

## The Training Effectiveness of Prevention Disability Package in High School Girls; a Community Intervention Trial

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### Abstract

**Background:** Training programs and providing essential information such as preborn educational programs for women, unmarried girls are essential as the most important prevention methods for control and prevention of health outcomes and disability. The current study conducted to assess the training effectiveness of Prevention Disability Package in high school girls in a community trail.

**Materials and Methods:** A community trial executed among 1,339 high school girls in Qom, Iran. Subjects were the students that training in 10<sup>th</sup> and 11<sup>th</sup> years of education. All of students in each class from all majors were included in the study. According to sampling framework, 55 classes selected randomly assigned to lecture (1264 girls [94.4%]), 4 (3%) girls to CD-based group and 35 (2.6%) girls to control group. Data collection was conducted by a standard and valid questionnaire. Analysis of variance test was used to compare the mean of knowledge score among three groups. Analysis of covariance (ANCOVA) used to control the confounding variables.

**Results:** There were significant differences among three groups according to the total score of awareness of disability. Therefore, the mean score of in handicap, musculoskeletal diseases, pregnancy dimensions, and total knowledge about disability causes was higher than in lecture group than CD-based and control groups ( $P < 0.05$ ). The ANCOVA analysis showed that the effect of intervention among groups was statistically significant after adjusting the effect of pretest scores, educational year, marital status, and field of study ( $P < 0.001$ ).

**Conclusion:** Our analysis showed that Lecture and CD-based training are effective methods for increasing the knowledge of the high school girls about the control, prevention, and risk factors of disability. However, Lecture based and face-to-face training is better method for growing the awareness of students than CD-based.

**Key Words:** Education, Disability, Girls, Knowledge, Training, Students.

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## 1- INTRODUCTION

From 1970s, the disability issue is changed to a global human rights (1) and it is defined as a multidimensional, challenged and multifactorial health outcome that everybody will be temporarily or perpetually impaired at some point in life (1, 2). According to the Unicef Report on disability more than approximately 15% of the world's population are affected to a grade of disability which more than 10% are with major handicaps (1). In addition 80% of children with disabilities are living in developing countries that the health care access and providing the pre-primary training for control, prevention and rehabilitation of disability are insufficient (1). Since disability is part of the human condition (2), it must be more interested by all development, health and educational programs to improve the lives of children and their families by enhancing the knowledge about health and wellbeing (1-3).

Lack of knowledge about disability adversely is related to the attitudes of physicians, women and people with disabilities (4, 5). Today, training programs are considered as the most important prevention method that are effective in improvement of health outcomes (6). Based on the recent studies, adolescence is the critical and most effective age period for preventive training (6). Mental health professions are so much interested in preventive training of adolescence due to it is indicated that handicap is a source of stress that led to disorders such as anxiety, depression and other psychological behaviors (7, 8). Furthermore, providing information and essential knowledge as well as achieving required knowledge for control and prevention from disability are considered critical in preventing abnormalities and handicaps (6).

Environmental factors, such as safe water and sanitation, nutrition, poverty, working conditions, climate, or access to health care are related to health (9-13). However, the Commission on Social Determinants of Health in World Health Organization (WHO) has argued that inequality is a major cause of poor health, and hence of disability (2, 10, 14). Knowledge and attitudes are important environmental factors, affecting all areas of service provision and social life (3, 15).

Therefore, increasing awareness of the society about the disability and improvement the attitude of people are often the first steps towards creating more accessible environments for persons with disabilities (2, 16). Negative attitudes and behaviors as low knowledge from disability causes and prevention can create adverse effects on children and adults with disabilities including low self-esteem and reduced participation (17). According to the WHO reports, early intervention programs for disabled children and their families are few. Hence, the preborn educational programs for women, unmarried girls are essential for increasing the knowledge and attitude of society especially in girls who are the exposed to the marriage and childbearing (1, 15). Furthermore, the current study conducted to assess the knowledge status of high girls' students about the disability causes and risk factors. In addition to evaluate the training effectiveness of Prevention Disability Package in high school girls in a community trail.

## 2- MATERIALS AND METHODS

### 2-1. Study design and population

A community based interventional trial executed in the all high school girls of the district 2 (as a low-level income and high-centered area), Qom, Iran at spring 2016.

### 2-2. Methods

Sample size calculation conducted based on the another same study by Nejati et al. (18) in a quasi-experimental study. However, we aimed to assess the effectiveness of training in compared to two control groups. Moreover, to increase the chance of the participating the high school girls in the training classes regarding to controlling handicaps and disabilities, we try to register all eligible girls. According to a prepared sampling framework, 16 high schools and 55 classes selected and included in the study. In each school, two classes selected randomly based on the proportional stratified sampling method. The classes in each school were defined as strata. Subjects were the students that training in 10<sup>th</sup> and 11<sup>th</sup> years of education.

All of students in each class from all majors were included in the study. The eligible students enrolled for the study after taking the verbal informed consent. The enrolled subjects assigned to three different groups. The random allocations conducted on the all class instead of the students. Furthermore, 51 classes assigned to one group that received the active training intervention by lecture (**L**) and two class selected for the two different non-active groups including CD-based (**CD**) and control (**C**). Overall, the pretest questionnaires distributed among 1,383 students at the baseline.

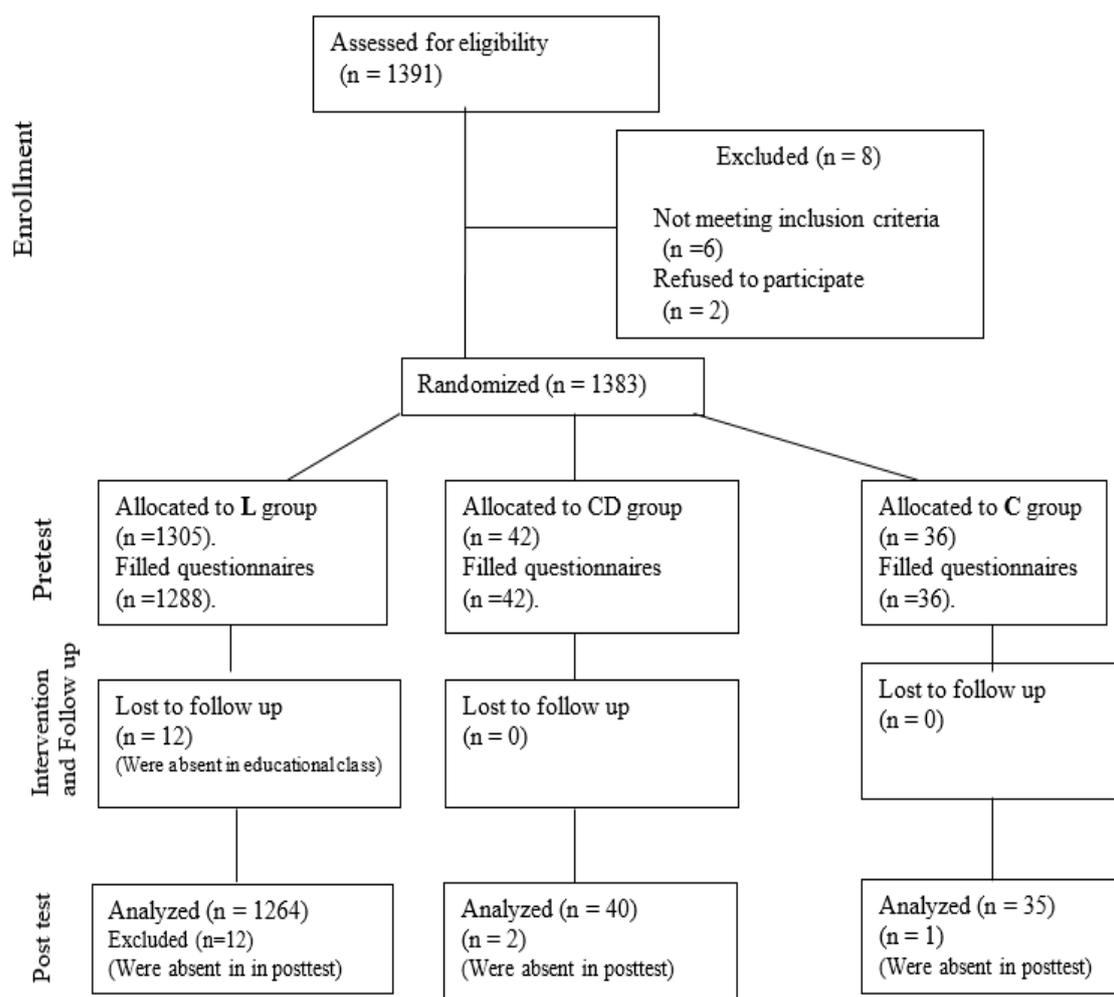
According to random allocation of classes, 1305 girls from 51 classes allocated to lecture groups and 1288 girls fulfilled the pretest questionnaire in L group. The response rate was 99.7%. However, we select four classes as control group. Two class including 42 girls selected as first control group that receiving the educational contents via CD. The third group including 36 high school girls from two different classes assigned

to control group (**C**) that did not receive any educational contents. The unequal number in three groups was due to ethical consideration to increase the community awareness. However, the number of students that fulfilled the posttest in lecture, CD and C groups were 1264, 40 and 35 students, respectively. The detail of sampling scheme and randomization is depicted in CONSORT diagram (**Figure.1**).

### **2-3. Measuring tools/ validity and reliability**

Data collection was conducted by a standard researcher-made questionnaire that prepared based on the review of literature and the questionnaire' draft that advised by welfare organization of Iran. This questionnaire concludes five sessions; the first, demographic, and educational information asked. The second to fifth session include 40 knowledge questions that assess the awareness of girls regarding to the disabilities causes. Each session conclude 10 questions with 4-item scale that having one true response. The true items scored as 1 and false items scored 0.

Therefore, the minimum to maximum for each knowledge session of questionnaire varied 0 to 10 and the total score of awareness varied from 0 to 40. The questions designed according to standard questions guidelines and extracted from the educational contents. The content validity of questionnaire was assessed by scientific experts and Cronbach's alpha ( $r=0.912$ ) was used for evaluation of reliability. Moreover, test retest was used to assess the consistency of results ( $r=0.765$ ). The educational training contents prepared based on the four different booklets that published and gathered by welfare organization in Iran.



**Fig1:** CONSORT diagram showing the flow of participants through each stage of a randomized trial.

## 2-4. Intervention

Training of students in different classes and schools conducted by a concordant team that includes 5 physician. The educational team was participated in educational class for increasing the agreement among the instructors before the students training. The educational content for lecture and CD groups was including issues regarding to the causes of handicaps (20 minutes), musculoskeletal disorders (25 minutes), genetic diseases (20 minutes), and pregnancy health issues (25 minutes) that are related to disability and disablement. The C group did not receive any educational content. The lecture groups training in their class and on

the high school, but the CD group educated in their home. The post-test was taken from the participant one month after intervention. Therefore, the time gap between pre- and post-test in three groups was 30 days.

## 2.5-Ethical consideration

The informed consent was taken from all the studied subjects and the ethical committee of Qom University of Medical Sciences was approved the study protocol.

## 2-6. Inclusion and exclusion criteria

All the students that studying in district 2 Qom included in the study. Student that

were unwilling for participating in the study and who were ill excluded from the study.

### 2-7. Data analysis

After data collection, all questionnaires coded and insert in SPSS (18) software. Descriptive statistics was used for describing mean and percentages. Analysis of variance test was used to compare the mean of knowledge score among three groups in baseline measurement, after intervention and to compare the difference of mean score between before and after of intervention in all groups. For controlling the baseline scores of groups and other confounding variables that could effect on the results including marital status, major of study and year of education, the analysis of covariance (ANCOVA) used. Significant level was considered at 0.05.

## 3- RESULTS

The mean age of subjects were  $15.74 \pm 0.69$  years old. Forty-three students (3.2%) were married and 96.8% (1,296 girls) were single. In addition, 987 (73.7%) studied in 10<sup>th</sup> year of school and 352 (26.3%) were in 11<sup>th</sup> educational year. The majority of students (29.9%) were training in experimental sciences major. Moreover, the distribution of students in human sciences, technical and mathematical majors were 25%, 19.6% and 25.5%, respectively (**Table.1**).

The response rate in post-test was 97.3% (1,339 / 1,376). From all the 1,339 girl students, 1,264 (94.4%) were in lecture group, 40 (3%) in CD-based group and 35 (2.6%) in control group. The results of **Table.2** shows that there was no significant difference among three studied groups at the baseline measurement regarding to the total score mean of knowledge about disability causes and

score mean of each dimensions of disability knowledge questionnaire ( $P > 0.05$ ).

The **Table.3** findings shows that there was a significant difference among three groups according to the total score mean of awareness and score mean of each dimensions of disability awareness except in genetic issues.

Post hoc test showed that the mean score of in handicap, musculoskeletal diseases, pregnancy dimensions, and total knowledge about disability causes was higher than in lecture group than CD-based and control groups. Therefore, lecture based and face-to-face training was a better method for increasing the knowledge of students than CD-based method.

The **Table.4** findings shows that there was a significant difference among three groups according to the mean differences between after and before of training in total score mean of awareness and score mean of each dimensions of disability awareness except in genetic issues.

Post hoc test showed that the mean difference score of in handicap, musculoskeletal diseases, pregnancy dimensions, and total knowledge about disability causes was higher than in lecture group than CD-based and control groups. However, the major of students and years of studying in the school was not related with the knowledge increasing of the students ( $P > 0.05$ ).

The ANCOVA analysis (**Table.5**) showed that the effect of intervention among groups was statistically significant. This effect showed after adjusting the effect of pretest scores in three groups and by controlling the effect of the educational year, marital status, and field (major) of study in students.

**Table-1:** Demographic characteristics of studies subjects in the post test analysis

Variables		Frequency	Percent
Educational major	Experimental sciences	401	29.9
	Human sciences	335	25
	Mathematical sciences	341	25.5
	Technical sciences	262	19.6
Marital status	Single	1296	96.8
	Married	43	3.2
Years of studying in school	10 <sup>th</sup> year	987	73.7
	11 <sup>th</sup> year	352	26.3

**Table-2:** The baseline mean (SD) score of knowledge in different dimensions of the disabilities causes and the total score in the studies subjects

Variables	Lecture n=1296	CD-based n=40	Control n=35	P- value
Handicap	3.61±0.67	3.57±1.72	3.42±1.65	0.390
Genetic	5.21±0.41	4.92±1.93	5.34±1.22	0.06
Musculoskeletal diseases	2.5±0.67	2.47±1.65	2.51±1.17	0.970
Pregnancy	4.18±0.92	3.85±2.1	4.06±1.95	0.10
Total knowledge about disability causes	15.5±1.61	14.82±4.41	15.34±4.3	0.070

SD: Standard deviation.

**Table-3:** The mean (SD) score of awareness in different dimensions of the disabilities causes and the total score in the studies subjects one month after training

Variables	Lecture n=1296	CD-based n=40	Control n=35	P-value	Tukey significance
Handicap	5.33±1.52	4.05±1.97	3.71±1.46	<0.001	L with C and CD
Genetic	5.32±2.47	5.47±2.05	5.26±1.42	0.870	----
Musculoskeletal diseases	4.15±1.32	3.02±1.44	3.06±1.30	<0.001	L with C and CD
Pregnancy	4.81±1.66	5.32±2.6	4.34±1.28	0.038	L and Cd with C
Total knowledge about disability causes	19.61±3.61	17.87±5.66	16.37±2.57	<0.001	L with C and CD

SD: Standard deviation.

**Table-4:** The mean difference in the score of awareness in different dimensions of the disabilities causes and the total score in the studies subjects at the baseline and one month after training

Variables	Lecture n=1296	CD-based n=40	Control n=35	P-value	Tukey significance
Handicap	1.72±1.64	0.47±2.09	0.286±2.2	<0.001	L with C and CD
Genetic	0.107±1.61	0.55±2.69	-0.086±2.08	0.195	----
Musculoskeletal diseases	1.65±1.47	0.55±2.3	0.542±1.54	<0.001	L with C and CD
Pregnancy	1.47±2.8	0.623±1.8	0.285±2.51	<0.001	L and Cd with C
Total knowledge about disability causes	4.11±3.75	3.05±7.22	1.02±5.62	<0.001	L with C and CD

**Table-5:** The analysis of covariance results for controlling the related factors in awareness of students after the training

Covariates in the ANCOVA model		Mean	Standard error	95% Confidence Interval		P-value
				Lower Bound	Upper Bound	
Groups	Lecture (L)	19.27	0.371	18.55	20.0	<0.001
	CD-based (CD)	17.64	0.575	16.52	18.77	
	Control(C)	16.38	0.600	15.21	17.56	
Pretest score	Lecture (L)	15.50	0.045	15.41	15.59	0.021
	CD-based (CD)	14.82	0.697	13.415	16.23	
	Control(C)	15.3429	.72754	13.86	16.82	
Educational year	10 <sup>th</sup>	19.41	0.38	18.65	20.16	0.387
	11 <sup>th</sup>	17.84	0.58	16.70	18.98	
Marital status	Single	18.87	0.185	18.51	19.23	0.896
	Married	19.02	0.779	17.49	20.54	
Field of study	Experimental	18.13	0.459	17.23	19.03	0.720
	Human sciences	19.6	0.538	18.54	20.65	
	Mathematical	19.93	1.244	17.49	22.37	
	Technical	19.31	0.493	18.34	20.27	

#### 4- DISCUSSION

According to our results, the training of high school girls about the informing package of control and prevention of disability was effective in increasing the knowledge. The lecture-based training was method that is more efficient for subjects and creates higher growth in knowledge of the high school girls. In addition, the CD-based training was an effective method than the control group, while the knowledge growing in under study subjects was lower than the lecture based method. However, different studies showed that the direct education and face-to-face training could be more valuable than other educational methods (5, 19-20). Although the virtual education has some benefits including; the cost and time of the volunteers is saved and is more accessible in any time and place, but the traditional education could be helpful in teenagers and adolescences (19, 21- 22).

Over recent decades, a social model is defined in the disability object and the role of social and physical barriers in disability has been described. Therefore, it is caused to the society think about handicap and

disability as a society problem rather than by individual (2). Hence, Community-based rehabilitation (CBR) programs can change the attitudes of low social class communities about disability and could leading to higher participation by people in prevention and rehabilitation of disabilities (2, 17). Since the 1970s the responsibilities regarding to the disability changed as a human right and a growing tendency appeared among people to increase this right by self-organizations that work in disability issue (2). Nevertheless, in Iran welfare organization has direct responsibility for prevention and rehabilitation of people with disability. Moreover, some nongovernmental organizations create by people and often by disabled people or their families. However, national training workshops for disable people and their families as well as educational courses or classes for preventing disability is insufficient.

The current training program as the informing package about prevention of disability in high school girls executed in Qom and could be effective in increasing the knowledge of girls who are in pre-marriage period. The package including

information about four important causes of disability that are affect premarital, pregnancy and after birth stages of life. These programs could increase the participation of community in defining the disability as a human right and create a positive attitude regarding to handicaps. According to WHO report in a multicenter study in 56 developing countries it is found that low socioeconomic status and poverty are one of the cause of disability due to lack of access to health, facilities, lower knowledge about the disability risk factors (2). Different studies showed the effect of educational programs for training people especially in students, physicians and women (5, 19, 23).

Based on our recent studies the educational programs could be increase the knowledge, attitude, and life skills of participants. But the changes in the knowledge scores are related to some demographic factors including age, gender, baseline awareness as well as the educational methods and theoretical models that applied in training (4, 5, 20-21). According to the results of the current study, a well-designed training programs for increasing the disability awareness in teenagers and youth could increase the knowledge for disability, control , prevention of handicaps and tits risk factors (4). Moreover, the executive managers in welfare organization and ministry of health in Iran as well as all health care providers, clinicians and educators in scope of disability and handicaps should be training and involved about the educational methods and disability awareness programs. Moreover, they should be provide appropriate resources and interventions on how to development and address this issue (4). This community trial study could increase the knowledge of the high school girls in one of the deprived district of Qom, as one of the big cities in Iran, and increase the knowledge level of a large sample of students more than 70%. Nevertheless,

one of the limitations of the current study was measuring only the knowledge of students due to the welfare organization protocol and we did not assess the attitude. Moreover, the number of subjects in control groups was low.

#### **4-1. Limitations of the study**

Limitations of this study was only conducted a study on girls.

#### **5- CONCLUSION**

Our study showed that the effect of training intervention for increasing the knowledge of the high school girls is effective. Lecture based training is better method for growing the awareness of students than CD-based. Therefore, direct education and face-to-face training could be more valuable than other educational methods for teenager's students. In multivariate analysis after adjusting the effect of the educational year, marital status, and major of study in students, the intervention type was the most important factor that related with higher increase in knowledge.

**6- CONFLICT OF INTEREST:** None.

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