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# Interprofessional education in a community-based setting: An opportunity for interprofessional learning and collaboration

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## Abstract:

**BACKGROUND:** An interprofessional community-based education provides proper situations that learners can be prepared to play their professional responsibilities and team duties in the community. This study aims to assess the effect of interprofessional community-based education on attitudes and performances of learners toward interprofessional collaboration and their readiness for interprofessional learning.

**MATERIALS AND METHODS:** The study is a quasi-experimental design. The learners in six different disciplines, including medicine, pharmacy, nursing, midwifery, public health, and nutrition (n=122) at Shahid Sadoughi University of Medical Sciences were participated in the present study. In the present study, interprofessional education intervention was conducted in two steps. First, the interprofessional learning situation brought learners the familiarity with the concepts of interprofessional collaboration, teamwork, and educational medical content, such as backache, fatty liver, diabetes, and HIV. Second, learners from different disciplines participated in interprofessional teams in community settings. These learners taught people about health-related topics, such as backache, fatty liver, and HIV. Participants filled out the questionnaires before and after interventions. Data were analyzed by Student's *t*-test and one-way ANOVA in SPSS 16.0 software (SPSS, Inc., Chicago, IL, USA).

**RESULTS:** The present results showed that the scores of learners in readiness for interprofessional learning 3.82 (0.35) versus 4.60 (0.29) ( $P = 0.001$ ) ( $P = 0.0001$ ), attitudes to interprofessional teamwork 3.83 (0.40) versus 4.18 (0.30) ( $P = 0.0001$ ) ( $P = 0.0001$ ), interprofessional collaboration 7.46 (0.70) versus 8.35 (0.43) ( $P = 0.001$ ) improved significantly before and after the educational interventions.

**CONCLUSION:** The present results showed that interprofessional community-based education has improved the readiness of the learners for interprofessional learning. Besides, attitude toward teamwork and interprofessional collaboration performance have also been improved from participants' viewpoints.

## Keywords:

Interprofessional collaboration, interprofessional education, community based education, education, interprofessional learning, performance, readiness, attitudes

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## Introduction

The strategies of interprofessional education and community-based education have been considered to prepare the medical science learners for the future career.<sup>[1]</sup> The community-based strategy

focused on a better understanding of the community needs and the role of health-care providers in the community. The interprofessional education strategy was defined when a group of students or health workers train together with different professionals in a way that interaction is considered a key goal in developing

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collaboration to provide health promotion services, prevention, treatment, rehabilitation, and other health services.<sup>[2]</sup> The matter of interprofessional education and collaboration has also been regarded as a concern of the World Health Organization (WHO). In this respect, interprofessional education as a strategy to provide situations for learning from each other, together, and about each other to improve collaboration and the quality of patient care.<sup>[3]</sup> The main purpose of interprofessional education is to prepare students for “Team-based care”. The interprofessional education strategy was used in different settings such as the simulated environment, voluntary community routines, rural areas, and in the clinic.<sup>[4]</sup> Community is one of the most interesting contexts in the implementation of interprofessional education. Interprofessional education in the community provides learners with better understanding of the needs of the community members and the role of team members in the community setting.<sup>[4]</sup>

Community-based education familiarizes students with different ways to deal with health-care problems in the community and prepare them to acquire problem-solving skills in the future. The advantages of community-based education include students’ familiarity with socioeconomic factors that affect health and disease, health services in the community, and teamwork in the health-care team. Community-based education refers to learning activities related to the health needs of the people in a community context.<sup>[5]</sup> Using an interprofessional approach, together with the participation of students from different professions in the community, enables learners to interact with people in the society and to experience interprofessional interaction, learning, and preparedness for their role in the future. In addition, the participation of learners in the society and rural areas is one of the ideal settings for exercising interprofessional collaboration and understanding the importance of community needs.<sup>[4]</sup> The advantages of interprofessional education in the community context are understanding the health needs of the community, creating an opportunity to collaborate in real situations, increasing self-confidence in the interaction of members in the society, and developing attitudes toward community resources.<sup>[4]</sup> The interprofessional education and community-based strategies have not been used perfectly in medical disciplines at the investigated context. Hence, training of interprofessional collaboration abilities, accountability of community needs, and teamwork require serious attention. Implementing the interprofessional approach in the community is suggested to develop skills such as teamwork, communication, and community-based performance.<sup>[6]</sup> In addition, learners from different professions exercised in the interprofessional learning and collaboration in the real situations. Kent and

Keating in a systematic review stated that contributors have learned teamwork competencies and improved knowledge of the role of health-care professions through interprofessional education in the community. However, evidence of changing attitude toward other disciplines has not been found and more studies are required.<sup>[7]</sup> In another study, Segal-Gidan explored participants’ experiences of the community-based interprofessional education course in two themes; “understanding the role and responsibilities of other health care professions” and “the application of team-centered care in practice.”<sup>[8]</sup> Further studies are recommended about the effect of interprofessional learning in the community context.<sup>[8-10]</sup> The investigated context, the education system is a discipline-based and the interprofessional education has not been considered in formal and informal curriculums. The implementation of an interprofessional education in developing countries is facing challenges such as discrimination among members of different disciplines, traditional curriculums, and dominance of individualistic and uniprofessional culture.<sup>[11-14]</sup> The challenges prevented learners from working properly in interprofessional team. The reform of the community-based education courses is necessary to achieve improvement in role recognition, the correction of uniprofession stereotypes, and the preparation to play their roles in interprofessional teams. It is hypothesized that the integration of interprofessional education and community-based strategies may facilitate achieving these skills through providing the interprofessional situations. The aim of this study was to assess the effect of the interprofessional community-based education on readiness for interprofessional learning, the attitude, and performance of learners toward interprofessional collaboration.

## Materials and Methods

The present study is a quasi-experimental study. The learners in six different disciplines including medicine, pharmacy ( $n = 122$ ), nursing, midwifery, public health, and nutrition at Shahid Sadoughi University of Medical Sciences were participated in the present study. The inclusion criteria were determined by the students in the mentioned disciplines who have spent at least 2 months of clerkship courses. Since the interprofessional community-based education courses were developed as extracurricular activities, the randomization of learners was not conducted and they participated voluntarily.

Interprofessional interventions have been carried out in two steps. First, interprofessional learning situations were provided to familiarize the learners with the concepts of interprofessional collaboration, patient education principles, as well as a core medical content including diabetes, HIV backache, and fatty liver. In this

situation, learners from different professions participated in small groups to share their information and discuss the determined subjects. Instructors from various professions (clinical teachers and experts in medical education) facilitated the interprofessional learning process of students. Then, facilitators explained the process of interprofessional education and collaboration in the community and learners' duties. The learners were asked to form their interprofessional teams, divided duties, and determined their role in teamwork. The main interprofessional activities of learners were determined to assess the health literacy of people and educate them about the determined subjects. The educational content and materials were produced by facilitators and learners. In the phase of community-based education, 5–7 learners, as an interprofessional group, assessed the need of people by structured interviews according to the interview guide in the beginning of the sessions. They taught people about health-related topics, answered the questions, and provided the educational material such as pamphlets. Facilitators supervised the learners' activities in the interprofessional team. Each course took place for 3 months. The learners filled out the questionnaires before and after interventions as self-assessment.

The instrument in the present study consisted of readiness for interprofessional learning (19 items) (Cronbach's  $\alpha = 0.8$ ),<sup>[15,16]</sup> and the assessment of attitude toward teamwork (14 items) (intraclass correlation coefficient [ICC] = 0.87, Cronbach's  $\alpha = 0.74$ ). The scoring of the questionnaires was a 5-point Likert scale (1 = completely disagree, 5 = completely agree). Participants assessed interprofessional collaboration by a 33-item instrument as interprofessional collaborative assessment rubric. The rubric consists of six domains: communications (7 items), role and responsibility (7 items), conflict management (5 items), collaboration (5 items), team function (5 items), and collaborative patient/client-centered approach (4 items)<sup>[17,18]</sup> which had been validated in the investigated context (Cronbach's  $\alpha = 0.71$ , ICC = 0.76).<sup>[19]</sup> Scoring on each item is on a scale of 1–9 for the competency scores where 1 = minimal and 9 = mastery.

Data were analyzed by descriptive (mean, SD, and percentage) and analytical tests; the independent Student's *t*-test was used to compare the mean of age and gender of participants and their scores in the investigated variables, respectively. Paired Student's *t*-test compared the mean scores of learners before and after the interventions. In addition, one-way ANOVA was used to compare learners' scores in their professions, and *post hoc* tests (Tukey honestly significant difference [HSD]) were assessed whether the difference among these values was significant. Data were analyzed by SPSS 16.0 software (SPSS, Inc., Chicago, IL, USA).

## Results

The participants in different professions were entered in the present study ( $n = 122$ ) [Table 1]. The mean age of participants was 23.8 years 4.4.

The results of the study illustrated that the mean scores of readiness for interprofessional learning ( $P = 0.001$ ), attitude toward interprofessional teamwork ( $P = 0.001$ ), and interprofessional collaboration performance of participants ( $P = 0.0001$ ) were significantly different before and after the educational interventions [Table 2].

Therefore, interprofessional educational interventions have remarkably improved the attitude toward teamwork, readiness for interprofessional learning, and interprofessional collaboration performance. The result of the one-way ANOVA showed that there is no significant difference among learners' discipline with the level of readiness for interprofessional learning ( $P = 0.09$ ) and interprofessional collaboration of learners ( $P = 0.26$ ). The attitude scores of learners were different in various disciplines ( $P = 0.01$ ). Tukey HSD test showed the difference between the scores of midwifery learners ( $4.32 \pm 0.35$ ), which were significantly higher than other professions' attitude ( $P = 0.04$ ). There was no significant difference between gender of learners and the scores of attitude toward interprofessional teamwork ( $P = 0.95$ ), readiness for interprofessional

**Table 1: The characteristic of participants in different disciplinary**

Variable	n (%)
<b>Profession</b>	
Nursing	38 (31)
Midwifery	32 (26.2)
Public health	13 (10.7)
Medicine	19 (16)
Nutrition	16 (13.1)
Pharmacy	4 (3.3)
<b>Gender</b>	
Men	24 (20)
Women	98 (80)

**Table 2: The scores of participants before and after educational intervention**

Outcome measure	Mean±SD	t	P
Interprofessional collaboration			
Pretest	7.46±0.70	7.48	0.001
Posttest	8.35±0.43		
Attitude toward teamwork			
Pretest	3.83±0.40	8.27	0.0001
Posttest	4.18±0.30		
Readiness to interprofessional learning			
Pretest	3.82±0.35	10.72	0.0001
Posttest	4.60±0.29		

SD=Standard deviation

learning ( $P = 0.77$ ), and interprofessional collaboration of learners ( $P = 0.35$ ). There was no significant difference between the mean of age of participants and their scores of attitude toward teamwork ( $P = 0.65$ ), readiness for interprofessional learning ( $P = 0.32$ ), and interprofessional collaboration of learners ( $P = 0.46$ ). The scores of learners in interprofessional collaboration domains were significantly different [Table 3]. The results showed that 95% of the participants were satisfied with the educational intervention and tended to participate in the educational interventions in the future.

### Discussion

Interprofessional community-based education can provide a suitable opportunity to develop learners' abilities in teamwork and better understanding of interprofessional collaboration. In the present interventions, activities of community-based education were designed through integrating the strategies of interprofessional education and community-based education. The results showed that the interprofessional community-based education improved learners' readiness for interprofessional learning and collaboration.

The present results showed that the scores of the learners had been improved significantly in all domains of interprofessional collaboration competencies. In this study, the interprofessional community-based activities provided opportunities for learners of different professions to be able to play their role in interprofessional teams for interactions people and their training. Similarly, the results of Pit's study illustrated that interprofessional learning has led to the improvement of the relationship and teamwork among team members as well as recognition of the role and responsibility of other professions.<sup>[20]</sup> In Ryan *et al.* study, the learners of different faculties of medicine, nursing, and pharmacy participated in interprofessional community-based education. The community environment provides situations in which the learners can work in interprofessional teams to inquire the community needs and find solutions to answer people's needs. The Ryan's results showed that the learners felt more comfortable by working in the team

and interacting with various patients. The understanding of the learners from community needs, social factors of health, obstacles, challenges to access of health services, and patient-centered care were significantly improved among learners. Similarly, it was emphasized that interprofessional community-based education has had a key role in the learning process of the contributors in Ryan study.<sup>[21]</sup> In our study, the participants assessed their interprofessional collaboration in a desirable level after interventions that were similar to the results of the Ryan's study, which showed the improvement of self-confidence of participants in teamwork. Self-efficacy and self-confidence were defined as key components in the behavioral change process<sup>[22]</sup> that it seems the interprofessional situations in the community provided a proper situation to improve their skill, attitude, and self-efficacy. The results of Stubbs' study showed that interprofessional community-based education and participation of the learners from ten different disciplines in interprofessional teams has made positive changes related to teamwork and learners' team-centered competencies,<sup>[23]</sup> which is similar to the results of the present study. The results may be achieved for the reason that the learners were asked to play the defined role as a team member in real situations. Xyrichis in a review study has defined "team structure" and "team process" as facilitators of interprofessional teamwork in the community.<sup>[9]</sup> It seems the interactions with other team members and the implementation of the professional and team responsibilities improved learners' teamwork competencies.

Interprofessional community-based education can lead to changes in the performance of participants through developing attitude, value, and vital abilities to meet community health needs.<sup>[19]</sup> The result of a systematic review study showed that there is no suitable evidence for attitude change resulted from interprofessional education.<sup>[7]</sup> The present study showed that the learners achieved positive attitudes toward interprofessional teamwork after educational intervention. In this regard, the results of Furze's study that the participants in nursing, pharmacology, occupational therapy, and physical therapy participated in interprofessional educational courses, showed learners' attitudes toward the people of the society,

**Table 3: The scores of learners' self-assessment about interprofessional collaboration performance domains**

Interprofessional collaborative performance domain	Mean±SD		t	P
	Pretest	Posttest		
Communication skills	7.23±0.96	8.28±0.49	8.31	0.0001
Collaboration	7.49±1.09	8.49±0.45	7.79	0.0001
Role and responsibility	7.36±0.95	8.25±0.68	6.63	0.0001
Collaborative patient-centered approach	7.68±0.99	8.50±0.53	7.01	0.0001
Team function	7.70±0.47	8.49±0.38	10.89	0.0001
Challenge management	7.62±0.83	8.52±0.34	8.35	0.0001

SD=Standard deviation

especially the elderly and also other health professions had been improved.<sup>[24]</sup> In this study, the interprofessional education has been determined as one of the effective methods to improve learner's understanding and respect to other professions.<sup>[24]</sup> Similarly, the learners' attitudes were improved, especially, the attitude of midwifery learners upgraded more than the learners' attitude of other disciplines in the present results. It can be due to the necessity of the nature of teamwork in their professional performance. The participation of learners in the process of teamwork in the community brought situations for the learners of different disciplines to work together and learn from each other, causing the significant improvement in attitudes toward teamwork<sup>[24]</sup> which is similar to our results. Moreover, the present results showed that the readiness for learning from other professions has significantly developed among the learners. The results of a mixed-method study, which aimed to assess the readiness level of learners toward interprofessional education in the context of Asia, showed that students had suitable readiness for interprofessional education. Although, challenges such as the unwillingness of medical students to participate with other students, feeling the imposition of a leadership role on medical students, weak understanding of other professions, and the boundaries of each profession were explored as challenges to interprofessional learning.<sup>[25]</sup> The results of a study aimed to assess the readiness of postgraduate students of Isfahan University of Medical Sciences for interprofessional learning showed that the readiness of postgraduate students were in desirable level and suggested opportunities for development of interprofessional learning.<sup>[16]</sup> Further studies are required to explore the factors affecting readiness for interprofessional learning and collaboration.

The present study has designed as a quasi-experimental study, and there was no control group and randomization. Students participated in the courses as extracurricular activities and voluntary entrance and the number of participants in each discipline was other limitations of the present study.

## Conclusion

The present results showed that the interprofessional community-based education has led to an improvement in the readiness of the learners for learning in the interprofessional team. Moreover, the attitudes toward teamwork and interprofessional collaboration performance have been improved from the participants' viewpoints. Thus, it is suggested that the community-based education programs will design by applying the interprofessional education strategy in formal and informal courses.

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## Conflicts of interest

There are no conflicts of interest.

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