International Journal of Psychology and Behavioral Sciences 2018, 8(1): 7-11
DOI: 10.5923/j.ijpbs.20180801.02

Ranking the Desirability Indicators of Community-Based Rehabilitation (CBR) Based on Analytical Hierarchy Process

Mehran Emami Eskandar[1,*], Mahmood Otadi[2], Toraj Mojibi[1]

[1]Faculty of Management, Islamic Azad University, Firoozkooh Branch, Firoozkooh, Iran
[2]Faculty of Mathematics, Islamic Azad University, Firoozkooh Branch, Firoozkooh, Iran

Abstract Community-based rehabilitation is a strategy for promoting the quality of life of disabled people and protecting their rights through accessing services provided and creating equal opportunities. The present study aims at ranking the desirability indicators of community-based rehabilitation based on the analytical hierarchy process. This is an analytical study. The statistical sample comprised all experts including the director generals of Welfare Organizations, rehabilitation deputies, the chief of rehabilitation departments, rehabilitation assistants, and experts in charge of community-based rehabilitation in Tehran Province. Standard questionnaires were used to elicit data for the analytical hierarchy process which makes a pairwise comparison between primary and secondary indicators in the rehabilitation matrix. The group analytical hierarchy process technique in the Expert Choice 2000 software package was used to calculate the analytical hierarchy process in the present study. Based on the three-round Delphi among the experts, education had the highest rank among other indicators, the effect of which was 37% and empowerment ranked the last with a 7% effect. Based on the results of the present study, all the elements of community-based rehabilitation matrix points towards empowering a disabled person and enjoying their rights in every respect, whether in a family or local community.

Keywords Community-based rehabilitation, Desirability indicators, Analytical hierarchy

1. Introduction

Disability causes significant damage to affected individuals, their families and on a broader scale, the society in economic, social and emotional terms [1]. It is obvious that existing medical and rehabilitation services are not sufficient to meet the needs of millions of handicap people [2]. Although developed countries have been able to provide some of the needs of handicap people in the field of medicine and rehabilitation (based on their claims), providing adequate opportunities for employment, joining social life, enjoying identical citizenship rights and removing negative attitudes towards disability, are issues that are still encountered by the handicap people in these countries [3].

Rehabilitation is currently a philosophy that should not turn into an intellectual foundation of health service delivery, and it is neither merely one stage of the stages of health service delivery, but the preservation of the competencies and potential roles of individuals [4]. Although rehabilitation, like other current scientific subjects, has undergone extensive developments such that its concepts have changed, what is certain is the fact that there are three approaches in the implementation of rehabilitation: center-based rehabilitation, institution-based rehabilitation and community-based rehabilitation [5].

Einar Helander, Chief Officer at WHO's Headquarters in Geneva in 1975 introduced community-based rehabilitation for the first time. He defined community-based rehabilitation as: a strategy for promoting the life quality of people with disabilities through accessing services provided, creating equal opportunities and preserving the human rights of handicap people [6]. In community-based rehabilitation, the work axis is the local community such that the start point is exactly the opposite. The disabled person, family members and local community decide on their priorities and then work with each other to access appropriate and existing services along with local rehabilitators, governmental and non-governmental groups [7, 8].

The analytical hierarchy process was first proposed in the 1970s. Similar to the human brain, this method analyzes issues. This method enables decision-makers to determine the simultaneous and mutual effects of many complex and uncertain situations [9]. Data analysis is a multi-stage process whereby the data collected through the use of collection tools in a statistical sample (population) are

* Corresponding author:
mehranemami76@yahoo.com (Mehran Emami Eskandar)
Published online at http://journal.sapub.org/ijpbs

summarized, classified and finally processed to lay the groundwork for conducting analyses and relationships between data in order to test the hypotheses. Such process assists decision-makers in "ranking based on their purposes and knowledge and experience", so as to consider their feelings and judgments. It is necessary to explain the problem in details and depict the "hierarchical structure" to solve decision-making problems through this technique [10]. Thomas Saati (founder of this technique) stated the following as the principles of the analytical hierarchy process and based all calculations, laws and regulations on these principles. These principles are: reverse condition, homogeneity, dependency, expectations [11].

Considering that in every society, disability is one of the fundamental concerns of governments, their empowerment reduces the costs incurred by the government and will have a significant effect on the development of that society. The present research was informed by the felt gap in the optimal use of community-based rehabilitation, lack of financial resources and lack of optimal allocation of available funds in the Welfare Organization of Tehran Province. In order to prevent the waste of resources and identify the main needs of disabled persons in the target population, the present research was also conducted to ensure the optimal and purposeful use of existing funds. The purpose of the present study was to "rank the desirability indicators of community-based rehabilitation based on analytical hierarchy".

2. Materials and Methods

This is an analytical study. In the present research, the statistical sample comprised all experts including the director generals of Welfare Organizations and rehabilitation deputies in Iran, the chief of the rehabilitation department, rehabilitation assistants, and experts in charge of community-based rehabilitation in the Tehran Province.

The sample size of the study was 20 consisting of 2 director generals of the Welfare Organization, 2 rehabilitation deputies, 2 members of the rehabilitation department, 1 rehabilitation assistant, 12 rehabilitation experts and 1 professor of medical sciences in Iran.

A standard questionnaire was used to elicit data for the analytical hierarchy process. The panel of experts was asked to determine the significance of the indicators derived from the research literature based on verbal variables ranked thus: very low, low, lower than medium, medium, more than medium, high and very high.

The analytical hierarchy process is used to decide and select an option from a variety of decision options, considering the indicators determined by the decision-maker. The basis of this decision-making technique lies in latent pairwise comparisons. This approach starts with providing a decision tree which indicates the compared factors, and competing choices evaluated in the decision. Then a pairwise comparison is made, the results of which determines the weight of each of the factors in line with the competing options. Eventually, this logic integrates matrices from pairwise comparisons to make an optimal decision [12]. The steps for implementing this technique are as follows: Step 1: Modeling (developing a decision tree), Step 2: Preferential judgment (conducting pairwise comparisons), Step 3: Calculating the relative weights of the group pairwise tables, Step 4: Calculating the final weights [13].

In ranking the decision options, we must multiply the relative weights of each element by the weight of the higher elements to obtain the final weight. The final weight is obtained for each option and is thus called absolute weight. Then the question posed is: to what extent can we rely on the ranking of the proposed method? The compatibility rate was used to answer this question. The compatibility rate is the mechanism that specifies the compatibility of the comparisons. Usually, when the compatibility rate, CR is $\leq$ 0.1, the referee is multiplied and the weight is considered reliable. The matrix index is first multiplied by the weight vector of the indices to determine the compatibility rate [14].

The group analytical hierarchy process technique on the Expert Choice 2000 software package was used to calculate the analytical hierarchy in the present study. The acceptable compatibility rate for this study was less than 0.1 hence, the software reported the ranking according to this criteria.

3. Results

Based on three-round Delphi method among experts, education had the highest rank among other indicators, the effect of which was 37% and empowerment ranked the least, with a 7% effect (Table 1; Figure 1):

Table 1. Ranking the main criteria

Relative Rank	Factor	Relative Weights
1	Education	0.370
2	Health	0.253
3	Livelihood	0.188
4	Social	0.118
5	Empowerment	0.070

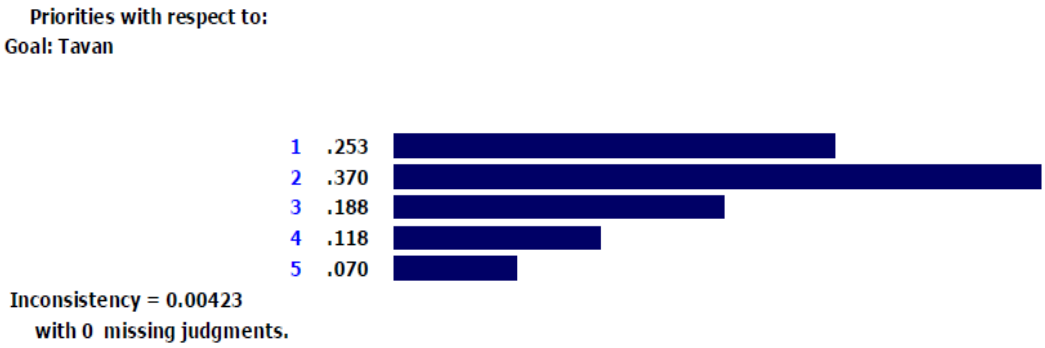

Figure 1. Weights of the main indicators

Further results of the research also indicated that the final weights of all sub-indicators are as follows (Table 2, Figure 2):

Table 2. Ranking sub-indicators

Final Rank	Factor	Final Weights
19	Promotion	0.017
3	Prevention	0.100
6	Medical care	0.061
10	Rehabilitation	0.039
15	Assistive device	0.024
1	Early childhood	0.147
2	Primary	0.147
5	Secondary, higher	0.066
9	Non-formal	0.039
14	Lifelong learning	0.025
4	Skills development	0.075
16	Self-employment	0.020
20	Wage employment	0.014
11	Financial services	0.013
7	Social protection	0.048
13	Relationships, marriage, family	0.027
8	Personal assistance	0.047
23	Culture, arts	0.008
21	Recreation, leisure, sports	0.013
17	Advocacy, communication	0.019
14	Community mobilization	0.007
25	Political participation	0.005
12	Communication	0.028
18	Self-help groups	0.018
22	Disabled people's organization	0.012

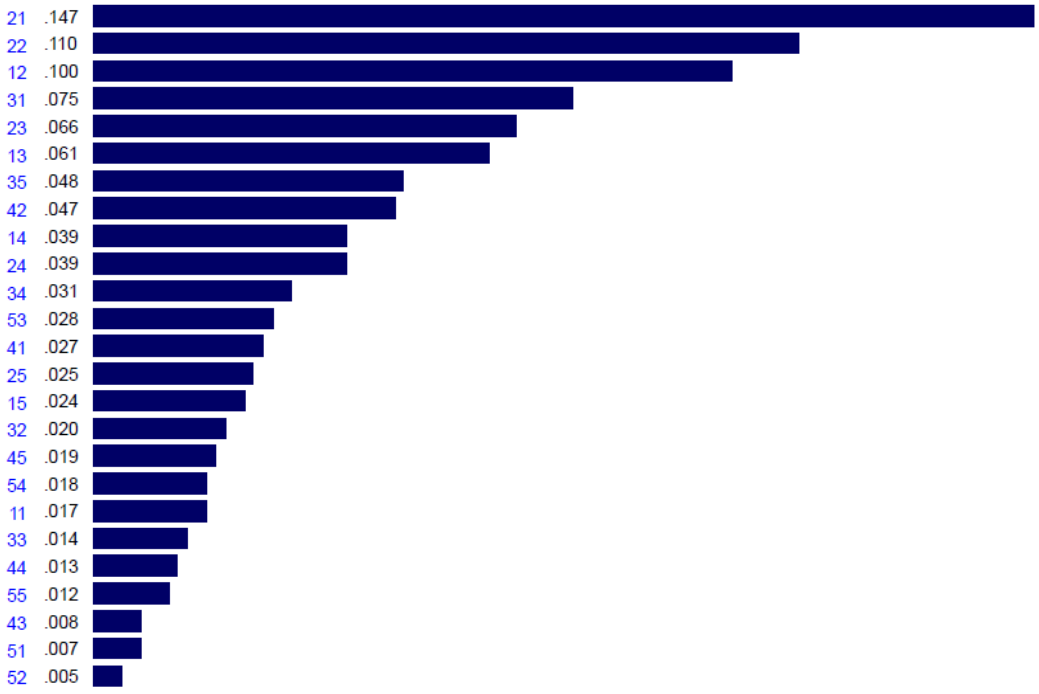

Figure 2. Weights sorted under the main indicators

4. Conclusions

The purpose of the present study was to rank the desirability indicators of community-based rehabilitation based on an analytical hierarchy process. Thus, the final model of community-based rehabilitation was obtained as shown in "Figure 3".

Education: Considering that education is the essential element and the main constituent and need of every person's life, therefore this element is the most significant and highest ranked in the CBR matrix. During pre-school education, there are children with various disabilities under different education-related disabilities. In this step, the child's family should also be trained in addition to the child [15].

Health: For the fact that health plays a crucial role in human life and all human beings always seek good health, whether disable or able, this component ranked second in the CBR matrix. It is always said that prevention is better than cure, thus the preventive measures that people should undertake to avoid suffering from illness or disability were considered in this component. For instance, continuous genetic tests during pregnancy prevents the birth of a child with disabilities; this is a way of preventing future problems [16]. When a person suffers a problem or illness, medical measures are required either as referral for diagnosis, medical treatment or surgery. After diagnosis of illness or disability and medical interventions comes rehabilitation services in which the needy person's requirement of service is determined according to the initial diagnosis [17].

Livelihood: Individuals need skills in different areas to deal with their personal issues, for instance, people with disabilities require a skill for employment to meet their living expenses and livelihoods, for instance, a person with a physical disability can engage in a suitable job with computer skills. Financial services include items such as savings, financial credits, grants provided as microfinance services for people with disabilities. By setting up financial funds for handicaps with the assistance of donors and Welfare Organizations, they can refer to these funds, from which they receive interest-free loans and sometimes grants to start-up business and improve their health and education [18].

Social needs: Social roles are significant because they inspire meaning and identity for the individual. When a disabled person is provided with opportunities to fulfill positive social roles in his society, the attitude of the society towards disability changes. At this level, people seek roles and positions that are associated with their specific responsibilities and activities in the society [19]. Some people with disabilities need personal assistance, which come in different shapes from different people. The use of personal term reflects individual differences and unique needs of each person. Through personal assistance, a disabled person will be able to conduct his personal and familial tasks and participate in social activities [20].

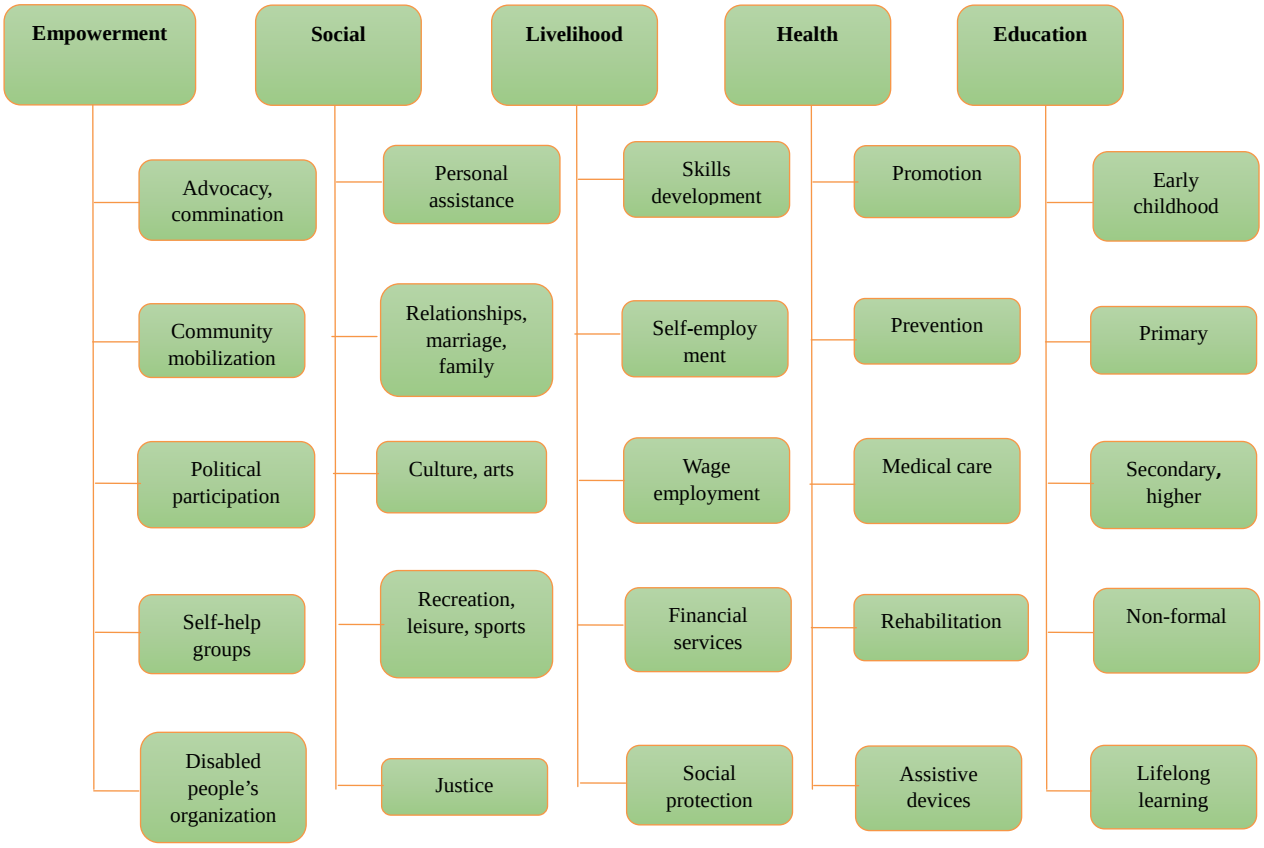

Figure 3. Ranking matrix of community-based rehabilitation elements in Tehran Province

Empowerment: Empowerment is the last element, and in fact, complementary of the matrix loop in community-based rehabilitation. It is a short-cut issue, such that all matrix measures are taken along this line to empower a person with a disability, in every respect; whether in the family, in the local community and in enjoying their rights [21, 22].

ACKNOWLEDGEMENTS

Thanks are due to all the experts of the Welfare Organization who co-operated in accomplishing this research. This article is the result of a Master's Degree thesis in Business Administration (Internal), approved by the Faculty of Management, Islamic Azad University, Firoozkooh Branch, Firoozkooh, Iran.

REFERENCES

[1] Rashedi V, Rezaei M, Morasae EK, Weisi F. Types of disability in children and maternal depressive symptoms: Is there any relationship?. International Journal of Therapy & Rehabilitation. 2013; 20(10): 495-500.

[2] Abbaskhanian A, Rashedi V, Delpak A, Vameghi R, Gharib M. Rehabilitation Interventions for Children with Cerebral Palsy: A Systematic Review. Journal of Pediatrics Review. 2015; 3(1): e361.

[3] Rashedi V, Asadi-Lari M, Foroughan M, Delbari A, Fadayevatan R. Prevalence of disability in Iranian older adults in Tehran, Iran: A population-based study. Journal of Health and Social Sciences. 2016; 1(3): 251-62.

[4] Nasiri M, Foroughan M, Rashedi V, Shahbazi MR. The Impact of Rehabilitation Module of Iran Welfare Organization among Older Adults. Iranian Journal of Ageing. 2016; 11(1): 110-7.

[5] Helander, Inar, National Rehabilitation Planning Guide. Chabok. Ali. Nazari. Ahmad, danje, Tehran, 2004.

[6] Hartley, Sally. CBR as part of community development: a poverty reduction strategy. Asadi, Mohammad Reza. Moshiri, Ali. Orthogol. Parvin. Person, Tehran, 2009.

[7] Otoole, Brian John. Guide to Community-Based Rehabilitation Service. Mikany, Abbas. danje. First Edition, Tehran, 2001.

[8] Nourbakhsh, Azam Alsadat. Evaluation The impact of community-based rehabilitation Disability Employment Status In Mazandaran province in 2007. Iranian academic center for education, culture and research. University of Mazandaran. 2007.

[9] Demirli K, Yimer AD. Production–distribution planning with fuzzy costs. In: Proceedings of the annual meeting of the North American fuzzy information processing society, 2006 (NAFIPS 2006): 2006; 702-7.

[10] Chan FS. Interactive selection model for supplier selection process: an analytical hierarchy process approach. International Journal of Production Research. 2003; 41(15): 3549-79.

[11] Saaty TL. Decision making with the analytic hierarchy process. International Journal of Services Sciences. 2008; 1(1): 83-98.

[12] Haq AN, Kannan G. Fuzzy analytical hierarchy process for evaluating and selecting a vendor in a supply chain model. The International Journal of Advanced Manufacturing Technology. 2006; 29(7-8): 826-35.

[13] Zhang JJ. Fuzzy analytical hierarchy process. Fuzzy systems and mathematics. 2000; 14(2): 80-8.

[14] Saaty TL. Decision making-the analytic hierarchy and network processes (AHP/ANP). Journal of Systems Science and Systems Engineering. 2004; 13(1): 1-35.

[15] Pollard N, Sakellariou D. Occupation, education and community-based rehabilitation. British Journal of Occupational Therapy. 2007; 70(4): 171-4.

[16] World Health Organization. Community-Based Rehabilitation: CBR guidelines: Health component. World Health Organization; 2010.

[17] Huang G, Baolin C. Primary health care and community-based rehabilitation in the People's Republic of China. Disability and Rehabilitation. 1999: 1; 21(10-11): 479-83.

[18] Cox JE. A comparison study of sheltered work versus supported employment within community-based rehabilitation facilities. Unpublished master's thesis]. Menomonie: University of Wisconsin-Stout. 2002 Aug.

[19] Gregory RJ. Community based service delivery: power and pathology: or, social rehabilitation is still a'Commie plot'. Disability and rehabilitation. 2001:1; 23(1): 22-5.

[20] Zhang JM, Liu Y. Community Based Rehabilitation and Social Security and Service Systems for Persons with Disabilities. Disability Research. 2013; 3: 015.

[21] Kuipers P. Empowerment in community-based rehabilitation and disability-inclusive development. Disability, CBR & Inclusive Development. 2014. 13; 24(4): 24-42.

[22] Deepak S. Promoting empowerment: Emancipatory research in community-based rehabilitation programme: A guide for CBR programme managers. AIFO, Bangalore, India. 2012.