Interventions Related to Empowering Community Health Workers for Improving Community Health: A Systematic Review

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ABSTRACT

Introduction

Community Health Workers (CHW) play a very important role in health promotion. Therefore, in order to strengthen the communities, it is imperative that CHWs be strengthened. This systematic review examined various interventions conducted in different parts of the world on the empowerment of CHWs.

Methods

In this study, after defining the research questions, search terms were determined and appropriate databases such as Web of Science, Scopus, PubMed, SID, Magiran, IranDoc, and Google Scholar were searched. After defining the inclusion and exclusion criteria and determining the scientific quality of the studies, appropriate articles were selected and finally the interventions to strengthen CHWs were summarized.

Results

We found 122 articles that addressed the empowerment of CHWs. After reviewing the articles, 13 of them were identified as related to the objectives of this study. The results show that old techniques such as lectures, seminars, and face-to-face meetings were used to empower CHWs, while a large number of researchers also used new tools such as the Internet, cell phones, and mobile applications to empower CHWs in various aspects.

Conclusions

This review of the various interventions to empower health workers shows that both old methods and new technologies are being used for this purpose. However, the use of information and communication technologies (ICTs) to strengthen the health workforce is growing rapidly. These findings can be useful for health policy managers, health care centers and research organization.

Keyword

Empowerment; Community health workers, Health policy

INTRODUCTION

The most important asset of any organization is its human resources, and no health institution can survive without an efficient workforce [1]. The quality and capabilities of employees are the most important factor in the survival and life of the organization. Therefore, investment in employee empowerment leads to better employment, more appropriate health care, and improved work standards [1,2]. In recent work place, employees

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are needed to make new decisions, solve problem, and behave in ways that achieve organizational goals, and this is achieved through employee empowerment [3].

Empowerment is a comprehensive and relatively lengthy process. Sharing information with employees, improving employee penetration, creating more opportunities to perform, increasing efficiency, creating autonomy by setting boundaries, and replacing work teams with dynasties creates an organization with high productivity, dynamic capabilities, and more flexibility [4,5]. Empowerment plays an important role in developing skills and the performance of healthcare organizations [6].

Empowerment is not something managers do for employees, but the way employees think about their role in the organization. Empowerment begins with a change in employees' beliefs and attitudes, i.e., they must come to believe that they have the ability and competence to perform tasks successfully and feel that they can influence and control work outcomes; it reflects employees' experiences or beliefs about their role in the organization [7]. Health services in any community are directly related to the health and development of that community. Health centers are the first level of health service providers in different areas such as physical, mental, and social needs [8]. The term of health care refers to all services provided by health care workers with the aim of health promotion of their clients [9,10]. Health care providers done health education, monitoring children's growth, caring for all age groups from adolescence to old age, pregnancy, post-partum and immunization [11,12].

The importance of health centers in promoting community health is essential, and the empowerment of health workers plays a significant role in achieving this goal. The quality of services provided by health workers is directly affected by their empowerment. Therefore, empowering health workers can have a positive impact on individual and social health outcomes. Improving the skills of health workers is necessary in providing good care and health education to the community, and their lack of ability and competence can prevent the achievement of health care goals [13,14]. But, despite the significance of health workers' education in maintaining and promoting community health, there is a lack of comprehensive studies that examine the various aspects of their empowerment [15]. Hence, this review study aimed to address this gap by reviewing different studies that have explored the different aspects of health worker empowerment.

METHOD

Search strategy

This systematic review study was conducted to assess the actions taken to empower community health workers. This systematic review was carried out following PRISMA guidelines. Note that PRISMA is an evidence-based minimum set of items for reporting in systematic reviews and meta-analyses (For more information, see: www.prism a-state ment.org). An advanced search was performed in the Web of Science, Scopus, Embase, PubMed, Cochrane, SID, Magiran, IranDoc, and Google Scholar databases in the title, abstract, and keywords fields. The keywords "empowering community health workers," "health workers' empowerment," and "empowering community health workers" were used for the search. The statistical population of the study included published scientific articles dealing with empowerment of health center staff. Relevant articles were searched in scientific databases in Persian and English. Based on the inclusion and exclusion criteria, the most relevant articles that met the objectives of the study were selected.

Inclusion and exclusion criteria

We included the original studies in English. Studies that met these conditions were included in the study: They address health worker empowerment, have a comprehensive setting, are written in English or Persian, and were published between 1991 to 2023. and access to the articles that have full text. Exclusion criteria: Studies that focused on the treatment and clinical setting were excluded from the study. Also, non-English language articles were not included in the study.

Screening

Two authors independently searched and screened studies for the inclusion criteria. A total number of 3259 articles were identified and imported to Endnote X8. We removed 445 duplicated articles and screened titles and abstracts of the 2814 ones. 122 relevant articles were fully assessed for more screening. We evaluated the eligibility of these articles and, finally, 13 studies were included. Figure 1. Any disagreements between the two authors were discussed until consensus was.

Quality assessment

We used the STROBE checklist, which consisted of 22 items with a maximum score of 30. Studies with more
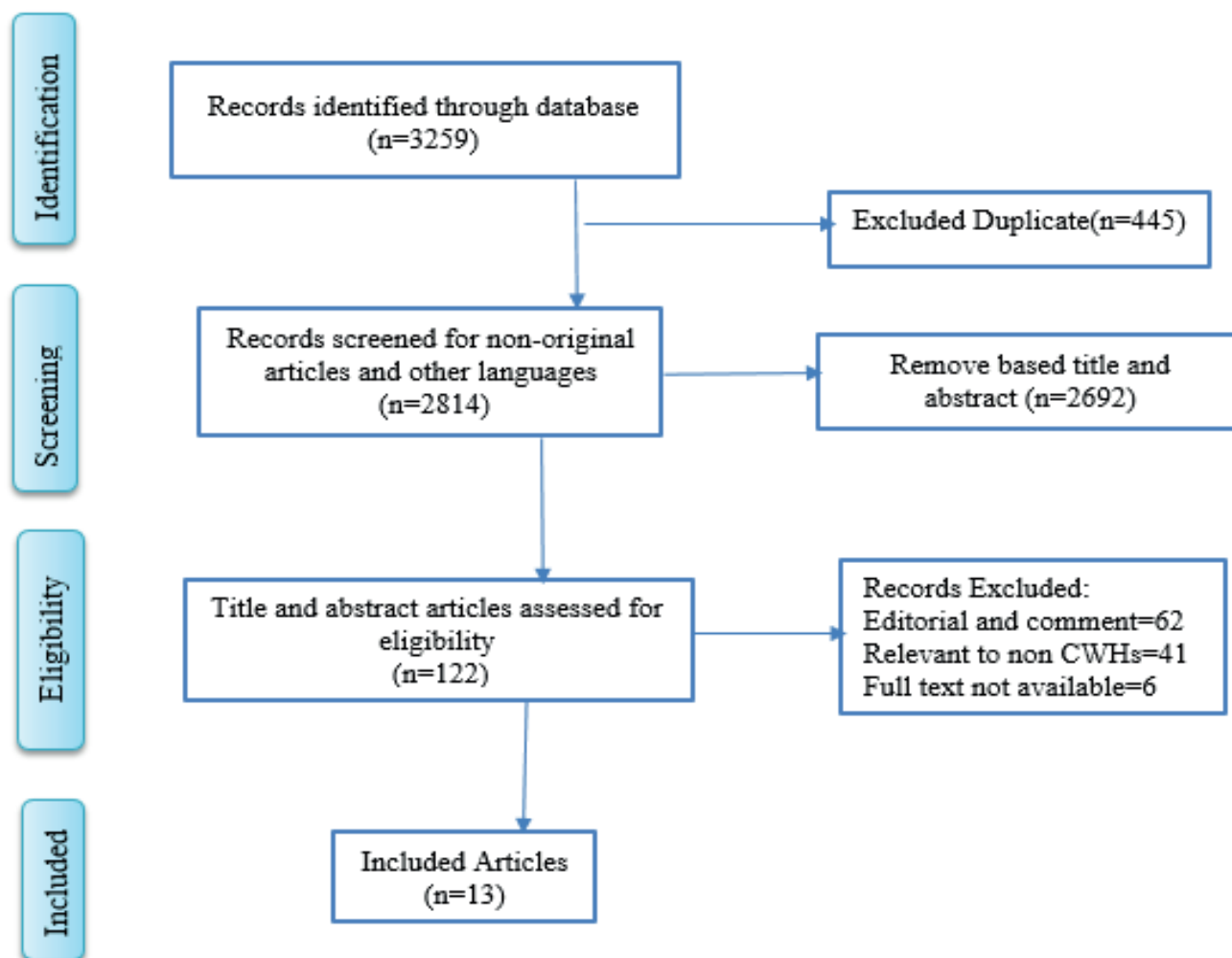
Figure 1. Flow diagram based on PRISMA

than 23 total points were considered as high quality and those with less than 16 points were considered as low quality. Studies that received a total point between 16 and 23 were considered as medium quality. Among 13 studies, 10 (77%) were classified as high and 3 (23%) were classified as moderate. So, all the studies were included in our review.

Data extraction

The following variables were extracted from the included studies: general information (authors, journal, year of publication, country), purpose (design and approach of the study), working method (results, research environment), findings, conclusions, recommendations, and limitations of the study. reached.

RESULTS

In this study based on the final criteria, 13 articles with useful information were selected. The characteristics of the included studies are shown in Table 1.

DISCUSSION

This systematic review show that there are different interventions worldwide aimed at empowering healthcare providers, and CHWs receive basic health teaching in more places, including primary health care, communicable disease management, gynecology, and medical record keeping. The study aimed to collect and analyze studies conducted in various areas of CHW empowerment.

Table 1. Included studies conducted to empower CHWs.

Author	Year	Country	Intervention	The purpose of empowerment
Leontiou	2022	Cyprus	Implementation of a major reform of the health care system	Lower empowerment levels may be the main reason for turnover intentions.
Wang	2022	China	Artificial intelligence application in retention of elderly caregivers	The level of effectiveness of artificial intelligence has a noteworthy beneficial impact on psychological empowerment.
Noori	2021	Iran	Three 60-minute moderate-intensity aerobic exercise sessions per week for 12 weeks	Exercise as a non-pharmacological intervention for improved physical and cognitive function in older adults with mild cognitive impairment.
Chirambo	2020	Malawi	Use of an electronic case management app on smartphones for children with acute illness	Children in the intervention phase were more likely to be urgently referred to a higher-level health facility than children in the control phase.
Castañeda	2019	Sri Lanka	Use of smartphone and Internet as well as the artificial intelligence based animal identification app	Improving the identification of biting snake species, facilitating access to effective antivenin and guiding better treatment
Deepak Sood	2017	India	Sangoshthi, a low-cost mobile based training and learning platform	Increasing the knowledge and confidence level of CHWs
Sean Duffy	2019	Guatemala	A clinical decision support application (app) for smartphones	Empowering CHWS in clinical decision-making in diabetes care, including titration of oral medications and management of complications using a smartphone application
Maletsabisa Molapo	2016	Lesotho	Feedback-integrated platform using a new mobile app.	To empower CHWs to view and report various issues, improve their experience, confidence, and technical competence
Siti Idayu Hasan	2017	Malaysia	Smoking cessation training includes lectures, practical sessions and role playing sessions	Empowering CHWs to help their patients to quit smoking
Caroline Ngoma	2015	Tanzania	Providing data collection tools, appropriate motivation and training to CHWs (workshops, seminars, etc.)	Empowering CHWs to record maternal and child health data
Amanda Allison	2015	Hawai	Evidence-based training curriculum	Empowering CHWs to Navigate Cancer Patients and facilitate timely access to medical care
Khanjan Mehta	2015	USA	Training CHWs on how to work with strips	Empowering CHWs to use diagnostic test strips for early diagnosis of infectious diseases
Amarchand	2013	India	Training CHWs to measure blood pressure using digital devices	Empowering CHWs to measure blood pressure

Castañeda et al. explored the potential of cell phones and artificial intelligence in exploring snake species and improving the treatment of snakebites. Misidentification of snake species can lead to incorrect use of antivenom and other harmful consequences. With the increasing use of smartphones and internet penetration in countries, AI-based animal identification techniques can be used to identify snakes from photographs. This technology can improve identification of bitten species, facilitate access to effective antivenoms, and enable

more effective treatment for vulnerable communities and healthcare providers. By ghadering and sharing data such as snake photos, location, and habitat type, people can use cell phones and AI to identify the type of snake and provide appropriate treatment to victims [15].

The application of digital technologies offers unique opportunities to strengthen health systems, especially in rural areas where access to computers is limited [16,17]. Cell phones have become a potential medium due to their high penetration rate, and Yadav et al. developed an Android application called Sangoshthi to empower community health workers by mix of Internet technology and interactive voice response (IVR) for training sessions. In their study, Sangoshthi was found to be a well-received learning environment that resulted in a 16% increase in knowledge and higher levels of case management confidence. The study highlights the potential of complementary training platforms like Sangoshthi to support CHWs in the field without requiring additional infrastructure, and how this technology complements traditional face-to-face training mechanisms [18].

Duffy et al. implemented a smartphone app to enable health workers in rural Guatemala to manage diabetes. CHWs played a supportive role in these programs, and the mobile health app was used for data collection, communication, and patient education. CHWs met monthly with diabetic patients and used the app to assess complications, diabetes self-care, and treatment efficacy. Using information by CHWs, including glucose and hemoglobin A1c levels, the program then provides advice on metformin and/or glyburide titration, diabetes management, lifestyle counseling, and physician referral, if needed. Result suggest that the program was effective in improving diabetes care. Compared with baseline, mean A1c levels decreased by 1.5% at 3 months and by 1.6% at 6 months. The proportion of patients achieving A1c treatment goals increased from 13.0% to 34.8% within 3 months [19].

Molapo et al. conducted an 18-month engagement with CHWs in Lesotho to evaluate the use of cell phones in the feedback process. The study was divided into three six-month cycles, with each cycle introducing new elements of the app and feedback mechanism. In the first cycle, CHWs used their phones to watch instructional videos using the built-in media players, while a new app was developed for the second cycle. In the third cycle, CHWs used the instructional videos

on their smartphones and participated in role-playing and brainstorming exercises to provide feedback on their experiences with the new app and smartphones. The results show that the CHWs felt included in the project development process and were able to suggest alternative methods for feedback. The app increased the CHWs' alertness to various problems and improved their experience, confidence, and technical competency through intensive engagement and participatory actions [20].

Empowering healthcare providers to assist with smoking cessation is an effective approach to address tobacco-related problems, but the limited training of healthcare providers is a major barrier to implementation. Hasan et al. conducted a study to examine the impact of a one-day training program in changing knowledge, attitudes, and self-efficacy in smoking cessation. The training included lectures, workshops, and role-playing and covered various topics related to smoking cessation. The study demonstrated that this training program can improve healthcare providers' confidence and skills in smoking cessation interventions, highlighting the importance of training programs to address the barriers to implementing effective smoking cessation interventions [21].

Negoma et al. conducted a study to empower community health workers in Tanzania to collect and record maternal and child health data by resolving contradictions. Through interviews, participant observations, focus groups, and document reviews, the study found that training CHWs and providing appropriate tools for data collection, along with incentives and information sharing, significantly improved the quality of maternal health data. Overall, the study highlights the importance of empowering CHWs to collect and record accurate maternal and child health data [22].

In another study, Allison et al. examined the empowerment of health workers in Hawaii to navigate cancer patients. They worked with community health workers, cancer survivors, and their families to develop and implement a cancer care system navigation program. The Cancer Patient Navigation (CPN) program consisted of 48 hours of training focused on 14 core competencies in cancer knowledge, services, and communication. Ongoing training was assessed and improved through ongoing dialog with trained navigators and patients. 12 training courses were conducted, 162 cancer navigators were trained in Hawaii, and the capacity of community

health workers to help cancer patients was improved. This has improved the ability of community health workers to help cancer patients. In addition, patients consistently report high satisfaction with cancer patient navigation assistance [23].

Inkjet-printed diagnostic test strips are a simple and effective way to detect communicable diseases in developing countries. These strips are highly sensitive and produce a color change that can be easily analyzed by CHWs or mobile cameras 25. However, CHWs need to be trained in how to use the strips correctly, including proper handling, storage, and disposal of the strips. They also need to be aware of the environmental issues associated with the test strips and how to recognize and treat destroyed strips. Additionally, CHWs should be trained on quality control, verification of the correct expiration date, and proper disposal of test strips [24].

Hypertension is one of the leading causes of death in the world. Its effective control and treatment depends on proper diagnosis. One way to achieve this is to empower CHWs to measure blood pressure (BP) [25]. To test the validity of using CHWs to measure BP, Amarkandi et al. trained 169 CHWs to measure blood pressure (bp) using digital devices. The study was conducted at four sites in Delhi. The evaluation showed that the different phases of blood pressure measurement were followed in more than 90% of the cases. The results showed that CHWs consistently recorded systolic and diastolic values that were slightly higher than those of the supervisors. Their study shows that CHWs can be trained to measure BP, and their measurements were not significantly different from those recorded by trained personnel [26].

CONCLUSION

The empowerment of healthcare providers can greatly benefit population health, as they are the first group to interact with the population in the healthcare system. Both traditional methods such as seminars and workshops, as well as new technologies, can be used to empower community health workers (CHWs). This systematic review found that improving the skills of CHWs, providing incentives, and ensuring proper supervision and monitoring can improve their skills. However, economic burden and integration into workflows should be considered when implementing new technologies.

Conflicts of interest

The authors don't have any conflicts of interest

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Ethical clarity

This study was conducted according to the guidelines of the Ethics Committee of Gerash College of Medical Sciences, Gerash, Iran (ethics code: IR. GERUMS. REC.1401.004).

Author's contribution

Data gathering and idea owner of this study: CT, MK, FV

Study design: CT, MK, AA, FV

Data gathering: MK, AA

Writing and submitting manuscript: MK,AA

Editing and approval of final draft: MK

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