

# Assessing the Effect of an Educational Intervention based on Health Belief Model on Preventive Behaviors of Addiction

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## ABSTRACT

**Background:** Addiction are a major public health concern that is increasingly expanding across the world , affecting consumers, their communities and their environments causing psychological and economic problems for health and crippling societies, with a growing decrease in consumer age.

**Aim:** To assess the effect of an educational intervention based on Health Belief Model on preventive behaviors of addiction among university students in Mosul City.

**Method:** This study is based on True experimental design by using the random controlled trial approach is conducted. A probability (simple random sample) of (N=80) undergraduate student. Data were gathered in 1st of October 2019 till 12 of May 2020 using a questionnaire method. The instrument consist of two parts; part I, involved, to describe the student's socio-demographic characteristic such as age, gender, grade, college, socioeconomic status the part II, involved the using scale to measure students' beliefs towards of substance use.

**Results:** Demonstrated that the results of study the mean  $\pm$  SD age of the study group and control group was (23.37 $\pm$ 2.09) and (23.70  $\pm$  2.04) respectively. In addition, there was an increase in the value of the (perceived susceptibility, perceived severity, perceived benefits, cues to action, self-efficacy, motivation, behavioral control and intensions) over time, and there was decrease in the value of perceived barriers over time

**Conclusion:** This study concluded that the intervention highly perceived susceptibility in preventing students beliefs at control and motivate to adopt habits of preventive addiction and perceived benefits are the very important structural features of the Health Belief Model and that understanding and it appears that instructional preparation should be given and carried out on the basis of behavioral change models such as HBM to prevent high-risk behaviors in study group.

**Keywords:** Health Belief Model, preventive behaviors, Addiction

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## INTRODUCTION

Addiction are disproportionately increasing among young adults and are fatal<sup>1</sup>. The use of alcohol and other drugs is a significant public health concern related to physical, psychological, and social adverse consequences. Worldwide incidence of addiction was measured at approximately 2.4 per cent (about 314 million people)<sup>2</sup>. According to the WHO, addiction account for about (21 million) disability-adjusted life-years lost annually<sup>3</sup>, suggesting a major social and economic burden. Addiction are characterized by high rates of psychiatric comorbidity, such as "anxiety disorders, mood disorders, and a higher likelihood for suicidal behavior"<sup>4,5</sup>. Addiction are a major public health concern that is increasingly expanding across the world , affecting consumers, their communities and their environments causing psychological and economic problems for health and crippling societies, with a growing decrease in consumer age<sup>6</sup>. The use of drugs among students has remained steady despite the recognition of the issue by educational institutions, and students regularly report higher rates of use (smoking, substance abuse, alcohol use)<sup>7</sup>. Addiction among youth in Iraq is associated with public health troubles such as poverty and school truancy. The most recent study in Iraq found that (41.7%) of students are smokers, and this allows the awful statement that smoking is considered an admission to the use of other illegal drugs, which can in turn destroy your life with alcohol and brain effects<sup>8</sup>. The Health Belief Model (HBM) is one of the most popular and oldest theories of health behavior. It involves 6 buildings examining whether or not anyone is inspired to try primary or secondary preventive services and programs<sup>9</sup>. Also, Louis,

2016, stated the HBM has six constructed that explain or predict why people will take action to prevent, to control, or to screen for a disease, these concepts include "perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy"<sup>10</sup>. Finally, the research clearly shows that addiction exist among college students. The research also demonstrated the apparent need for more addiction prevention interventions or education programs on the college level to inform students about the risks of using substance products. Additionally, addiction prevention interventions should target social or occasional substance users as the research illustrated these substance users constitute a large portion of the college student population<sup>11</sup>. The aim of this study to assess the effect of an educational intervention based on Health Belief Model on preventive behaviors of addiction among university students in Mosul.

## METHODOLOGY

The research design for this study was true experimental, randomized controlled trial design<sup>(12)</sup>. To assess the effect of an educational intervention based on Health Belief Model on preventive behaviors of addiction among university students in Mosul City. The study is carried out in Iraq. In University of Mosul is a public university situated in Mosul. A probability (simple random sample) of (N=80) undergraduate student in different specialties would be selected. Data were gathered in 1st of October / 2019 till 12 of May / 2020 using a questionnaire method. A sampling pool consisted of 80 students distributed at four college in Mosul University included (Political Science, Engineering, Sciences, and Nursing Colleges). The sample will be

randomly assigned into experimental and control groups of (40) undergraduate student for each group. The instrument consist of two parts; part I, involved, to describe the student's socio-demographic characteristic such as (age, gender, grade, college ,socioeconomic status) the part II, involved the using scale to measure students' beliefs towards of substance use. This instrument developed from more than one source and includes<sup>(13,14,15,16,17)</sup>. This scale to developed on the rule of health belief model and included (6) major subscales and (3) secondary ; (1): "the perceived susceptibility subscale", (2): "the perceived severity subscale", (3): "the perceived benefits subscale", (4): "the perceived barrier subscale", (5): "the perceived cue to action" (6): "the perceived self-efficacy subscale". These secondary components include (7) : "the perceived motivation subscale", (8): "the perceived behavioral control subscale" and (9): "the perceived behavioral intentions subscale" to changes in the student's beliefs about substance use .The overall scale consisted of 48 items measured in 5 points Likert scale distributed among the nine subscales to gauge the changes in HBM among students behavior. The response for these items ranged between (1) strongly disagree and (5) strongly agree, with a higher score indicating higher agreement of the beliefs. Data were analyzed by using Statistical Package for

Social Science (SPSS) for Windows Version 25: We calculated mean, standard deviation, frequency and percentage to describing the participants of the study. Pearson chi-square and t-test were used to explore the homogeneity of characteristics between experimental and control groups at baseline test (T1). A mixed design analysis of variance (ANOVA) were used to measure changes in the health belief model concepts over three times (T1, T2, and T3) among groups and the Pearson correlation coefficient were used to calculate the liner correlation among health belief model concepts

**RESULTS**

Table 1 shows that the study participants were 80 students between 18 - 27 years old, and the overall mean age for the participants was 23.53 (SD = 2.06). Concerning body mass index (BMI) most of participants were normal body weight. The overall mean BMI for participants was 21.23 (SD = 2.53). Regarding other demographic characteristics, most of participants for the experimental group were male (90%) single (72.5%) and house owner (72.5%). For the control group most of participants were male (92.5%) unmarried (67.5%) with house owner (80%).

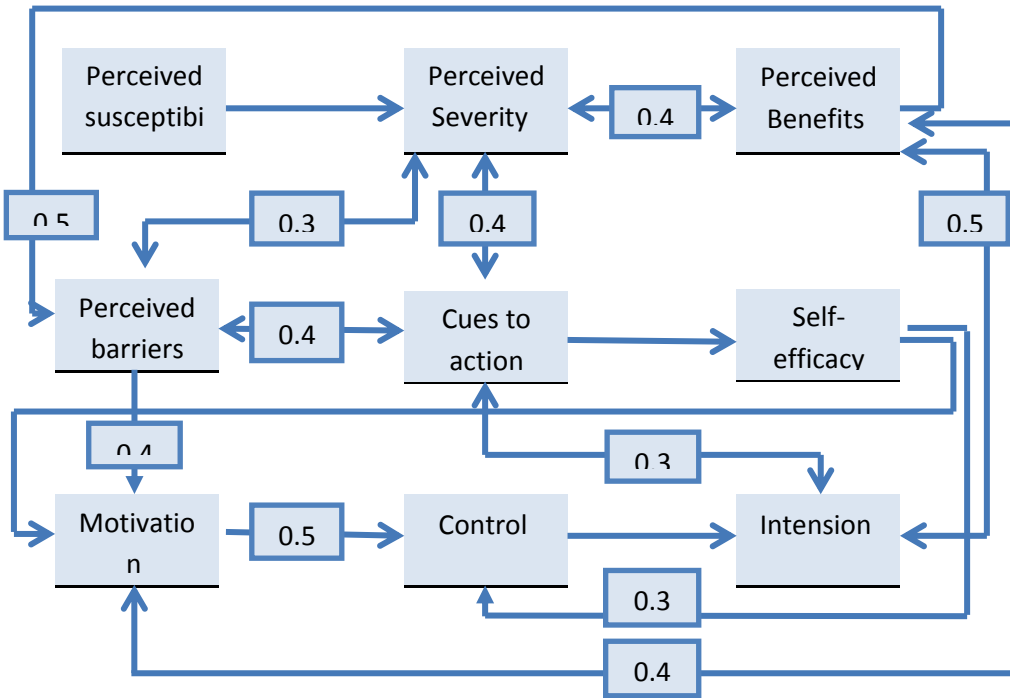
Table 1: Demographical Characteristics and Homogeneity Between Experimental and Control Groups

Anthropometric	Experimental (n=40)		Control (n = 40)		Total (n = 80)		t
	M	SD	M	SD	M	SD	
Age	23.37	2.09	23.70	2.04	23.53	2.06	0.230
BMI	20.51	2.64	21.95	2.22	21.23	2.53	0.283
Characteristics	F	%	F	%	F	%	χ <sup>2</sup>
Gender							
Male	36	90	37	92.5	73	91.25	0.694
Female	4	10	3	7.5	7	8.75	
Marital status							0.856
Married	10	25	11	27.5	21	26.25	
Single	29	72.5	27	67.5	56	70	
Divorced	1	2.5	2	5	3	3.75	
Residential unit							0.433
House owner	29	72.5	32	80	61	76.25	
House rent	11	27.5	8	20	19	23.75	

Table 2: Descriptive Statistics Measuring Change in Health Belief Model Concepts, Motivation, Behavioral Control and Behavioral Intentions Across Study Group and Over Times.

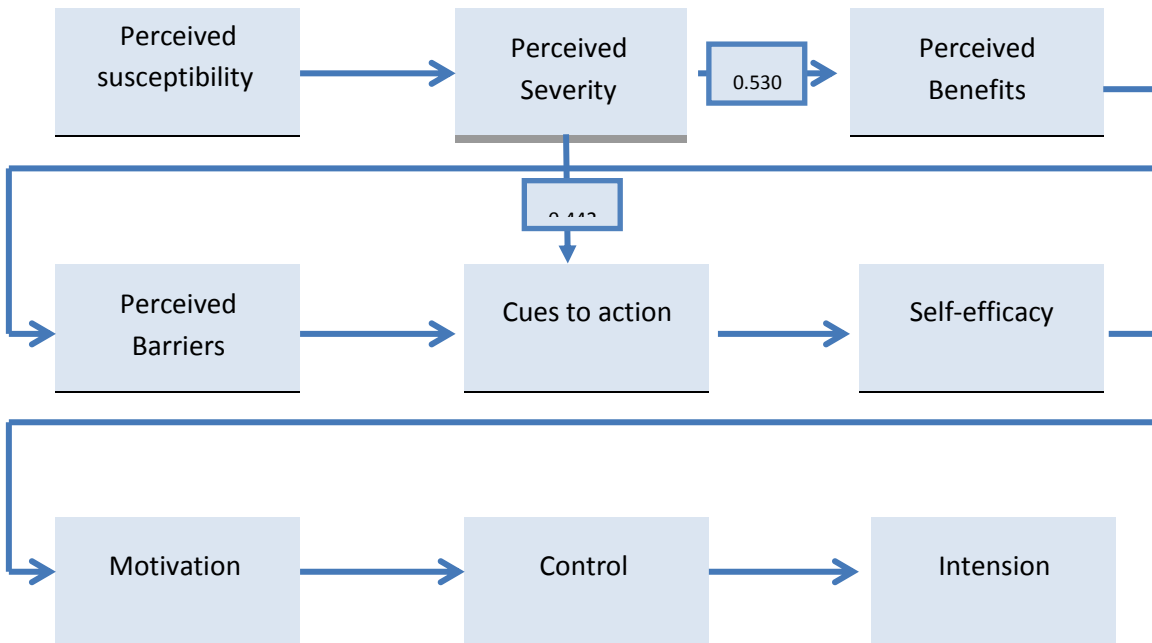
HBM Concepts	Groups	M(SD)		
		T0	T1	T2
Perceived Susceptibility	Exp	2.42 (0.76)	3.25 (0.41)	3.21 (0.46)
	Con	2.39 (0.48)	2.44 (0.70)	2.51(0.62)
Perceived Severity	Exp	3.12 (0.71)	3.89 (0.38)	3.82 (0.33)
	Con	3.17 (0.67)	3.28 (0.79)	3.23 (0.64)
Perceived Benefits	Exp	2.91 (0.76)	3.78 (0.41)	3.63 (0.90)
	Con	2.96 (0.78)	3.13 (0.72)	3.11 (0.88)
Perceived Barriers	Exp	2.75 (0.59)	2.69 (0.50)	2.70 (0.56)
	Con	2.91 (0.56)	2.93 (0.51)	2.87 (0.70)
Due to action	Exp	2.31 (0.70)	3.18 (0.78)	3.35 (0.40)
	Con	2.27 (0.61)	2.61 (0.62)	2.83(0.61)
Perceived Self-Efficacy	Exp	2.27 (0.91)	3.22 (0.60)	3.26 (0.56)
	Con	2.41 (0.99)	2.56 (1.00)	2.55 (0.95)
Motivation	Exp	2.77 (0.76)	3.62 (0.36)	3.58 (0.48)
	Con	2.69 (0.90)	2.78 (0.77)	2.72 (0.91)
Behavioral Control	Exp	2.83 (0.99)	3.38 (0.30)	3.36 (0.45)
	Con	2.73 (0.54)	2.81(0.51)	2.89 (0.59)
Behavioral Intentions	Exp	2.81(1.05)	4.07 (0.70)	3.71 (0.69)
	Con	2.92(0.86)	3.08 (1.02)	3.04 (0.89)

Fig. 1: Correlations between Health Beliefs Model concepts for the experimental group



HBM: Health Belief Model, Ex: Experimental group (n = 40), Co: Control group (n = 40), M: mean, SD: Standard Deviation, Minimum beliefs score = 1, Maximum beliefs score = 5

Figure2:Correlations between Health Beliefs Model concepts for control group



## DISCUSSION

According to the results of Table 1, the mean  $\pm$  SD age of the study group and control group was (23.37 $\pm$ 2.09) and (23.70 $\pm$ 2.04) respectively. In addition, the same table demonstrated that majority of participant were normal body weight, the overall mean ( $\pm$ SD) of the body mass index were (21.23 $\pm$ 2.53). Concerning other demographic characteristics, the majority of participant were male (91.25%), and house owner (76.25%). Regarding marital status, most of participants were single (70%) (Table 1). This study is consistent with<sup>18,19,20</sup>, who found that the male participants reported a significantly higher prevalence of tobacco use, alcohol use, and drug abuse compared to females. This study is similar with<sup>21,22</sup>, who found the average age of students was (21.21 $\pm$ 2.90). About 97.9% were single, 72.9% of them had low family income, and 81.3% lived in a house owner. This study agree with<sup>23</sup> who found the mean age of the studied population was (23.48 $\pm$ 2.51). 56.6% of fathers and mothers had low level education. According to the results of (Table 2), there was an increase in the value of the (perceived susceptibility, perceived severity, perceived benefits, cues to action, self-efficacy, motivation, behavioral control and intentions) over time, and there was decrease in the value of perceived barriers over time. Based on the findings, there was no substantial difference between the mean score of beliefs before the intervention of the research and control groups, but the difference was substantial after the experiment and indicates the positive effect of the health education in changing students' health beliefs about substance use and minimizing students' perceived barriers of addiction. This outcome is consistent with the (Fadaei et al., 2020)<sup>24</sup> study that showed that there is a post-test level, the mean intervention and control groups scored substantially different; the preventive substance abuse in the intervention group, behaviors and their dimensions changed (  $p$  value  $<$  0.001 and  $t = 14.57$ ). In line with this study (Mahmood et al., 2018)<sup>8</sup> who found after the introduction of a health education program, the awareness of drug use by students has increased significantly and this reflects the effectiveness of health education program to enhance the awareness of substance use amongst students. Figure 1 show that the was positive significant correlation between participants' perceived seriousness of substance use and their perceived benefit in preventing addiction. This explains that participants feeling about the importance of health education programs in preventing addiction is increased as they felt about severity of substance use. The correlational analysis at same time (T 0, post 1, post 2) also revealed that there was a strong correlation between perceived benefits and perceived barriers, also association between behavioral motivation and control. This result indicates that participants willing to motivate and control in changing beliefs related to substance use are associated with their Behavioral intentions .This study consistent with (Bonar and Rosenberg , 2011)<sup>25</sup>, they suggested that there was a strong significant association between perceived intensity and perceived benefits. These results were consistent with (Rezaei, et al., 2019)<sup>26</sup> who found that the perceived

susceptibility had a strong positive association with both of the perceived severity and perceived benefits. Because the threat process consisted of both the perceived seriousness and perceived susceptibility. Figure 2 indicates that there were fluctuations in the correlations among and between the study variables overtimes. However, the significant correlations signaled was between perceived susceptibility and cues to action, perceived severity and perceived benefits, and between the behavioral motivation and control. This implies that these beliefs (perceived susceptibility, perceived benefits, cues to action, behavioral motivation and behavioral control) are the most important beliefs in changing beliefs related substance use among control group participants or those without health educations. This finding was consistent with that obtained by Baktash (2020)<sup>27</sup>, who found that there was a strong significant correlation between participants' perceived severity and perceived benefits. (Mazloomi et al 2017) noted that education programme focused on the HBM was successful in enhancing and preventing substance addiction among students<sup>28</sup>.

## CONCLUSION

This study concluded that the intervention highly perceived susceptibility in preventing students beliefs at control and motivate to adopt habits of preventive addiction and perceived benefits are the very important structural features of the Health Belief Model and that understanding and it appears that instructional preparation should be given and carried out on the basis of behavioral change models such as HBM to prevent high-risk behaviors in study group.

**Recommendation:** The researcher recommend the Iraqi government to make a strategic plan and organized plan to fight the promoters for narcotic substances.

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