

Improving the HIV-Stigma in the Marginalized Population in Khorramabad, Iran: An Educational Trial Using Role-Playing and Lecturing

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Research Article

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Abstract

Background: Marginalized populations are significantly important in the HIV control program due to their socio-economic conditions and lifestyles. Improving the individuals' stigmatizing attitudes, which can be achieved only through proper education, is a major way to prevent HIV. The present study aimed to investigate the effects of two methods, role-playing and lecture, on improving the attitudes of the suburban population of Khorramabad towards HIV.

Methods: The present randomized educational trial was conducted on 270 suburban populations over 18 years of age in Khorramabad, Iran in 2019, and the individuals were randomly assigned to three groups, namely role-playing, lecture, and control. We utilized a standard HIV knowledge and attitude questionnaire to collect data before and after the intervention. We entered the data entered into the SPSS and analyzed them using the independent two-sample t-test, paired t-test, and multiple regression.

Results: The attitudes towards HIV were stigmatizing in all three groups of the marginalized population before the educational intervention. After education, the attitudes of both groups, role-playing and lecture, improved significantly compared to the control group ($P < 0.0001$); however, there was no significant difference between the two methods. ($P > 0.05$). There was a significant positive correlation between scores of attitude and knowledge ($P < 0.0001$).

Conclusion: Education is a basic pillar of improving the attitude towards individuals living with HIV/AIDS, and can lead to lower stigma and discrimination against people with the disease, and thus their greater desire to disclose their disease and receive medical services. Even though there was no significant difference between the two methods of teaching role-playing and lecture in the present study, further studies should be conducted on determining effective teaching methods due to the widespread of educational methods.

Introduction

According to the World Health Organization (WHO), 38 million people would be living with HIV by 2019, among whom 1.7 million were new cases in 2019, and 690,000 deaths occurred due to AIDS up to 2019 (1). According to the report of the Ministry of Health, there were 41494 people infected with HIV by the end of 2019, and deaths of 19164 people were recorded (2). Furthermore, there were about 1293 cases in Lorestan province, but based on a study by Poorolajal et al. (2017), the number of people living with HIV in the capital of this province, Khorramabad, is probably much higher and is estimated at 2456 (3), and it seems that some of them are residents of three marginalized regions around Khorramabad, but unfortunately there is no accurate information about the number of patients in these regions.

Residents of marginalized regions are vulnerable populations to HIV. Causes such as high population density, lack of adaptability and coexistence between different cultures, increasing unemployment and low income, lack of adequate welfare and educational facilities, relatively low level of public health, insufficient literacy, and lack of knowledge about HIV, and consequently negative attitude towards

patients with HIV provide a basis for the spread of high-risk behaviors and the prevalence of HIV in these populations (4–6). Therefore, it seems necessary to plan for HIV prevention and control in this vulnerable population.

Due to different ways of transmission, mortality rate, high cost of treatment, and social problems such as stigma and discrimination, HIV/AIDS has become an acute problem in the health system worldwide. The World Health Organization's main activities seem to focus on treating the patients and preventing infection by controlling the ways of its transmission, but it should not be forgotten that HIV infection also affects the patients' mental and social health in addition to their physical health mainly due to the negative attitude in society. Negative attitudes lead to stigmatization of patients and consequently their discrimination and social exclusion; hence, many patients try to hide their disease even from their partners or health personnel (7). According to statistics in Iran, about 15.4% of HIV-infected people do not go to service centers to receive services. In Lorestan province, only about 71% of the total number of registered cases are active, and the treatment coverage for active cases is about 80% (2). The patients' unwillingness to disclose the disease, on the one hand, leads to the lack of proper health care services, and on the other hand, the spread of infection among their acquaintances and society members. Stigmatizing attitudes are due to misconceptions about the disease that itself results from a lack of proper and adequate knowledge about HIV (8). Therefore, it seems that reducing the stigmatizing attitude towards HIV patients, especially vulnerable and high-risk populations is a major way to prevent the spread of HIV, and it is possible only through proper education and raising their awareness about HIV (9).

There are several methods to teach about HIV, among which the most important practical methods are lecture as an educational method and role-playing as an interactive method each of which has advantages and disadvantages (10). The advantages of the lecture method are the high number of learners compared to the teacher, and consequently its cheapness, strengthening social relationships, and learners' self-confidence and interest (11). The superior features of the role-playing method are that the observers establish an emotional connection with the performance and the role-players, and they watch the play stages with excitement and feel themselves on stage. As the concentration of senses and emotional communication are in this method, learning is done better and more effectively (12).

On the one hand, due to the significant prevalence of HIV infection in Khorramabad, especially in the marginalized regions (13), and on the other hand, the lack of adequate education for people in these regions, the present study aimed to investigate the effects of two educational methods, lecture and role-playing, on improving the stigmatizing attitudes towards patients as a key factor in controlling and preventing the spread of HIV in the vulnerable population.

Methods

This cross-sectional study aimed to investigate the effects of two educational methods, lecture and role-playing, on improving the stigmatizing attitudes towards patients as a key factor in controlling and preventing the spread of HIV in the vulnerable population

The present study was conducted as a three-armed educational trial at Isfahan University of Medical Sciences on a marginalized population aged 18–49 living in three regions, Falak od Din, Masur, and Poshteh villages in Khorramabad city in 2019.

The sample size was measured using the formula of multi-arm clinical trial studies and considering the differences of mean attitude scores in the role-playing group (95.4) and the lecture group (98.3) according to a study by Abedian et al. (10), confidence level of 95%, 80% test power, and 10% probability of loss during the study, and it was equal to 110 in the control group and 80 per intervention group (lecture and role playing).

There were three health centers in each of the regions and they were considered as classes; and sampling was performed according to the population covered by each center, the share of age and sex groups, and based on the existing list of individuals in Sib website using the simple random sampling. Then, the individuals were contacted by phone and they were invited to visit the relevant centers to participate in the study after evaluating their inclusion and exclusion criteria. If person were unwilling to participate in the study or was not eligible, another person in the same age and sex group would be randomly selected and contacted by phone. The process continued until samples were completed in all age and sex classes. Inclusion criteria: 18 to 49 years old, Iranian citizenship, resident of Falak od Din, Masur, and Poshteh, at least elementary school education, mental ability to understand education and produce response, no known psychiatric disorders or severe visual and hearing impairments, and written informed consent to participate in the study. They were also excluded from the study if they were unwilling to participate in the study or in the case of their death.

Since it was impossible to blind the individuals in a region, and despite their unawareness, they found out after talking to each other that which group they were in, and thus it was decided to randomly allocate based on the regions to meet the condition of blinding the participants. To this end, the residents of Falak od Din and Poshteh were in the role-playing and lecture groups respectively, and the residents of Masur were in the control group.

We collected data using a standard questionnaire. In a study by Tavakoli (2015), the content and face validity of the questionnaire were evaluated by a qualitative method, and the Cronbach's alpha for internal validity was 0.79 for the attitude section, and 0.773 for knowledge section. The main part of the questionnaire consisted of 18 questions (4 items) about the attitude assessment. The other two parts included 24 questions to assess knowledge and 5 questions about demographic information. The way of answering the stigmatizing attitude was based on the 5-point Likert scale (strongly disagree, disagree, natural, agree, strongly agree); and 14 negative questions were scored from 1 (most positive attitude) to 5 (most negative attitude) and 4 positive questions were reversely scored. Therefore, the range of scores obtained from all attitude questions was from 18 (good attitude) to 90 (stigmatizing attitude) so that the highest score indicated a higher stigmatizing attitude. Therefore, participants with a score above the average (score 54) were classified as those with stigmatizing attitudes towards patients. The way of answering the knowledge section was by yes and no, and a score of 1 was given in case of correct

answer to each question and a score of zero in case of incorrect answer. Therefore, the range of scores obtained from the total attitude questions was from 0 to 24 so that the lowest score indicated low knowledge.

The educational content was extracted from the booklet "New approach to HIV education" prepared by the Department of AIDS and Sexually Transmitted Diseases in the Ministry of Health and Medical Education (14). In both educational methods, the content was taught about the biology of HIV, epidemic conditions in the province and Iran, transmission methods, and high- risk behaviors, self- preservation skills, as well as negative thoughts and misconceptions about HIV and its patients. The educational intervention was performed in two groups, "lecture" and "role playing", and an educational pamphlet was prepared and given to the two educational groups. The control group received no intervention.

After explaining the research purpose and giving assurance about the data confidentiality, written informed consent was obtained from them and the self-administered knowledge and attitude questionnaire was completed. Then, the interventions including teaching by lecture and role-playing were performed according to the grouping; and the educational schedule was performed in the health community centers and mosques of the marginalized regions one hour per week for a month. Due to very high possibility of displacement and disappearance of individuals in marginal populations, the interval between the end of educational interventions and reevaluation of individuals was considered to be 2 weeks and the questionnaire was completed again for all individuals in the control group and both intervention groups.

We analyzed the data using SPSS and described them by mean, standard deviation, frequency, and frequency percentage. Also, we utilized the independent two-sample t-test, analysis of variance (ANOVA), and Chi-square test at a significance level of 5% to analyze the data. We also examined the effects of differences in groups before the intervention, confounding variables, and the correlation between knowledge and attitude scores on the research results using the multiple analysis. The significance level was 5% in all analyses.

Results

We included a total of 270 individuals (51% women) aged 18 to 49 years in marginalized regions, Falak od Din (role playing: 80), Masur (Control: 110) and Poshteh (Lecture: 80). The participants' mean age in the three groups was significantly different from each other ($p = 0.019$), while they were not significantly different in terms of other demographic information ($P > 0.05$). The groups were significantly different from each other in terms of history of receiving HIV education so that the history of receiving HIV education was higher in the lecture group than the other two groups ($p = 0.0001$) (Table 1).

Table 1
Demographic characteristics of participants

	Study Groups			P-Value
	Lecture n = 80	Role playing n = 80	Control n = 110	
Age-yr-Mean (Sd)	32.87(8.41)	33.36(7.24)	32.42(9.75)	0.019*
Gender-n(%)				
Female	41.(51.25)	42(52.50)	50(55)	0.943^
Male	39(48.75)	38(47.50)	50(55)	
Marital Status				
Single	22(27.50)	16(20.00)	28(25.45)	0.590^
Married	58(72.50)	64(80.00)	82(74.55)	
Educational Status				
Elementary	3(3.75)	4(5.00)	7(6.36)	0.821^
Under diploma/Diploma	49(61.25)	55(68.75)	68(61.82)	
Educated	28(35.00)	21(26.25)	35(31.82)	
History of receiving HIV education				0.0001^
* One-way Anova				
^ Chi square				
P-value is significant at 0.05				

The general results indicated that the average score of knowledge in people living in the suburban regions of Khorramabad was about 17.4 (4.4) before any intervention. The mean score of knowledge was significantly lower in the control group before the intervention than the intervention groups ($p = 0.001$), while there was no significant difference between the lecture and role playing groups ($p = 0.972$). After controlling the effects of age difference and history of receiving HIV education in the groups before the intervention, the mean post-intervention knowledge scores were significantly different between groups so that the knowledge score of the control group was significantly lower than the intervention groups ($p < 0.0001$). However, there was no significant difference between the lecture and role playing groups ($p = 0.650$). Despite the significant increase in knowledge scores in all three groups after the intervention compared to before the intervention, the amount of increase was significantly different in the control group with the intervention groups ($p < 0.0001$). The results also indicated that there was a significant

correlation between attitude and knowledge scores before the intervention ($r = 0.425, p < 0.0001$), and the correlation was also significant after the intervention ($r = 0.484, p < 0.0001$) (Table 2).

Table 2
Comparison of knowledge between groups before and after the intervention

	Mean scores (Sd)			ANOVA/ MANOVA*	
	Lecture n = 80	Role playing n = 80	Control n = 110	F	P-value
Before the intervention	18.3(3.8)	18.1(4.2)	15.9(6.7)	9.12	< 0.0001
After the intervention	24.9(2.3)	23.4(2.0)	18.1(4.5)	10.56	< 0.0001
Paired t test value	-13.61	-14.80	-5.93		
P-value	< 0.0001	< 0.0001	< 0.0001		
* MANOVA used for group comparisons after intervention while Adjusted for differences between groups before intervention in terms of history of receiving HIV training and age					

The overall results indicated that the mean score of the individuals' attitude was about 44.4 in marginalized Khorramabad and it was near the median (score 54) suggesting that their attitudes towards individuals with HIV tended to stigma. Furthermore, about 15.6% of all participants had stigmatizing attitudes at the beginning of the study (higher score than 45). The mean score of attitude before the intervention was significantly different in the three groups so that the stigmatizing attitude was significantly lower in the lecture group than the control group ($p = 0.012$), but there was no significant difference with the role-playing group ($p = 0.262$). After controlling the differences between the groups in terms of age, history of receiving the HIV education, and attitude score before the intervention, the mean scores of stigmatizing attitude were significantly lower in the lecture and role group groups after the intervention than the control group ($p = 0.0001$), but there was no significant difference between the two groups ($p = 0.623$). According to the results in terms of attitude components and after controlling the differences between groups in terms of age, history of HIV education, and attitude score, the mean scores of negative attitude towards all components were significantly lower in the lecture and role-playing groups than the control group ($p = 0.0001$). Furthermore, there was a significant reduction in negative attitude scores and all its components after the intervention compared to before the intervention in the lecture and role-playing groups, while the changes were not significant in the control group (Table 3).

Table 3

Comparison of attitude and its components between groups before and after the intervention

Total Score of Attitude	Mean Score (Sd)			ANOVA/ MANOVA*	
	Lecture n = 80	Role playing n = 80	Control n = 110	F	P-value
Before the intervention	42.2(8.1)	44.5(8.4)	45.9(9.8)	4.25	0.0153
After the intervention	30.6(7.8)	32.1(6.7)	46.7(9.5)	4.00	< 0.0001
Paired t test value	9.24	12.5	-0.95		
P-value	< 0.0001	< 0.0001	0.367		
Patient's social status Score					
Before the intervention	14.9(4.1)	15.7(3.7)	14.44(5.1)	1.92	0.148
After the intervention	10.1(3.4)	10.2(2.9)	14.94(4.8)	2.74	< 0.0001
Paired t test value	10.08	11.98	-1.31		
P-value	< 0.0001	< 0.0001	0.189		
Patient's social support score					
Before the intervention	8.8(2.8)	9.3(3.4)	9.9(3.8)	2.61	0.084
After the intervention	6.5(2.3)	7.1(2.2)	9.8(3.7)	2.91	< 0.0001
Paired t test value	5.81	5.80	0.08		
P-value	< 0.0001	< 0.0001	0.936		
Social perception of disease score					
Before the intervention	14.0(3.9)	14.7(4.32)	16.3(5.2)	6.46	0.002
After the intervention	11.1(3.6)	11.5(3.1)	16.4(4.7)	3.53	< 0.0001
Paired t test value	5.31	6.23	-0.08		
P-value	< 0.0001	< 0.0001	0.935		
Patient's social harassment score					
Before the intervention	4.4(1.9)	4.9(1.8)	5.3(4.9)	5.27	0.006
After the intervention	3.1(1.2)	3.4(1.3)	5.5(5.1)	4.41	< 0.0001
Paired t test value	5.32	8.71	-1.07		
P-value	< 0.0001	< 0.0001	0.284		

Total Score of Attitude	Mean Score (Sd)			ANOVA/ MANOVA*	
	Lecture	Role playing	Control	F	P-value
	n = 80	n = 80	n = 110		
* MANOVA used for group comparisons after intervention while Adjusted for differences between groups before intervention in terms of history of receiving HIV training and age					

Discussion

The present study, which examined 18- to 49-year-old marginalized population living in Khorramabad, indicated that educational interventions could have positive effects on improving the attitude of the marginalized population towards HIV and its patients. Despite the lack of study on the effect of education on improving the social attitudes towards patients with HIV, many studies have emphasized education to reduce HIV-related stigma (8, 15). Results of CHAMP study on different ethnicities in the United States emphasized the impact of education as a main way to reduce stigmatized attitudes towards the patients (16).

In the present study, the interesting point was that a significant percentage of the participants did not receive any AIDS training until the intervention. Therefore, assuming that the marginalized population of Khorramabad was a representative of all marginalized populations in Iran and given the vulnerability of the populations to high-risk behaviors, and consequently, HIV infection (4–6), it seems that planning for education for these marginalized populations is necessary in Iran.

According to the results, there was a positive correlation between knowledge and attitude towards HIV so that higher knowledge about HIV improved the attitude towards the disease and its patients. Therefore, it seems that it is necessary to increase knowledge about HIV as a prerequisite to improve attitudes in a society (17). It is worth noting that only a high level of knowledge about HIV will not improve attitudes in society; hence, it is necessary to design specific educational programs to improve attitudes. Despite the lack of difference between the effectiveness of role-playing and lecture in improving attitude in the present study, studies have found that role-playing had a greater effect on improving knowledge and attitude than lecture, for instance, Manzari et al. (2015) found that more advanced training methods such as role-playing and multimedia could be more effective than the lecture in promoting knowledge and attitude (18, 19). Therefore, we suggest conducting further studies on the use of appropriate educational methods for the emotional field of learning and improving attitudes towards HIV such as multimedia methods, scenarios, role-playing, plays, and group discussions (20, 21). It is important to note that not every educational method can be used to improve attitudes in marginalized populations because they are different from the general population in terms of cultural, economic, and social conditions and lifestyles. For example, studies have found that the levels of general and health literacy are lower in marginalized populations than the national average (4–6); hence, further studies need to determine the appropriate educational method for these vulnerable populations.

The research results indicated that the attitude scores in the three groups were significantly different from each other before any educational intervention. The studies indicated that the difference was due to differences in the history of receiving HIV education between groups. The lecture group, who had received more HIV training in the past, had a less negative attitude. Given that the groups did not differ in terms of characteristics such as education levels, such a result at the beginning of the study indicated the effect of education on improving the individuals' attitudes. However, negative attitudes decreased in both lecture and role-playing groups after the educational intervention and controlling the effects of differences in the history of receiving HIV training, indicating the effectiveness of education in improving attitudes in the present study.

The results also indicated that the difference in the overall scores of attitude in the three groups at the beginning of the study was due to the difference in the scores of social harassment and social support. Various studies have found that people with HIV do not receive adequate social support (22, 23). Therefore, we suggest planning to improve the social support for people with HIV by their family and society in addition to providing education to improve the individuals' attitudes towards the HIV patients.

It is worth noting that the negative attitude increased in the control group, who did not receive any training, at the end of the study probably due to the coincidence with what happened in a village of Iran where news was published about the sudden discovery of a large number of people living with HIV for unknown reasons, and the news caused worry and distrust in the health system in people. The wave of concern spread throughout Iran, especially in rural regions and marginalized populations for several months (24), and an increase in stigmatizing attitudes towards HIV in the control group might be affected by the news. The negative attitude decreased despite such conditions in the lecture and role-playing groups, indicating the positive effect of education on the improvement of the individuals' attitudes under any circumstances.

Conclusion

It seems necessary to take into account the education as a pillar of reducing stigmatizing attitudes towards HIV and its patients. Improving attitudes in society improves social support for the HIV patients who eventually tend to be exposed to the disease and receive medical care, and this is an effective step in preventing and controlling the disease. Given the vulnerability of marginalized populations to HIV, and their specific living conditions, further studies should be conducted to determine effective and appropriate educational methods to improve attitudes in these populations.

Declarations

Ethics approval and consent to participate

All experimental protocols were approved by Iranian Registry of Clinical Trials with code IRCT20190807044467N1. Also, this study was approved by Iran National Committee for Ethics in

Biomedical Research with an ethical code (IR.MUI.RESEARCH.REC.1398.482) and proposal was approved by Isfahan university of medical science with code 398553. For all participants, written informed consent was obtained. We confirm that all methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

The first author, Mina Jomezadeh: made a substantial contribution to data acquisition, to data analysis and interpretation and wrote the article

The second author, Fereshteh Zamani-Alavijeh: made a substantial contribution to design of the study and to data acquisition.

The third and Corresponding author, Maryam Nasirian: made a substantial contribution to conception and design of the study, to data analysis and interpretation and revised the article for important intellectual content.

All authors reviewed the manuscript.

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