

# Effectiveness of social marketing on reducing risky sexual behaviors in HIV-positive individuals in Iran: a pilot randomized controlled trial

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## Abstract

**Introduction:** Social marketing is an innovative measure that benefits different aspects of human life. It has been suggested that it could also be employed in fighting human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), and promote family planning. The purpose of this study was to investigate the effect of social marketing methods on reducing high-risk sexual behaviors in HIV-positive individuals.

**Material and methods:** This study was a randomized controlled trial, involving sixty patients who visited voluntary counseling and testing (VCT) center of Imam Khomeini Hospital in Tehran, during 2017-2018 period. Respondent-driven sampling was used, and participants were divided into two groups through block randomization. Intervention group received a weekly social marketing training program in ninety minutes sessions, while control group did not receive any educational intervention. Questionnaire collected data on risky sexual behaviors (RSB) were evaluated using analysis of variance ANOVA.

**Results:** Social marketing training package delivered in this study could significantly reduce RSB after 6 weeks of implementation ( $p < 0.001$ ).

**Conclusions:** Social marketing measures could be effective in reducing RSB in HIV-positive individuals. However, developing well-tailored social marketing interventions, which could address sexual health issues of the society is a challenging endeavor in religious countries, such as Iran.

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**Key words:** social marketing, risky sexual behavior (RSB), human immunodeficiency virus (HIV), randomized controlled trial.

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## Introduction

Sexual behaviors are some of the main concerns of a couple's life [1]. Coherence and harmony of a pair's sexual desires are among the most important determinants of happiness and success of marital life. Sexual health is defined as a status of healthy and appropriate sexual life in a manner that satisfies physical, emotional, and behavioral needs, leading to harmony, love, and affection [2]. It could also create strong family ties and promote good mental health of individuals and society [3].

A healthy sexual life depends on a variety of factors, such as socio-cultural beliefs and education. Although sexual desires are intrinsic, sexual beliefs and behaviors could be learned. Similar sexual activities could have different meanings in different cultures; even for one person, from time to time, this meaning may change. In Iranian culture, sexual intercourse ties marriage, and premarital sex is strongly prohibited. However, in the last decade, the advances and availability of social media, not only influenced the culture and beliefs of the Iranian society, particularly young people, but also increased the opposite gender interaction [4].

Acquired immunodeficiency syndrome (AIDS) is a worldwide challenge and threat to human societies. It has several sanitary, cultural, social, economic, and political consequences. Erroneous beliefs and attitudes toward human immunodeficiency virus (HIV) may lead to inappropriate reactions and rejection of an HIV-positive patient from family and society. This could lead to patient's isolation and poor mental health, and as a result, risky behaviors may increase. Avoiding unsafe sex, commitment to marital life and sexual partner, and proper contraceptive use are the most important means of HIV prevention. It has been argued that the majority of young people present limited knowledge about sexual issues and sexually transmitted infections (STIs) in Iran [5].

Social marketing is an innovative approach that benefits different aspects of human life. Recently, it has been frequently used to address health issues, and has become a commonly used strategy in global health management [6]. Social marketing supports markets to produce health products and appealing services, affordable for both healthcare providers and consumers. It is a promising approach to influence voluntary lifestyle behaviors [7]. Social marketing techniques have been tested and proven useful within the health sector worldwide [8]. It has also been suggested that social marketing could be employed in fighting HIV/AIDS, and promote family planning [9].

Data from the Iran Ministry of Health indicate a rapid increase in RSB and HIV infections during the last decade in Iran. Unsafe sex carries the risk of HIV/STIs infection and unwanted pregnancy. Moreover, it has several physical, emotional, and economic consequences. Data show that after 2010, the majority of HIV-positive people in Iran, became infected through sexual route, and young people, in particular, are at higher risk due to their active sexual life [10].

Against this background, formulating appropriate interventions is essential to reduce risky behaviors and control the HIV epidemic in the country, especially among HIV-infected individuals, who are the main carrier of the virus.

Therefore, in this study, we explored the effect of social marketing-based educational approach on reducing risky behaviors among a sample of HIV-positive patients, who visited VCT center of Imam Khomeini Hospital from December 2017 to June 2018.

## Material and methods

### Study design

This study was a randomized controlled trial, with pre and post-tests, and data were collected between 2017 and 2018 period. Sixty eligible HIV patients were selected through respondent-driven sampling (RDS) from the patients who were referred to the VCT center of Imam Khomeini Hospital in Tehran. RDS relies on multiple waves of peer-to-peer recruitment and statistical adjustments to try and approximate random sampling. Sampling started with 8 seeds. After interview, the participants received coupons. After wave 1, wave 2 was recruited. Eventually, multiple incentives were set to attract new people [11]. These patients were assigned into two groups through block randomization (BR) [12]. Eligibility criteria for initial enrollment included age 18 to 60 years old, HIV-positive, normal intelligence quotient (IQ), lack of acute physical illnesses, and no history of taking psychiatric drugs during 6 months before the test. Exclusion criteria were a history of mental illnesses and psychiatric disorders. Data were collected through clinical interviews using a self-administered questionnaire, and included questions on demographic characteristics (age, education, sex partner, HIV/STIs, etc.) and sexual risk behaviors (condom use, intake of illegal drug, number of sexual partners, and unusual sexual acts No. 13 and No. 14). Each participant was provided with a questionnaire before and after the intervention, and the results were recorded for further analysis.

Ethical necessities were reviewed and approved by the Payame Noor University ethical committee (IR.PNU.REC.1398.107). Patients anonymity and confidentiality were carefully considered and assured (TCTR20190411002). The study was conducted according to the latest version of the Declaration of Helsinki guidelines for research on human subjects. Also, the Consolidated Standards of Reporting Trials (CONSORT) guidelines were adopted in the present study.

### Treatment methods

A video-presentation educational program (social marketing package) was developed by a group of psychologists, public health practitioners, and social workers. The education package comprised six weekly sessions, ninety minutes each, in the form of video presentation. It is purposely developed to influence the participants' behavior and reduce

**Table 1.** Baseline characteristics of participants in each study group ( $n = 60$ )

Characteristic	Mean $\pm$ SD or frequency		p-value
	Intervention group ( $n = 30$ )	Control group ( $n = 30$ )	
Age (SD)	32.11 $\pm$ 2.51	34.73 $\pm$ 3.39	N.S.
Sex (% female)	50	50	N.S.
Education level			
Diploma	18	17	N.S.
Bachelor's degree	7	6	N.S.
Master's degree	5	2	N.S.
PhD degree	0	0	N.S.
Marital status			
Married	16	16	N.S.
Single	4	3	N.S.
Divorced	3	2	N.S.
Widowed	2	4	N.S.

N.S. – not significant,  $p > 0.05$

**Table 2.** Mean and gain scores for sexual risk behaviors among the participants ( $x \pm$  SD)

Group	Score, mean $\pm$ SD
Intervention	
Pre-test	29.30 $\pm$ 6.04
Post-test	19.60 $\pm$ 2.74
Gain score (post-test/pre-test)	-9.75 $\pm$ 3.33
Control	
Pre-test	27.83 $\pm$ 4.78
Post-test	29.11 $\pm$ 4.92
Gain score (post-test/pre-test)	1.28 $\pm$ 0.14

RSB, based on the social marketing benchmark criteria suggested by the National Social Marketing Centre. Contents of sessions differed. First session included goals statement, awareness, and identification of RSB to understand the overall protocol and therapeutic goals. Second session focused on promoting condom use to understand the risk of HIV infection and its' prevention. Third session focused on cost-effectiveness of condom use against its' potential losses. Fourth session focused on strategies to increase motivation for condom use, aimed to improve the attitude towards sexual health in HIV-positive people. Fifth session focused on increasing condom use, with the primary aim on behavior changing. Sixth session contributed to confidentiality, summarization, and conclusion of previous sessions. The whole educational package (intervention) was delivered by two clinical psychologists, who did not play a role in analyzing the data. The participants' concerns regarding sexual health, whenever necessary, were addressed by psychologists.

## Statistical methods

Gain score was calculated by subtracting post-test score from pre-test score (post-test/ pretest) for each individual. ANOVA test was applied to examine the differences between pre-and post-test scores. To analyze demographic data, chi-square test was applied. SPSS version 22 (SPSS, Inc., Chicago, IL, USA) was used to analyze the data. A p-value less than 0.05 was determined as a significant statistical level.

## Results

The characteristics of participants in each study group are presented in Table 1. The mean age of participants was 32.11  $\pm$  2.51 and 34.73  $\pm$  3.39 in the intervention and control groups, respectively. There was an equal number of males and females in both groups. More than half of the participants were single and had a diploma degree. Chi-square test showed no significant differences in the distribution of participants' demographic characteristics between the two groups.

The distribution of pre-and post-test scores for sexual risk behaviors and corresponding gain scores are separately presented for each group in Table 2.

Table 3 represents the results of ANOVA test for gain scores. The results showed that RSB significantly decreased in the intervention group compared to the control group, in which a slight increase was observed ( $p < 0.001$ ).

## Discussion

The present study aimed to investigate the effectiveness of social marketing approaches to reduce RSB in HIV-positive individuals. The social marketing package that was developed and implemented in this study could remarkably reduce RSB in HIV-positive individuals, who visited the VCT

**Table 3.** ANOVA test results for differences in gain scores between two groups

Source	Type III sum of squares	Df	Mean square	F	Sig.
Treatment group	3549.741	1	3549.741	36.043	0.001
Error	5712.081	58	98.484	–	–
Total	14766.922	60	–	–	–

center at Imam Khomeini Hospital, Tehran. Therefore, we believed that the social marketing methods could be effective measure in reducing the likelihood of RSB in HIV-positive people, and should further be implemented in the national policy of fighting HIV/AIDS in Iran.

The effectiveness of social marketing has been explored in many studies. Nowadays, it is well-known that better health communication through common measures of social media and digital resources could be beneficial and effective in health promotion, and positively affect and alter people's behaviors toward healthy habits and attitudes. In a systematic review [15], similar to our study, the evidence showed that the social marketing interventions, such as campaigns, could be effective measures in enhancing condom use, preventing RSB and STDs. However, the duration of exposure to the intervention was an important indicator of the sustainable behavioral results: the longer the exposure, the more sustainable results achieved [15]. In our study, the outcomes were measured after six weeks of continuous educational sessions. Even though it might seem not long enough to produce a sustainable behavioral change in participants, the results were remarkable in reducing RSB of the participants. Therefore, we strongly recommend such interventions in health promotion programs.

Several comparable studies proved the effectiveness of such interventions in health promotion. Specifically for sexual health promotion, a study from Pakistan demonstrated the effectiveness of social marketing campaigns in promoting condom use [16]. In another study by Meekers *et al.* [17] in Cameroon, the national campaign, namely 'the condom social marketing program 100% Jeune', remarkably increased the ever condom use and condom use in last sex from baseline to follow-up of the study. Utilization of social media, such as Facebook, also proved to be an effective measure in improving sexual health [18], also indicating that social marketing campaigns could influence and reduce the prevalence of RSB, and increase HIV testing uptake in a target population. Sustainable health communication is essential for producing long-term results in health promotion programs, and social marketing methods proved to be effective measures that could be implemented even in low resources countries [22].

Other studies [19-21] also indicated that social marketing campaigns could influence and reduce the prevalence of risky sexual behaviors and increase HIV testing uptake in target population.

The distinct and important feature of the present study was the sample population. HIV-positive individuals are a vulnerable population, whose engagement in RSB could

be catastrophic, leading to HIV infecting of a healthy partner. Therefore, appropriate interventions of any kind to prevent RSB in this population should be a priority for health authorities. Our results emphasize the effectiveness of social marketing methods in preventing RSB in HIV-positive individuals. However, developing such packages requires a comprehensive understanding of specific socio-cultural and demographic characteristics of not only HIV-positive individuals, but also healthy population of the society. Thus, we recommend further studies in this regard.

There were some drawbacks in implementation of this study. As our participants were HIV-positive individuals, having them attended education sessions and assuring regarding their anonymity and confidentiality was challenging. Furthermore, due to ethical constraints, we were not able to follow-up our participants to evaluate long-term effects and sustainability of behavioral changes observed among the participants. A health promotion program needs to produce sustainable outcomes. Thus, we recommend further longitudinal studies with longer follow-up and exposure periods.

## Conclusions

In this study, six weeks of social marketing intervention delivered in the form of ninety-minute sessions was associated with a significant reduction in high-risk sexual behaviors in HIV-positive individuals. The findings inform the policy and guidelines of beneficial effects that social marketing measures could provide in health promotion, not only among the healthy population but also among the people with a variety of health conditions. Additionally, we recommend applying social marketing approach in developing psychological interventions as a complementary treatment for HIV-infected patients.

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## Conflicts of interest

The authors declare no conflicts of interest.

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