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# Evaluation of the effect of chain training methods on improvement of household awareness and attitude toward healthy nutrition

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Original Article

## Abstract

**BACKGROUND:** Cardiovascular diseases (CVD) are one of the major causative factors of morbidity and mortality in the world which can be easily prevented through lifestyle changes. The aim of this study was to evaluate the effect of chain training methods on increasing household awareness on and attitude toward healthy nutrition in order to prevent CVD.

**METHODS:** This study was performed as a community trial. For the purpose of this study, 4 areas were selected and 4 educational methods were conducted in these areas. The participants were told to share their information with their neighbors and relatives in that area (chain training). Primary knowledge of the residents of these areas before and after the intervention were evaluated in a randomly selected sample (n = 400). Data were analyzed using independent t-test, chi-square, and Fisher's exact test.

**RESULTS:** Pre-intervention and post-intervention mean of knowledge were 16.42 ± 3.5 and 16.4 ± 3.6, respectively (P = 0.025). Pre-intervention and post-intervention mean of knowledge did not differ in area 1, 2, and 4. A statistically significant increase in knowledge was only observed in area 3 (P < 0.001).

**CONCLUSION:** The use of chain training method by non-governmental organization (NGOs) may not be effective in increasing awareness on healthy lifestyle. Therefore, training through public classes and direct education by health personnel is recommended.

**KEYWORDS:** Training, Knowledge, Behavior, Nutrition

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## Introduction

Cardiovascular diseases (CVD) are one of the major factors of illness and mortality in the world.[1,2] The most important causative factors of CVD include unhealthy diet, physical inactivity, and tobacco consumption, which can be prevented through appropriate training.[3,4] Recently, lifestyle changes have resulted in some nutritional risk factors in different communities such as Iran.[5-8] Therefore, the general guideline of the American Heart Association has emphasized the improvement of regional policies and community training in order to change their lifestyles as the main components of CVD prevention.[9,10]

The different methods of health education include lectures, small group discussions, role playing, performing, film, direct observation, face-to-face training, procedures, and etcetera. One of these methods is chain training. In this method, a group are trained and they will transmit the educational materials to others[11]. Today, some political issues and news spread over a population through this method. Now, the question is: "Can chain method be useful in health

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education?". Answering this question can be effective in teaching of health issues. Nevertheless, since there are not enough personnel, educating the society members by the health system is quite difficult. Evidently, this problem can be solved by society members' training others through chain education method.[12] The aim of this study was to investigate the effect of some training methods on knowledge promotion through chain education method.

## Materials and Methods

The present study was performed as a community trial in the two cities of Sanandaj and Saqez, Kurdistan Province, Western Iran, in 2012 after being approved by the ethics committee of Kurdistan University of Medical Sciences.

In these two cities, four areas were non-randomly selected based on the experts' opinions. The study was conducted in cooperation with four main non-governmental organizations (NGOs), which were experienced in health planning, and in four stages. First, for the uniformity of the education in all the intervention groups, the educational texts were prepared by nutrition experts of the health system in order to be used by the trainer. In the second stage, the primary knowledge status of the people before the intervention was evaluated in a 400-subject sample size randomly selected based on postal code from all areas. In the third stage, training and intervention programs were conducted by the selected NGOs which had previously participated in similar tasks based on the educational methods listed in table 1.

**Table 1. List of intervention field in the study**

| City | The name of the area | Intervention methods | Teaching methods | Type of trainer | Participants in pre-/post-intervention |
|---|---|---|---|---|---|
| Sanandaj | Abbasabad | Providing 500 households with face-to-face training and educational CDs with an instruction card | Based on need assessment | Company working in educational and social interface | 100-100 |
| Sanandaj | Kanikozaleh | Training parents in schools (each individual only once) | Community-based education or local groups (CBO) | Social interface | 100-100 |
| Sanandaj | Farajah | Training through public classes and practical work in the review of food units consumed in the previous few days, measuring anthropometric indices, informing individuals about them, and practical training on cooking | Training in public classes and practical work | Health Personnel | 50-50 |
| Saghez | Shakarriz | Training of 323 households through public classes and private sessions, re-training by presenting weekly paper (24 cards per week), and practical nutrition education classes | Leitner method | Health interface | 150-150 |

The participants were also told to share their information with their neighbors and relatives in that area (chain training). The standard questionnaire of the Heart Research Center of Esfahan[13] was used in order to assess the level of knowledge. Then, post-intervention knowledge was evaluated in 400 participants selected randomly from these areas (participants in the pre-test were different from participants in the post-test in each areas).

The study data were entered into the SPSS statistical software (version 11.5, SPSS Inc., Chicago, IL, USA). Independent t-test was used to compare the level of awareness. Moreover, comparison of the qualitative variables between the two groups in every region was performed through chi-square and Fisher's exact tests. All P values below 0.05 were considered statistically significant.

## Results

Among the study subjects, 13 (1.6%) were male and the rest were female. In addition, 706 (88.3%) were married and 292 (36.5%) were illiterate. According to table 2, mean scores of age, marriage status, and level of education did not differ between pre-intervention and post-intervention participants (P > 0.05). However, a difference was observed between the two groups in terms of gender (P = 0.003). Mean scores of knowledge in pre-intervention and post-intervention groups were 16.4 ± 3.5 and 16.4 ± 3.6, respectively (P = 0.025). Mean scores of knowledge in pre-intervention and post-intervention groups did not differ between areas 1, 2, and 4. A statistically significant increase in knowledge was only observed in the area 3 group (P < 0.001) (Table 3).

**Table 2. Demographic characteristics of participants**

| Variables | | Pre–intervention (mean ±SD) | Post-intervention (mean ±SD) | P |
|---|---|---|---|---|
| Age | | 39.1 ± 14.1 | 38.2 ± 13.8 | 0.388 |
| Gender | Male | 12.0 ± 3.0 | 1.0 ± 0.2 | 0.003 |
| | Female | 388.0 ± 97.0 | 399.0 ± 99.8 | |
| Marital status | Single | 46.0 ± 11.5 | 48.0 ± 12.0 | 0.826 |
| | Married | 354.0 ± 88.5 | 352.0 ± 88.0 | |
| | Illiterate | 148.0 ± 37.0 | 144.0 ± 36.0 | |
| Level of education | Primary school | 110.0 ± 27.5 | 112.0 ± 28.0 | 0.741 |
| | Middle school | 53.0 ± 13.2 | 64.0 ± 16.0 | |
| | Diploma | 64.0 ± 16.0 | 54.0 ± 13.5 | |
| | Academic | 25.0 ± 6.2 | 26.0 ± 6.5 | |

SD: Standard deviation

**Table 3. Comparison of the mean score of knowledge between the control and interview groups**

| Type area | Educational Method | Pre-intervention (mean ±SD) | Post-intervention (mean ±SD) | P |
|---|---|---|---|---|
| Area 1 | Based on need assessment | 15.3 ± 2.8 | 14.9 ± 2.8 | 0.269 |
| Area 2 | Community-based education or local groups (CBO) | 17.8 ± 3.2 | 16.7 ± 3.4 | 0.056 |
| Area 3 | Training through public classes and practical work | 16.7 ± 3.2 | 18.4 ± 2.9 | < 0.001 |
| Area 4 | Leitner method | 16.2 ± 3.9 | 16.0 ± 3.8 | 0.701 |
| Total | - | 16.4 ± 3.5 | 16.4 ± 3.6 | 0.025 |

SD: Standard deviation

## Discussion

In the present study, training through public classes and practical work in the review of food units consumed in the previous few days, measuring anthropometric indices, informing individuals about them, and practical training on cooking was effective in increasing nutrition awareness. This study shows that chain education may not be effective. The significant difference between the two groups' mean scores of knowledge after the education by the health workers shows that the implementation of this method in the trained groups has been quite effective. The initial training was performed through various methods and the participants were asked to share the content they learned with others. However, the results showed that the chain training method is effective and encourages individuals to educate others and share their information with others. Kafeshani et al. investigated the mothers' knowledge status in the marginalized households of Isfahan, Iran, and showed that 20.6% of the mothers had desirable knowledge, while 79.4% had moderate and poor knowledge.[13] Researchers, in another study, mentioned literacy level as one of the factors effective on the level of knowledge before and after the training[14]. Having more knowledge can improve health-related behaviors.[15] Education is the foundation of all learning.[16] In this study, various methods were used in the training programs. Although the headlines of educational materials and intervention during the period were similar in all groups and only the training methods were different, other groups had no effects on the creation of the educational chain. Some other studies which have addressed the efficacy of various educational methods have also reported differences in the effectiveness of various methods in improving the level of knowledge.[17] Nevertheless, in order to design health education interventions in this province and probably all through the country, NGOs alone do not have the ability to train and health workers should be used as instructors.[18,19] In an ideal condition, nutritional counseling and education should be designed based on the education level of the individual.[20] In addition to differences in length and method of providing the training, in many studies, educational researches are designed according to specific individuals,[21,22] training and consultation take place from person to person,[19,23] or a combination of nutritional education and behavioral counseling is presented.[22] Kim et al. demonstrated that the village health worker training program is effective in building health promotion capacity of community leaders and can be a main method for helping lower developed countries with further development[24]. On the other hand, educating individuals and raising their level of knowledge has been shown to be highly effective in improving their nutritional status.[25,26] Evidently, an individual's nutritional behavior is not only affected by his/her nutritional knowledge and can be influenced by numerous factors.[27,20] The present study had one limitation, i.e. the members of the second sample were not asked whether someone had transferred the trainings to them or not because the goal of the study was creating the educational chain.

## Conclusion

According to the results of this study, using health personnel with sufficient education experience is very important in NGO educational programs because they have the required level of knowledge and communication ability, and the trainees will probably trust them more.

## Conflict of Interests

Authors have no conflict of interests.

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