

Is Community-based Participatory Research (CBPR) Useful? A Systematic Review on Papers in a Decade

Yahya Salimi¹, Khandan Shahandeh^{2,3}, Hossein Malekafzali¹, Nina Loori², Azita Kheiltash², Ensiyeh Jamshidi^{2,3}, Ameneh S. Frouzan⁴, Reza Majdzadeh^{1,2,5}

¹Department of Epidemiology and Biostatistics,

²Center for Community Based Participatory Research (CBPR), Tehran University of Medical Sciences,

³Department of Health Education and Health Promotion, School of Public Health,

⁵Knowledge Utilization Research Center (KURC),

⁴Social Determinants of Health Research Center, University of Social Welfare and Rehabilitation Science, Tehran, Iran

Correspondence to:

Mrs. Khandan Shahandeh,
Center for Community Based Participatory Research, Department of Health Education and Health Promotion, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
E-mail: shahandeh@razi.tums.ac.ir

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ABSTRACT

Background: Community-based participatory research (CBPR) has been applied by health researchers and practitioners to address health disparities and community empowerment for health promotion. Despite the growing popularity of CBPR projects, there has been little effort to synthesize the literature to evaluate CBPR projects. The present review attempts to identify appropriate elements that may contribute to the successful or unsuccessful interventions.

Methods: A systematic review was undertaken using evidence identified through searching electronic databases, web sites, and reference list checks. Predefined inclusion and exclusion criteria were assessed by reviewers. Levels of evidence, accounting for methodologic quality, were assessed for 3 types of CBPR approaches, including interventional, observational, and qualitative research design as well as CBPR elements through separate abstraction forms. Each included study was appraised with 2 quality grades, one for the elements of CBPR and one for research design.

Results: Of 14,222 identified articles, 403 included in the abstract review. Of these, 70 CBPR studies, that 56 intervention studies had different designs, and finally 8 studies met the inclusion criteria. The findings show that collaboration among community partners, researchers, and organizations led to community-level action to improve the health and wellbeing and to minimize health disparities. It enhanced the capacity of the community in terms of research and leadership skills. The result provided examples of effective CBPR that took place in a variety of communities. However, little has been written about the organizational capacities required to make these efforts successful.

Conclusion: Some evidences were found for potentially effective strategies to increase the participant's levels of CBPR activities. Interventions that included community involvement have the potential to make important differences to levels of activities and should be promoted.

Key words: Community-based participatory research, effectiveness, researches, systematic review

INTRODUCTION

In order to reduce the challenges of community participation in health research methods, suggested solution is to use community-

based participatory research (CBPR). This kind of research aims to promote health or decrease inequality in health by attracting community participation.^[1]

It is reasonable to believe that CBPR can help partial improvement in health, education, and economy of the communities by promoting the quantity and quality of data because it is need oriented. This could happen due to the reliability, better formation of the subject, and direction of the research, which transfers knowledge to beneficiaries. The emphasis of CBPR is on its participative process, which empowers main partners.^[2]

Based on review of the literature, CBPR approach could be implemented in descriptive research that attempts to identify social determinants of health.^[3] It can also be a useful approach in research that seeks to explain disparities in health status or health-related risk factors.^[4] Researches also used a CBPR approach with the purpose of better collaboration between research partners to identify needs, problems, and assets in special communities.^[5,6] CBPR has the potential to make the positive community changes in efforts to design, implement, and evaluate intervention and policies.^[7]

CBPR has had an upward movement, which increased opportunities of financial support from funding agencies. Thus, it is suggested that more attention should be granted to show positive effects of collaborative research approach.^[8-10]

Successful CBPR projects that have been reported around the world demonstrate numerous strategies and techniques that they have used for developing and maintaining effective CBPR.^[11-14]

Some studies believe that effectiveness of CBPR depends on the strength of effective communication and appreciating the culture of the community.^[8,12] A previous review that assessed papers from 1961 to 2001 was designed and implemented in order to identify which CBPR researches should be supported by granting bodies, but it produced limited information on the effectiveness of CBPR.^[8] In the present study, the aim was to pay more attention to the effectiveness aspects (positive changes in communities) of CBPR studies, especially to those studies in the time span after the previous review study.

METHODS

To identify published researches on CBPR, data sources, key words, and search strategies were

defined. The PUBMED (MEDLINE), SCOPUS EMBASE, CINAHL, OVID MEDLIN, and Psy INFO databases were searched using the key phrases “Community-based participatory research” and “participatory action research.” Search strategy for PUBMED is shown in Table 1. Search strategy for each database was different according to specification of the databases. The main efforts were contributed to implement a systematic review on CBPR projects from 2000 to 2009. In addition, search has been done on the names of prominent authors in CBPR; manual search was conducted on all the reference lists.

Inclusion criteria for papers were originality of the research and presence of CBPR elements participation in the process of execution of research, including choosing research question, proposal development: financial responsibility for grant funds, study design, building partnership, preparation of measurement instruments and data collection, development and implementation interventions, interpretation, and dissemination and applying the result. Studies that met at least 5 criteria were included.

In this review, the type of outcomes (such as diabetes, tuberculosis, and others) has not been considered as inclusion or exclusion criterion and any outcome relevant to community health has had the chance for entering the study. Due to large quantity of retrieved papers, a team of four acquainted persons in CBPR assessed the retrieved records. All papers related to a study were considered in the systematic review. The papers that

Table 1: Search strategy for Pubmed and used keywords

Search strategy in Pubmed

Exp^a Community-based participatory research
(Community-based and participatory and
community-based and research).af^b
cbpr.af
Action research.af
Participatory evaluation.af
Action science.af
Collaborative inquiry.af
Empowerment evaluation.af
Community involvement.af
1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9

1 “Exp” a is indicating Exp in MEDLINE search approach refers to “Explode function.” 2 “af” in search approach refers to “all field.”

were limited to descriptive processes of CBPR were excluded from this review.

In order to appraise the quality of papers, critical appraisal forms utilized in a previous review study^[8] were used. These forms are divided into 2 main categories: one category was related to the quality of research methodology (which itself includes 3 forms of interventional, observational, and qualitative researches) and the others were related to the quality of participation and community engagement.^[8]

Two persons independently were appraised the quality of papers and if there had been a disagreement between them, a third person would have taken the judgment. Finally, according to appraisal forms, each paper was taken a score: no or insufficient information (score 1), studies with medium or enough information (score 2 and score 3). These persons were not blinded to the names of authors and journals. Kappa statistics were used to assess the reliability of scores.

Figure 1 shows the process of selection and categorizing of enrolled studies. The following steps were taken according to this figure:

First, papers were assessed according to main elements of CBPR. In case of presence of such elements, CBPR form was filled in. Then, papers were assessed based on whether they have evaluated interventions or not. Next, papers with intervention were divided into two: complete and incomplete categories. Finally, methodologic forms of intervention, quasi-experiment, or qualitative were filled in according to the results of the studies. In this article, we report the findings of completed controlled trials.

RESULTS

As shown in Figure 2, about 14,000 papers were in the primary list of the abstract review. At the end, 70 studies were chosen. Among them, 8 interventional studies were completed that met the inclusion criteria, 2 studies were incomplete interventional studies (in-progress studies), 23 studies were quasi-experiment, 23 qualitative studies, and 14 needed assessment with no intervention.

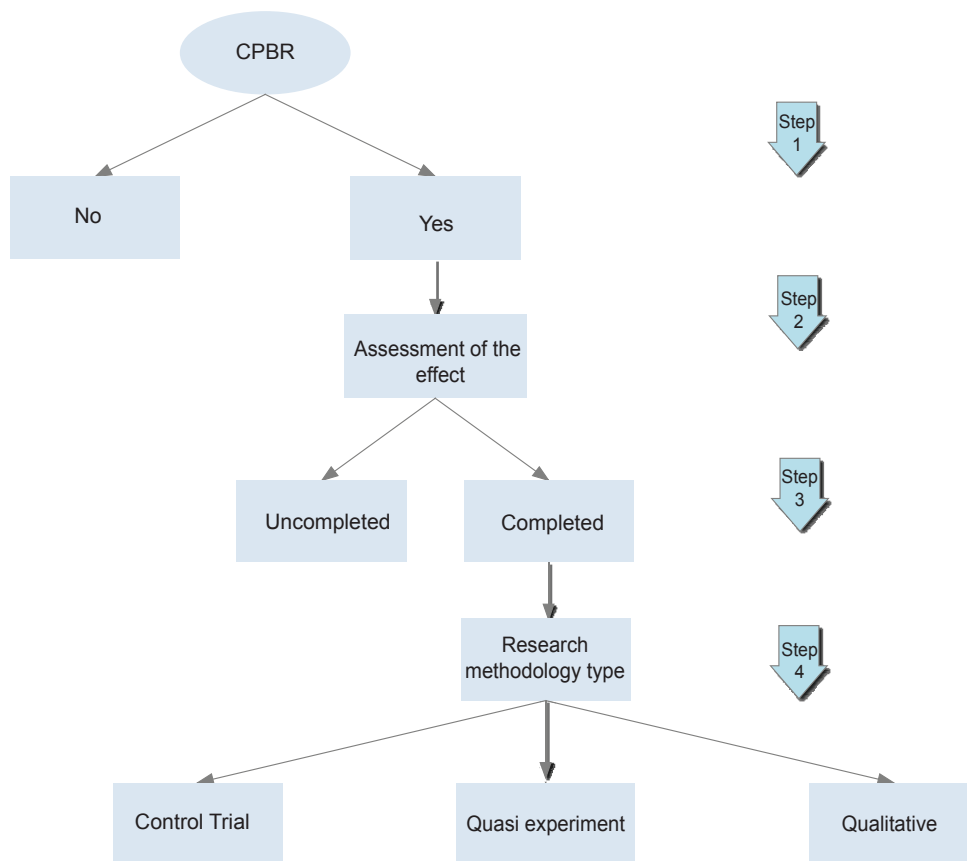


Figure 1: Process of selection and categorizing reviewed studies

The characteristics for effectiveness of intervention in completed interventional studies are summarized in Table 2. Integrating findings across the 8 studies demonstrated a set of effective interventions. In these studies, the effect of interventions on 7 studies reported statistically.

In the 8 completed interventional studies initiated by community-based organizations or university researchers, CBPR led to take action to improve the health and wellbeing of the community members, for example, to reduce maternal and neonatal mortality (Osrin *et al.*'s study^[15]); to encourage condom usage that reduce sexually transmitted infectious diseases (Morisky *et al.*'s study^[16]); to increase the use of healthy food (Vastine *et al.*'s study^[17]); to force teen parenting couples for HIV prevention programs (Lesser *et al.*'s study^[18]). In some studies, such as Nguyen's study^[14] and Minkler study,^[20] the intervention itself represented a significant action to improve community health, for example, in Nguyen's study, Vietnamese-American women not only became more knowledgeable about Pap test, but also it increased their ability to mobilize their community and help to build community capacity.

In 5 studies (Hien *et al.*,^[21] Minkler, *et al.*,^[20] Morisky, *et al.*,^[16] Nguyen, *et al.*,^[14] Osrin, *et al.* ^[15]) out of 8 complete reviewed intervention studies, community participatory-based research approach was introduced as an effective way toward promoting the health of community members.

Graph 1 illustrates the comparison in community participation percentage in different parts of research processes for the completed intervention studies.

Community participation in different parts of a study among reviewed studies showed that selection of research question with 42.1% had greatest

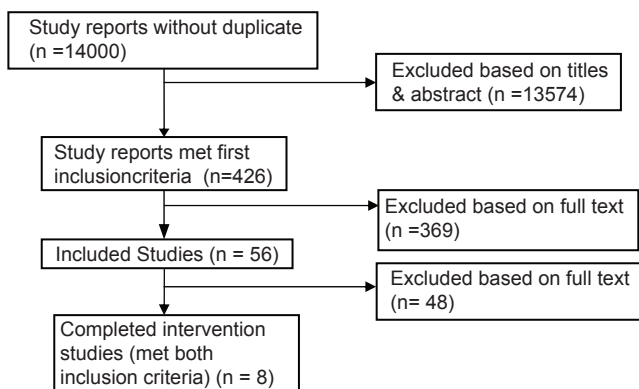


Figure 2: Process of selection and categorizing reviewed studies

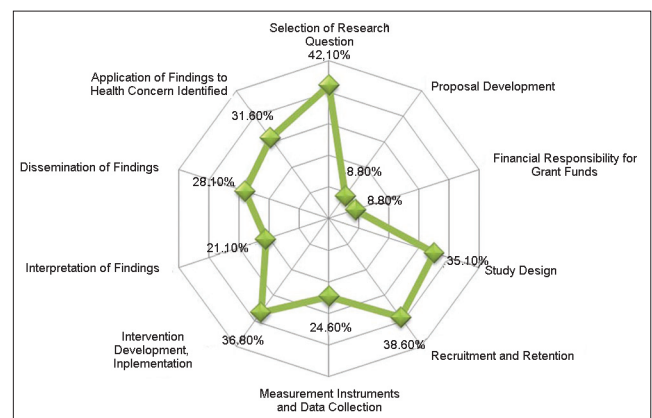
percentage and collaboration in preparing proposals and financial responsibility for grant funds with 8.8% had the lowest percentage among CBPR elements.

Research quality of the studies included in this review may not rate high with respect to research design rigor. Mean scores gained for qualities of research methodology and community participation in this review were 2.03 and 2.55, respectively.

DISCUSSION

To summarize the findings of current systematic review among the papers which were searched electronically, 70 papers were identified as CBPR papers. Out of them, 56 accomplished the criteria to enter principal assessment level, and they realized as important and practical aspects of CBPR research qualitative methodology. Out of 8 intervention studies using CBPR approach, 7 showed relative evidence of CBPR's effectiveness.

In a review of the CBPR literature related to health sponsored by the Agency for Health Care Research and Quality, Viswanathan and his colleagues found the evidences of enhanced research quality in completed intervention studies. This included evidences of enhanced participant recruitment, improved research methods, improved variable measurement, and improved intervention outcomes. They also came across limited evidence on reversed relationship between community participation and low-quality research.^[8] In the present research, while paying attention to all significant elements of CBPR after conferring with experts due to importance and effectiveness, more consideration was paid to



Graph 1: Comparison in community participation percentage in different parts of research processes for 8 completed intervention study

Table 2: Evidences for effectiveness of completed intervened research

Author (year)	Purpose	Sample size and subjects	Main findings	CBPR elements*/ methodology elements
Osrin ^[15] (2004)	Improve the health of pregnant mothers and their newborn infants in Makwanpur District in Nepal	28,931 married women aged 15–49 years	Intervention led to the reduction in neonatal mortality rate over 2 years (26.2 per 1000 with intervention vs 36.9 per 1000 with control; (OR, 0.70; 95% CI, 0.53–0.94) and maternal mortality (maternal deaths per 100 000 live births: 69 with intervention vs 341 with control; (OR, 0.22; 95% CI, 0.05–0.90). There were no significant differences over 2 years in stillbirth rates (24.6 per 1000 with intervention vs 23.3 with control; (OR, 1.06, 95% CI, 0.76–1.47)	2.61/2.73
Morisky ^[16] (2004)	To determine the efficiency of an expanded sexually transmitted infection HIV/AIDS prevention program	3389 males	Condom usage (36.10% to 38.70% to 46.31%, attitude toward condom usage (21.67% to 24.55% to 25.15%, knowledge about HIV/STI transmission (41.87% to 42.19% to 33.31%) increased significantly from baseline to post-test and 6-month followup, respectively ($P < 0.01$). Furthermore, the reported STI incidence decreased significantly (7.4% to 4.6% to 2.4%, respectively). Changes differed significantly between the intervention and control group at post-test and followup ($P < 0.01$)	2.23/2.13
Vastine ^[17] (2005)	To increase the use of healthy food		The knowledge and use of healthy food in Indian-Americans increased	2.57/1.95
Lesser ^[18] (2005)	HIV prevention program relevant to the needs of the population of inner-city Latino teen parenting couples	77 teen parenting couples	No significant differences detected	1.38/1.82
Nguyen ^[14] (2006)	To increase Pap test receipt and build community capacity among Vietnamese-American women	2009 Vietnamese-American women	Receipt and currency of Pap tests increased significantly in the intervention compared with the comparison community. Community involvement, system changes, community and research capacity building, dissemination of results, and program sustainability were also demonstrated. Participation in Lay health worker outreach was associated with up to date for Pap test (OR, 2.68; 95%CI, 1.83–3.92)	2.8/2.26

(Continued...)

Table 2: (Continued...)

Author (year)	Purpose	Sample size and subjects	Main findings	CBPR elements*/ methodology elements
Andrews ^[19] (2007)	To describe surface and deep structure dimensions of a culturally sensitive smoking cessation intervention developed with southeastern US public housing neighborhoods	103 women in phase I and 150 women in phase II	The 6-month continuous smoking abstinence outcomes were 27.5% in the intervention group and 5.77% in the comparison group (OR, 6.180; 95% CI, 1.65–23.09)	2.41/2.52
Minkler ^[20] (2008)	Capacity building for disabled people attempting to move out of nursing homes and into the community	200 disabled people	37% of the participants in the intervention group had successfully transitioned out of nursing homes to the community, compared with 20% in the control group	2.04/1.86
Hien ^[21] (2008)	To assess the usefulness of a participatory style of education and the applicability of an intersectoral approach in the educational process	304 community leaders	The results indicated significant increases in the total score of intervention group ($P < 0.001$)	1.61/1.69

* Range for amount of quality is 1–3; the highest is the best quality.

“research question selection,” “employing people in study,” “contribution in preparing measurement tools and data collection,” “development and intervention execution,” and “publishing the results.” Reporting these elements in the study was considered as criteria for empowerment.

Probably, this can show the reality that in addition to current problems in most common trials, researchers in CBPR cannot either provide the necessary balance between the main elements of CBPR and research methodology. Perhaps the presence of main participants (community members) who have little knowledge about research methodology is one of the reasons for weak or simple rate of study designs compared with the limited number of strong study designs.

Results showed that using strong research designs (e.g., randomized controlled trials) in community-based participatory researches are limited. In trial studies that were assessed in the present research, main problems were like the dose of other randomized

controlled trials (it has been shown that the most trials are at least in one part inexpensive^[15,22]).

The results also show that using research methodology for this approach even in community-based participatory researches using randomized controlled trial’s design were not adequately used and taken into consideration, which highlights the necessity for paying attention to research methodology. The main point to be considered is that 8 complete trial studies, each assessing a different subject have entered our research, this diversity in using CBPR facilitates the use of different research designs, on the other hand it prevents generation of a pool measurement since measurements obtained from each study cannot be combined (meta-analysis is impractical).

The main limitations in this review were lack of review of unpublished articles or papers presented in conferences and also lack of contact with researchers. Despite related encouraging results in research regarding the efficiency of interventions

in CBPR, there exist worries for lack of access to all relevant papers. This concern increased since we were not able to compare publication bias with other existing methods.

Keeping in mind the final purpose of CBPR, which is empowering the target community, outcomes of this review prove that the assessment of these types of research should not just be evaluated by health outcomes, and the point for consideration is “how much the target community has empowered.” It is worth mentioning that in the future research emphasis should be on evaluating the level of empowerment and stability of it in beneficiary community as criteria for CBPR’s effectiveness.

CONCLUSION

We performed a systematic review to examine the effectiveness of current CBPR intervention studies to improve the health and wellbeing of communities in general and eliminate health disparities in particular. CBPR may be effective among intervention research methods if the researchers and communities well understand its principal value.

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