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Short Report

Investigating the Effects of Education Based on the Information-Motivation-Behavioral Skills Model on Sexual Self-Efficacy in Women with High-Risk Sexual Behaviors

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Abstract
Lower levels of sexual self-efficacy increase high-risk sexual behaviors in prostitutes. In this respect, an educational intervention program based on the Information-Motivation-Behavioral Skills (IMB) model can enhance sexual self-efficacy. Therefore, this study investigated the effects of IMB education on sexual self-efficacy in women. To this end, a clinical trial was conducted on women with high-risk sexual behaviors in Mashhad, Iran (n=84). The study instrument included a questionnaire containing IMB constructs and sexual self-efficacy. The data were analyzed in SPSS software (version 25). There was no significant difference between the groups regarding the mean±SD of sexual self-efficacy before the intervention. However, Friedman test results showed a significant difference between the given phases (P<0.001); however, intra-group comparison results were not significant in the control group (P=0.56). It was recommended to utilize this educational intervention program to increase levels of sexual self-efficacy among women.

Keywords: Information, Motivation, Self-efficacy, Sexually transmitted diseases

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Introduction

The growing prevalence rates of high-risk behaviors are the most important threats to health even with increasing efforts of communities to control them over the past two decades (1). Among these behaviors, high-risk sexual ones as having multiple sex partners and unsafe sexual behaviors have been much more highlighted in recent years (2). Studies in this domain have also pointed out increased rates of sex with different partners, sex in exchange for money, lack of condom use among individuals, and subsequently high rates of risks of sexually transmitted diseases (STDs) (3).

Such diseases which are transmitted sexually and non-sexually are taken into account as the major causes of many illnesses with serious medical and psychological consequences, infertility, long-term severe disabilities, and even death (4).

According to the World Health Organization, prostitutes are among the most vulnerable groups in communities directly affected by STDs (5). Based on a study by Kolahi et al. (2012), 72.8% of female prostitutes did not utilize condoms in the past month (6).

Researchers have also assessed different models in this domain to change high-risk behaviors. Some studies have only informed their target population about reducing risks; however, in general, information alone has failed to change such behaviors.

According to a study conducted by Mirheidari et al. (2014), 98.4% of participants with a history of high-risk sexual behaviors had moderate levels of information and only 11.7% of them had used condoms (7).

In the same line, Kelly et al. (1994) employed the information and behavioral skills to decrease the levels of such risks (8). However, in spite of having information and behavioral skills, women with high-risk sexual behaviors, in general, do not assume themselves susceptible to the risks of STDs and do not even make any changes in their high-risk behaviors. Since inclination to change is much more as individuals see themselves exposed to risks, motivation for change is considered as one of the critical components for success (9).

In this regard, Fisher et al. presented the IMB Model with three constructs, namely information, motivation, and behavioral skills. This model is known as one of the leading models in the field of behavioral change.

According to the IMB Model, information construct includes knowledge of a subject and motivation contains social support, perceived risks, and individuals' attitudes towards the desired behavior. Moreover, behavioral skills refer to benefiting from a special behavioral tool required to practice behavior. The concept of behavioral skills in this study denoted negotiation skills in order to perform basic actions, such as HIV tests, use of condoms, and the ability to practice these behaviors. Fisher et al. also believed that individuals should be not only endowed with essential behavioral skills but also higher levels of self-efficacy to practice preventive behaviors (10).

Self-efficacy, in fact, talks about individuals' beliefs on their ability to successfully perform a task that can play an effective role in reducing high-risk behaviors leading to STDs and AIDS. In spite of having skills, a person can have unsuccessful functioning and poor self-efficacy beliefs (11, 12); therefore, one of the important dimensions of self-efficacy is sexual self-efficacy with a multi-dimensional structure containing one's beliefs about sexual functioning, desirability for partners, assessment of abilities, and self-efficacy in sexual behaviors.

Consequently, high sexual self-efficacy can result in high sexual compatibility, whereas low sexual self-efficacy can have negative impacts on sexual functioning and it can be also associated with the occurrence of high-risk sexual behaviors (13). According to a study by Ebrahimipour et al. (2015), the majority of women with high-risk sexual behaviors had low levels of self-efficacy and there was also a direct relationship between self-efficacy and preventive behaviors regarding STDs among these women.

After implementing an educational intervention program based on Bandura's Self-Efficacy Theory, self-efficacy and use of condoms also increased among participants (14). The study by Cai et al. (2013) similarly showed that continued use of condoms was significantly correlated with behavioral skills as well as individuals' self-efficacy. Therefore, those with higher levels of self-efficacy were much more likely to permanently use condoms. The participants' self-efficacy was also increased as a result of education based on the IMB Model (15).

With this background in mind, the present study aimed to investigate the effects of an educational intervention program based on the IMB Model on sexual self-efficacy in women with high-risk

sexual behaviors.

Methods

This clinical controlled trial was conducted on 84 women with high-risk sexual behaviors in Mashhad, Iran, during 2018. The participants were selected from those residing in two women's harm reduction drop-in-centers using a convenience sampling method. These centers have been established since 2002 in order to provide women with harm reduction services, such as education, information services, individual counseling with addicts and the homeless, as well as the distribution of syringes, condoms, and other necessary services.

Based on the results of a study by Frozabadi et al. (2013), the sample size was determined 25 individuals in each group considering 90% confidence interval and 80% test power. It was then calculated 35 individuals taking the sample attrition probability into account (16).

The inclusion criteria in this study were:1) age range of 18-50 years, 2) willingness to participate in the study, 3) Iranian nationality, 4) Islam religion ,5) no speech, hearing, or accent problems preventing contacts with the researcher, 6) lack of mental illnesses, 7) as well as meeting at least three of the following criteria: sex in exchange for money, having multiple sex partners in the past year, having more than one sex partner, having sex with partners injecting drugs, and a history of injecting drugs.

On the other hand, the participants who were unwilling to continue the study and did not attend any of the pre-test, post-test, and follow-up phases, and those who were absent in more than one educational intervention session were excluded from the study.

The data were collected using demographic characteristics form containing 35 items seeking personal information, information about drug and alcohol use, as well as sexual behaviors. An adjusted IMB Model Constructs Questionnaire was also utilized in this study. This scale was extracted from valid scientific articles and instruments based on the model designed by the research team. This questionnaire consists of 54 items with three constructs, namely information (25 items), motivation with three sub-constructs as attitudes (12 items), social support (3 items), and perceived risks (5 items), and behavioral skills (9 items). The scoring is performed based on a 5-point Likert-type scale. The minimum and maximum scores in this questionnaire are 54 and 170, respectively.

Another questionnaire employed in this study is an adjusted Sexual Self-Efficacy Scale developed using valid scientific articles and questionnaires by the research team. This 13-item questionnaire measures the sexual self-efficacy (3 items) and self-efficacy of condom use (9 items) and is scored based on a 5-point Likert-type scale. The minimum and maximum scores are 13 and 65, respectively.

The scientific validity of this questionnaire was confirmed by content validity. The internal consistency of the IMB Model Constructs Questionnaire was also determined by Cronbach's alpha coefficient. The overall reliability of this research instrument using Cronbach's alpha coefficient was 0.94 and the reliability of Sexual Self-Efficacy Scale was estimated at 0.82 using Cronbach's alpha coefficient.

The questionnaires were completed for all participants in the study in three steps, namely before the intervention, immediately after, and eight weeks later. The intervention and control groups were initially determined using the drawing method and then the convenience sampling method was employed and the eligible individuals were included in the study.

The questionnaires were completed through questions and answers by the researchers in both groups. The intervention group participated in four70-minute educational sessions with three-day intervals for two weeks.

The educational content based on the IMB Model was developed using valid scientific textbooks and articles. Subsequently, educational procedure and principles were determined under the supervision of psychology and midwifery professors in Ph.D. courses. After their confirmation, the educational classes of 2 to 5 individuals were held using lectures, video clips, role plays, and group discussion in collaboration with the psychologists working in the centers.

In all sessions, all IMB Model constructs were presented via different contents. It should be noted that both groups received routine educational services provided by the centers during the study.

The educational content of the first session included an introduction on the anatomy of the genitals, sexual behaviors (i.e., no-risk, moderate-risk, high-risk) and the second session was associated with STDs (i.e., syphilis, genital herpes, genital warts, hepatitis B, and AIDS), modes of transmission, as

well as their symptoms and complications. In addition, effective communication and interpersonal skills, detection of strengths, assertiveness skills, as well as saying-NO techniques were taught in the third session. The fourth session was held individually for each person on how to talk to a partner for condom use and reduced unusual sexual behaviors (i.e., oral and anal sex) using role-plays.

In all of these sessions, the researchers utilized motivational techniques (i.e., open-ended questions, reflective listening, reflective confirmation of achievable and desirable behaviors, summarization, and feedback), as well as images and video clips followed by discussions on the contents. Immediately and eight weeks after the intervention the questionnaire was completed through questions and answers by the researcher for both groups in the same manner. After completing the study, the control group received a summarized educational pamphlet of the intervention program sessions.

During the study, the participants who were absent in more than one session and those who were reluctant to participate in the study were excluded from the program, and 63 individuals were ultimately remained in the intervention (n=31) and control groups (n=32).

The study protocol was approved by the Ethics Committee of Mashhad University of Medical Sciences, Mashhad, Iran (no. 961.507). The data were analyzed in SPSS software (version 25) through Shapiro-Wilk test, Mann-Whitney U test, paired t-test, and Friedman test. The quantitative and qualitative findings were then reported in mean±SD and frequency/percentage, respectively. P-value less than 0.05 was considered statistically significant.

Results

According to the results, two groups under study were homogeneous in terms of demographic characteristics (Table 1). Based on the results of the Mann-Whitney U test, the mean±SD age of women in the control and intervention groups were 37.6±7.5 and 35.6±8.4 years, respectively, indicating no significant difference between the two groups. Moreover, mean±SD values of sexual self-efficacy before the intervention were obtained at 32.4±11.3 and 33.8±12.2 in the intervention and control groups, respectively, (P=0.83). Mann-Whitney U test results showed no significant difference between the two groups regarding this variable before the intervention. Although, mean±SD values of sexual self-efficacy after the intervention were 47.5±11.8 and 33.4±11.9 in the intervention and control groups, no statistically significant difference was found between the two groups. Furthermore,

Table 1. Mean±SD of demographic characteristics

Variables	Groups		Mann-Whitney U test results
	Intervention (n=31)	Control (n=32)	
	Mean±SD	Mean±SD	
Age (year)	35.6±8.4	37.6±5.7	P=0.31
Number of children	2.2±1.4	3.1±1.4	P=0.01
Numbe of preganancies	2.4±1.5	3.8±1.8	P=0.002
Age at first experience with alcohol use (year)	19.2±4.7	20.5±9.6	P=0.63
Age at first wanted sex (year)	15.3±2.4	16.5±5.0	P=0.78
Average sex over the last year	4.4±2.8	3.6±3.1	P=0.15

Table 2. Mean±SD of sexual self-efficacy in women with high-risk sexual behaviors in intervention and control groups

Sexual self-efficacy	Groups		Test results
	Intervention (n=31)	Control (n=32)	
	Mean±SD	Mean±SD	
Before intervention	32.4±11.13	33.8±12.2	P=0.83 Mann-Whitney U test
After intervention	47.5±11.8	33.4±11.9	P<0.001 Mann-Whitney U test
Follow-up phase	46.2±14.7	33.7±12.3	P<0.001 Mann-Whitney U test
Intra-group test results	P<0.001 Friedman test	P=0.83 Friedman test	

a significant difference was observed between the groups regarding mean±SD values of sexual self-efficacy in the follow-up phase in the intervention (46.2±14.7) and control groups (33.7±12.3, P<0.001).In the post-intervention phase, the intervention group obtained higher scores regarding the sexual self-efficacy.

Implications for Practice
The educational intervention program developed in this study could be utilized to enhance sexual self-efficacy in women with high-risk sexual behaviors.

Acknowledgments

Conflicts of Interest
The authors declared no conflict of interest regarding the publication of this article.

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