitations and disabilities. Rehabilitation is a complex discipline, which requires allocation of national resources with multidisciplinary teams of healthcare professionals (Helander, 2007).

Sufficiency of trained human resources and development of referral systems can improve engagement of persons with disabilities in CBR programs (Trani et al, 2021). They can play active roles and participate in planning, implementation, management, monitoring, and evaluation of CBR programs to promote and strengthen CBR and to mobilize and support resources and information exchange (Lalu et al., 2022). ILO, UNESCO & WHO has promoted and viewed CBR as a strategy within general community development for the rehabilitation, equalization of opportunities, poverty reduction and social inclusion of persons with disabilities (Trani et al., 2021). This can lead to improved support, collaboration and mutual understanding among different stakeholders of CBR programs.

The aim of this systematic review is to synthesize the evidence for the effectiveness of rehabilitation interventions delivered by CBR programs for persons living with disabilities in order to help them

lead their daily life activities, fulfill meaningful roles, improve independence and maximize their well-being.

Methodology

The design of a systematic review is applied to be familiar with and synthesize the international evidence on the integration of physical therapy, nursing, radiology and social work services in CBR programs that provide proper rehabilitation interventions. This systematic review is a comprehensive protocol-driven review and a synthesis of data from various types of research evidence to summarize gaps in the existing international evidence.

A preliminary search is conducted via four databases, including CINHAL, EMBASE, PubMed, MEDLINE, and PsycINFO from 2005 to 2022. Search terms used in this systematic review are "CBR programs", "rehabilitation intervention", "physiotherapist", "nursing", "radiologist", "social workers" and "multidisciplinary team." Furthermore, reference lists of related articles are manually reviewed to extract auxiliary studies to provide a vital interpretive synthesis.

This systematic review is completed by experienced healthcare professionals in different healthcare settings in Saudi Arabia, who have developed a protocol for selection of studies that meet prearranged inclusion and exclusion criteria. The inclusion criteria in this systematic review depend on original studies with data on CBR programs and the integration of a multidisciplinary team to get improved outcome. Studies are included irrespective of language or publication date. Likewise, the exclusion criteria are case reports, guidelines, reviews, non-peer reviewed papers and editorials.

Data is extracted and integrated across studies searched and assessed for eligibility, including study design, research methodology, strategy and findings. As well, a quality assessment of reviewed studies is performed by using standardized tools, which are appropriate for respective study designs. Furthermore, a critical interpretive synthesis is performed to extract data and draw conclusions.

Literature Review

The international literature associated with CBR programs is extensively searched and reviewed. A preliminary search is conducted via four databases, including CINHAL, EMBASE, PubMed, MEDLINE, and PsycINFO from 2005 to 2022. Search terms used in this systematic review are "CBR programs", "rehabilitation intervention", "physiotherapist", "nursing", "radiologist", "social workers" and "multidisciplinary team." Furthermore, reference lists of related articles are manually reviewed to extract auxiliary studies to provide a vital interpretive synthesis.

The inclusion criteria in this systematic review depend on original studies with data on CBR programs and the integration of a multidisciplinary team to get improved outcome. Studies are included irrespective of language or publication date. Likewise, the exclusion criteria are case reports, guidelines, reviews, non-peer reviewed papers and editorials.

Furthermore, a number of 33 studies meet the eligibility criteria. The study design includes randomized controlled trials and cohort studies. Key intervention components examined are community-based rehabilitation programs, rehabilitation interventions, and the roles of multidisciplinary teams. Findings assessed are improved support, collaboration and mutual understanding among different stakeholders of CBR programs.

Findings indicate that multidisciplinary teams help in adopting CBR programs. As a result, this can help the entire healthcare system to improve patients' quality of life, get better health outcomes, and increase patient satisfaction. However, little is known about the application or effects of CBR programs, which needs further research.

Discussion

There is a high rate of morbidities in patient populations, leading to functional disability due to injury, illness, stroke, surgery, progression of chronic disease, or ageing process (Iemmi et al., 2016). Functional disability may result in loss of independence, reduced quality of life and increased care needs (Bongo et al, 2018). CBR programs provide rehabilitation services and interventions to improve physical, mental and social outcomes and needs for persons living with disabilities (Bongo et al., 2018). Rehabilitation

services and interventions are essential in promoting functional recovery, relearning skills, and achieving independence (Trani et al., 2021). CBR programs are strategies designed within general community development for rehabilitation, poverty reduction, equalization of opportunities, and social inclusion of all persons with disabilities (Park and Lee, 2016).

CBR Matrix

Some studied have proposed some frameworks that provide descriptions of CBR components. For instance, WHO provides a matrix showing the main framework of CBR including five aspects of persons: health, education, livelihood, social, and empowerment (Fig. 1). Additionally, the International Classification of Functioning, Disability, and Health (ICF) framework states that persons'' health functions are divided into three levels: body function and structure, activity, and participation, all of which interrelate with personal and environmental factors..

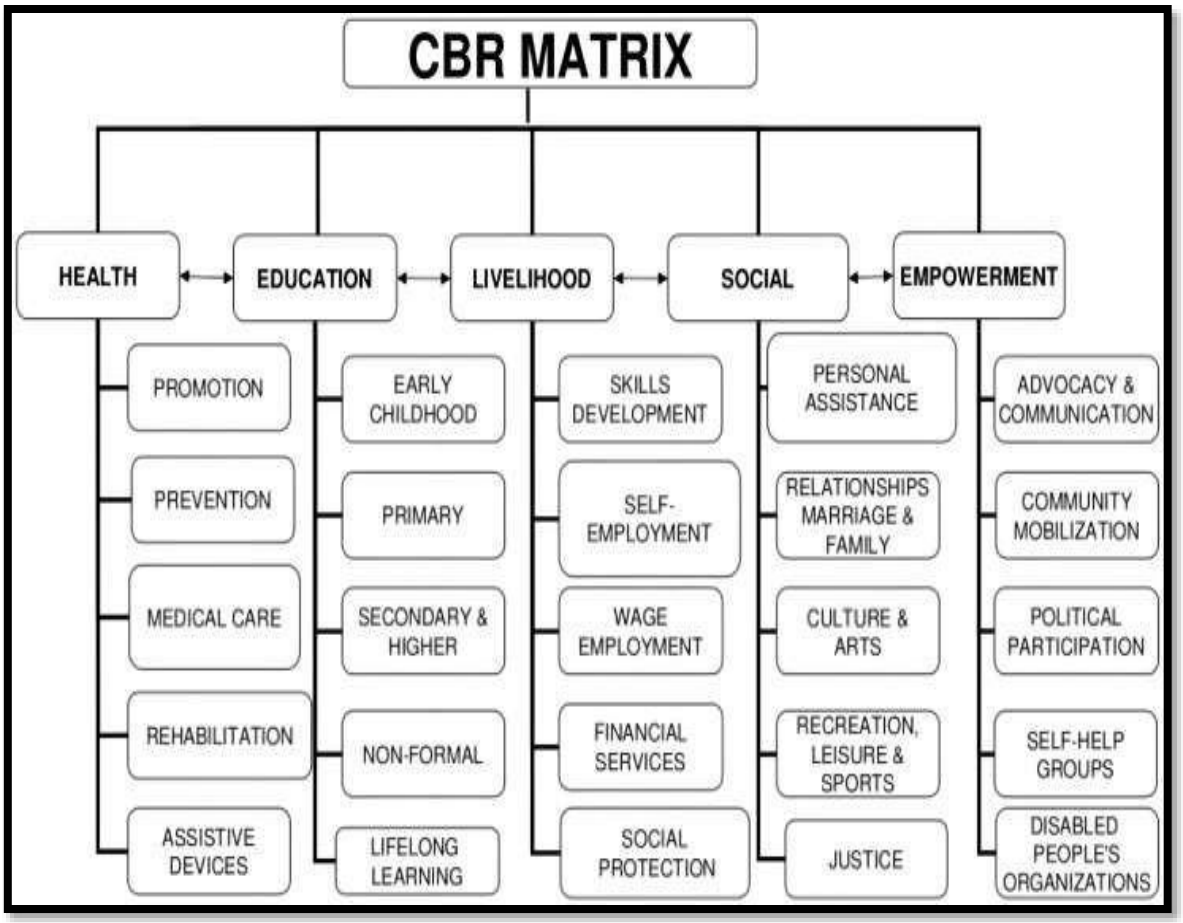

Fig. (1): CBR Matrix

Hence, successful rehabilitation is a complex procedure that necessitates teamwork among different professional healthcare providers, and understanding their roles and responsibilities is chiefly central for effective patient participation and improved outcomes, which can be developed into a more cost-effective framework for CBR programs and services (Lalu et al., 2022).

A systematic review has explored the international evidence for the effectiveness of CBR programs on physical function and activities of daily living in patients with stroke (Zeng et al., 2021); however, to date, no study has yet reviewed the rehabilitation interventions, roles, and functions jointly implemented by multidisciplinary teams in existing CBR programs. Therefore, this study examines the scope of community-based rehabilitation programs involving multidisciplinary teams in existing studies to explore the types, roles and responsibilities of CBR programs.

Roles of Multidisciplinary Teams in CBR Programs

Roles and responsibilities of multidisciplinary teams, usually those in medical roles; including physiotherapists, nurses, radiologists, and social workers are assumed to guide CBR programs, evaluate its implementation, and provide training. Four studies involved social workers in the intervention, which is important for helping patients return to society effectively (Cheausuwantavee, 2007). Nurses may be the only discipline in the community that provides care for patients after discharge (Li et al., 2010). However, various factors, including daily work overload, lack of specific knowledge and skills and communication with other healthcare professionals, and undervalued rehabilitation nursing roles may hinder nurses from providing effective rehabilitation nursing services (Nualnetr, 2009). Therefore, we should not only encourage nurses to participate in CBR but also ensure they assume a more dominant role. This can contribute to utilizing medical resources, providing education, and improving self-efficacy and quality of life (Bury, 2005).

Furthermore, multidisciplinary approach to patients is vital for providing balanced and comprehensive health care. Physiotherapists play a vital role in enhancing the quality of life for

persons with disabilities under a (CBR) programs, depending on the status of CBR program leader and socio-economic circumstances (Nualnetr, 2009). Preparing such physiotherapists may require development of a more client-centered community-oriented education program to be qualified to work with local communities, persons with disabilities and their families (Bury, 2005). Besides, radiology is an integral and indispensable part of all multidisciplinary teams in diagnosing and treating patients. According to ESR (2021), radiologists need to collaborate with colleagues from other disciplines and increase their visibility. Despite numerous benefits, multidisciplinary teamwork also creates new challenges for radiologists that need to be considered (ESR, 2021). Multidisciplinary teamwork and building bridges between professions can ensure that patients will receive the best possible care.

Measurements of CBR Programs

Regarding the outcome measurements of CBR programs, many studies have focused on multiple functional improvements, the most common being motor function, activities of daily living, and depression (Trani et al., 2021). A few studies have explored the effects of intervention programs on social participation, which is significant in encouraging patients to maintain social functions and return to their regular social lives (Xin et al., 2022). However, the rehabilitation intervention programs may need to be reconsidered by involving different cultural contexts in further research (Lalu et al., 2022). The major outcome measurements were from the patients or caregivers' perspectives, including functional improvements, emotional changes, improved quality of life, and incidence of complications (Zeng et al., 2021). Since CBR programs are long-term intervention programs, a cost-effectiveness analysis for both patients and healthcare system may need to be conducted in further research, considering such factors as the increased care burden and reduced workforce participation.

Role of Rehabilitation Interventions

Rehabilitation intervention is provided across the whole range of healthcare settings. The breadth of rehabilitation means that a range of organizations may contribute to meeting a person's needs. Rehabilitation intervention is essential in helping to address the effects of physical, sensory, cognitive, behavioral,

communicative, psychosocial, emotional, and mental problems (Umunnah et al., 2021). Physical or movement problems include impaired motor control, reduced range of movement, reduced balance, strength or cardiovascular fitness, loss of limbs, fatigue, pain or stiffness (Lalu et al., 2022). Additionally, sensory problems indicate to impairment of vision or hearing, loss of or altered sensation of touch or movement, pain, and sensory processing difficulties (Zeng et al., 2021).

Besides, cognitive or behavioral problems signify lapses in memory and attention, difficulties in organization, planning and problem-solving (Park and Lee, 2016). Moreover, communication problems refer to difficulties in speaking, using language to communicate, understanding what is said or written (Bongo et al., 2018). Furthermore, psychosocial and emotional problems highlight the effects on the individual, career and family of coping with a new health condition or living with a long-term condition (Gao et al., 2013). These can include stress, depression, loss of self-image and cognitive and behavioral issues. Finally, mental problems refer to health conditions such as anxiety, depression, obsessive/compulsive disorders, schizophrenia, eating disorders, post-traumatic stress disorder and dementia (Iemmi et al., 2016).

Benefits of CBR Programs

Several studies have referred to the benefits of CBR Programs for both persons and the community. CBR Programs can benefit persons with disabilities and their families through addressing impairment, improving functioning and independence, and promoting their participation on an equal basis (Helander, 2007). Additionally, CBR Programs empowers persons with disabilities to make informed decisions, attain their goals and understand their individual rights (Li et al., 2010). CBR Programs enhances the quality of life of persons with disabilities and their caregivers by addressing gaps in basic needs (Gao et al., 2013).

On the other hand, CBR Programs benefits the community. CBR Programs increases awareness of diversity within the community, including diversity in functioning of persons with disabilities, older persons and children (Cheausuwantavee, 2007). CBR Programs fosters more positive attitudes towards persons with disabilities, and develops a greater understanding of disability, rights and the importance of equity (Bongo et al., 2018). CBR Programs focuses

on local service systems, local resources and practical solutions to real barriers that exist for persons with disabilities and their caregivers with respect to access to services and participation in society (Park and Lee, 2016). CBR Programs promotes inclusion of all persons, particularly those with disabilities, in local decision-making, governance and resource allocation (Trani et al., 2021).

Challenges to CBR Program Implementation

Sustaining capacity development and service delivery to communities for CBR personnel remains under-resourced. Most CBR programs are located in urban areas, but more persons with disabilities live in rural areas (Zeng et al., 2021). Additionally, many countries have yet to develop disability policies and legal frameworks to legitimize CBR programs (An et al., 2021). Sometimes further legal and administrative orders are required to support CBR programs at the local level (Umunnah et al., 2021). While CBR is gaining support from governments, more active engagement of local governments is essential in developing, implementing and sustaining CBR programs. Better coordination among government and non-government bodies is needed for efficiency and more effective mobilization of resources (Lalu et al., 2022). After conducting this systematic review, it is found that social exclusion and stigma remains and persists in all communities. Increasing awareness on rights and needs of persons with disabilities is still a priority. The integration of a multidisciplinary team consisting of a physiotherapist, a radiologist, a nurse and a medical social worker within CBR programs can be effective in getting much improved healthcare outcomes.

Conclusion

CBR programs applied by multidisciplinary teams can effectively achieve functional and emotional improvement in patients with disabilities. Physiotherapists, radiologists, nurses and medical social workers are integrated in CBR program implementation, particularly in hospital-based and community-based settings. CBR programs are the core of rehabilitation interventions, which should be multidimensional, interactive, experiential, and comprehensive to ensure a person-centered approach. Selection and prioritization of rehabilitation interventions should be developed from patient assessments and goal-

setting processes with an evidence-based approach in designing any CBR program.

As rehabilitation needs are very individualized, rehabilitation professionals need to explore new avenues for rehabilitation interventions, which may involve interventions to address impairments of body structure and function, environmental barriers to function or personal factors that may interfere with patients achieving their goals. Moreover, CBR programs should be dynamic engaging health professionals actively with patients and their families in planning and applying rehabilitation interventions.

CBR Programs empowers persons with disabilities to make informed decisions, attain their goals and understand their individual rights. CBR Programs fosters more positive attitudes towards persons with disabilities, and develops a greater understanding of disability, rights and the importance of equity. CBR Programs promotes inclusion of all persons, particularly those with disabilities, in local decision-making, governance and resource allocation

Further research may need to consider developing culturally appropriate rehabilitation programs for patients in remote areas, especially for elderly patients living alone, who may have more difficulty accessing rehabilitation services. Further research is also required to evaluate the quality of CBR programs and explore the potential for leveraging the roles of physiotherapists, radiologists, nurses and medical social workers in planning and applying CBR programs to enhance rehabilitation services across healthcare settings.

References

Bongo PP, Dziruni G, Muzenda-Mudavanhu C. The effectiveness of community-based rehabilitation as a strategy for improving quality of life and disaster resilience for children with disability in rural Zimbabwe. Jamba. 2018, 10(1):442.

Bury T. Primary health care and community based rehabilitation: implications for physical therapy. Asia Pacific Disability Rehabilitation Journal. 2005; 16: 29-61.

Cheausuwantavee, T. Beyond community based rehabilitation: Consciousness and meaning, Asia Pacific Disability Rehabilitation Journal. 2007, 18(1): 101-109.

European Society of Radiology (ESR). "Role of radiology in a multidisciplinary approach to patient care": summary of the ESR International Forum 2022.

Gao SF, Sun PY, Jiao LQ. Effects of different community rehabilitation models on daily living ability and neuropsychology of patients with cerebral infarction. Chinese Journal of Integrative Medicine on Cardio-/Cerebrovascular Disease. 2013; 11(7): 826-827.

Helander E. The origins of community-based rehabilitation. Asia Pacific Disability Rehabilitation Journal. 2007, 18(2):3-32.

Iemmi V, Blanchet K, Gibson LJ, Kumar KS, Rath S, Hartley S, Murthy GVS, Patel V, Weber J, Kuper H. Community-based rehabilitation for people with physical and mental disabilities in low- and middle-income countries: a systematic review and meta-analysis. J Dev Eff. 2016; 8(3):368-87.

Lalu JD, Ozegya A, & Yakubu AF. The Impact of Community Based Rehabilitation (CBR) on Empowerment of Persons with Disabilities in Plateau State, Nigeria. KIU Journal of Social Sciences. 2022, 8(4): 53-68.

Li XP, Wang L, Lan YL, Huang WD, Zhang Q. Impact of community home-based rehabilitation nursing on psychological state of cerebral apoplexy patients in urban communities. Chin Nurs Researsh. 2010; 24(3): 838-839.

Nualnetr N. Physical therapy roles in community-based rehabilitation: A case study in rural areas of North Eastern Thailand. Asia Pacific Disability Rehabilitation Journal. 2009, 20(1): 73-82.

Park YJ, & Lee CY. Effects of community-based rehabilitation program on activities of daily living and cognition in elderly chronic stroke survivors. J Phys Therapy Sci. 2016; 28(11):3264-6.

Trani JF, Vasquez-Escallon J, Bakhshi P. The impact of a community based rehabilitation program in Afghanistan: a longitudinal analysis using propensity score matching and difference in difference analysis. Confl Health. 2021; 15(1): 63.

Xin W, Xu D, Dou Z, et al. Effectiveness of community-based rehabilitation (CBR) centres for improving physical fitness for community-dwelling older adults: a systematic review protocol. BMJ Open. 2022;12:e062992.