Multidisciplinary

The effectiveness of the health beliefs model-based interventions on the health beliefs around drug use among female high school students

Saja Mahdi Mohammed[1*] and Wasnaa Jomaa Mohammed[2]

[1] PhD, Department of Community Health Nursing, College of Nursing, University of Baghdad, Iraq

[2] Assistant Professor, Department of Microbiology and Immunology, College of Nursing, University of Baghdad, Iraq

Correspondence Author: Saja Mahdi Mohammed

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Abstract

Background: There has been a longstanding belief that drug usage is predominantly a problem limited to urban and inner-city regions. This worldwide occurrence has resulted in an increasing recognition that drug issues have expanded beyond metropolitan areas to rural regions, in both developing and developed countries.

Materials and method: A true experimental design, utilizing a randomized controlled trial approach, to determine the effectiveness of an intervention based on the health beliefs model in altering the beliefs related to drug use among female high school students in Al-Diwaniyah City. The study will be conducted from October 10th, 2023 to January 4th, 2024.

Results: This study indicate that there were statistically significant differences among all aspects of the health belief model that are associated to drug use prevention.

Conclusions: This study concluded that the health intervention using the fitness trust model demonstrates the significance of drug use prevention and has a positive impact on female students' health beliefs.

Keywords: self-efficacy, health beliefs model, drug use

Introduction

For a long time, it has been widely believed that drug usage is mostly a problem limited to urban and inner-city regions. Over the past decade, there has been a substantial increase in the prevalence of drug use disorders and drug-related fatalities in rural areas [1]. This worldwide occurrence has resulted in an increasing recognition that drug issues have expanded beyond metropolitan areas to rural communities, in both developing and industrialized countries. The prevalence of opiate use, including heroin, and the improper use of prescription medicines, in addition to methamphetamine, cocaine, cannabis, and other substances, is increasing [2].

Although there is a dearth of thorough data on drug usage in rural areas in many nations, the existing information suggests that there are different tendencies. The prevalence of drug use among young adults is a significant concern. A 2010 examination found that the intake of "high-risk" medicines, which posed major hazards to their well-being, resulted in nearly 27 million cases of psychiatric and social issues. In addition, drug use problems resulted in almost 300,000 deaths in 2015 [3].

The 2010 Global Burden of Disease (GBD) report found that the concurrent reliance on opioids, cocaine, and amphetamines led to around 44,000 deaths directly caused by these substances. Additionally, there were 702,000 deaths that exceeded the projected number. Recent information on drug use problems indicates that.

During puberty, it is noted that more than 85% of individuals who fulfill the criteria for a substance use disorder develop it at a young age. Unlike maturity, where teenagers may go through without fulfilling the requirements for a drug use problem, it is extremely unlikely for one to overcome this issue [4].

Adolescents who use drugs and alcohol are more likely to face adverse outcomes, including academic underachievement, school dropout, problems with family and friends, and involvement in criminal behavior. Furthermore, the consequences have an impact on other establishments, such as the criminal justice system, healthcare, and other social services [5, 6].

Thankfully, there are cost-effective and scientifically validated techniques accessible to disrupt the pattern of substance abuse. By adopting prevention programs targeting children, teenagers, and adults, we can effectively extend or even prevent the initiation of drug use, as well as reduce the likelihood of developing hazardous habits [4]. Furthermore, treatment alternatives play a crucial role in helping persons with drug use disorders to recover control over their lives and reduce the negative effects of their substance addiction, regardless of whether it is in the early stages or long-term. Moreover, rehabilitation programs are essential in assisting these individuals in their efforts to optimize their everyday functioning, raise their overall quality of life, and ultimately attain a drug-free existence [7].

Drug use is becoming more common, particularly among young people, including high school and university students [8]. The estimated prevalence of alcohol and drug use among individuals in Iraq is at least 10.3 percent [9].

According to data from the Iraqi Ministry of Health in 2017, the proportion of male smokers in Iraq was 31%, but only 4% of females were smokers. However, data from [10] indicated that 6.8% of males and 0.6% of women were categorized as

alcoholics. Moreover, the incidence of illicit drug addiction in Iraq was roughly calculated at 7.2%.

In Iraq, high school students constitute a vulnerable demographic that is very prone to drug dependency. This is a significant concern that causes anxiety for both the general public and government officials [11]. The prevalence of substance abuse among adolescents is a significant concern worldwide. It is associated with an elevated risk for numerous common outcomes, such as strained peer relationships, mental illness, higher risk of suicide, risky sexual behavior, HIV infection, impaired learning, frequent absences from school, higher rates of dropping out, and poverty [12].

Adolescence, which occurs between the ages of 15 and 18, is a crucial phase characterized by significant and rapid economic, social, and cultural transformations. These modifications have established a setting that is favorable for the emergence of several manifestations of social deviance, including smoking, hookah, drug utilization, and alcohol ingestion. The escalating incidence of drug utilization is a mounting apprehension in Iraq, reflecting patterns observed in other emerging countries. Within the general populace, children attending school are more susceptible to developing a reliance on drugs. This matter holds immense importance and is a source of worry for both the government and the general public [9]. Schools have a distinct advantage in taking a leading role in mitigating the significant issue of drug use among adolescents.

In Iraq, the problem of addiction among young individuals is closely connected to socioeconomic difficulties, such as poverty and school absenteeism. A recent study conducted in the country found that a substantial proportion (41.7%) of students partake in smoking, indicating an undesirable association with the use of illegal substances. The utilization of alcohol on this perilous route might result in the destruction of youthful existences and have adverse impacts on cognitive abilities [14].

The Health Belief Model (HBM) is an early model that uses behavioral science ideas to address fitness issues and illustrate the connection between behavior and beliefs [15]. One of the most widely used psychological theories in the field of health behavior. The Health Belief Model (HBM) is a comprehensive framework that considers both psychological preparedness and external factors on health behavior. It consists of six components: perceived susceptibility and severity, benefits, obstacles, cues to action, and self-efficacy [16].

The Health Belief Model encompasses several key concepts:

- **Perceived susceptibility**- This term describes an individual's personal impression of the likelihood of getting sick or contracting a disease. The user's text is "[17]".
- **Perceived severity**- This pertains to an individual's perception of the gravity of acquiring a disease or condition (or not seeking treatment for the illness or disorder) [18].
- **Perceived advantages**- This pertains to an individual's understanding of the efficacy of various strategies available to reduce the risk of illness or disease (or to treat illness or disease) [19].
- **Perceived barriers**- This pertains to an individual's subjective perception of the obstacles that hinder the execution of a suggested health action. The user's text is "[20]".
- **Cue to action** - This refers to the desired stimulus that triggers the decision-making process in order to encourage the adoption of a recommended fitness action. The user's text is "[21]".

Self-efficacy is the level of confidence a person has in their ability to effectively carry out a specific behavior. This structure was introduced to the mannequin industry in the mid-1980s. Self-efficacy is a fundamental concept in various behavioral theories, as it directly influences an individual's likelihood of engaging in a desired behavior [21].

Significance of the study

The problem of drug addiction, especially among young people, and the resulting increase in drug-related crimes, has received considerable attention in recent years due to frightening figures and data. There has been a significant rise in the number of children engaging in drug experimentation without fully understanding the potential ramifications of their behavior. The secondary school phase is a critical period that significantly influences an individual's life. It is characterized by students' curiosity, pursuit of intense emotions, and yearning for new experiences, which can occasionally lead to imprudent decision-making. This study primarily aims to evaluate drug-related crimes and drug addiction among young people, with a specific focus on emphasizing the important role that schools may play in preventing these problems.The purpose of this study is to obtain a better understanding of the existing frequency of drug misuse among kids in schools and to discover effective strategies for preventing drug abuse and reducing its occurrence. In addition, we will employ the Health Belief Model to alter beliefs linked to drug use, with the ultimate goal of establishing drug-free educational environments.

The objective of the study was to assess the impact of a Health Belief Model-Based Intervention on the health beliefs around drugs among female high school students.

Research hypothesis

There is a statistically significant relationship between the efficacy of a Health Belief Model-Based Intervention and individuals' health beliefs about drugs.

Methods

Research design

Experimental design, using study-control groups approach, two group pretest posttest design was adapted.

Independent variable

In this study independent variable is health beliefs model.

Dependent variables

In these study dependent variable is female student beliefs.

Research settings

The survey was done among female high school students in Al-Diwaniyah City.

Study participants

A simple random sample of 150 female students attending high schools in Al-Diwaniyah city was taken to determine the probability. The sample is chosen by a random selection process and divided into two groups: the experimental group and the control group. Each group consists of 75 students, who are evenly dispersed based on their age and grades. This selection process is used for a pool of subjects that meet the following criteria:

Only female pupils are allowed. Students in the ninth, tenth, and twelfth grades. Methodology of the Research.

Tools of data collection

Self-report questionnaires are designed specifically for the aim of the study.

The instruments are presented in the following manner: **Part I:** Demographic Information aims to capture the student's socio-demographic attributes, including age, gender, grade level, college, and socioeconomic status.

Part 2: This phase of the study utilized a scale to quantify students' attitudes and convictions toward substance usage. This scale was developed based on the Health Belief Model and consists of six major subscales: (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, and (6) the perceived self-efficacy subscale. These subscales aim to assess changes in students' beliefs regarding drug use. The fundamental scale had 35 items assessed on a five-point scale. A Likert scale was administered across 9 subscales to assess changes in Health Belief Model (HBM) among female high school students' behavior.

Validity

The study instrument's content validity is established by a panel of 11 experts. The individuals mentioned consist of 7 faculty members from the College of Nursing at the University of Baghdad, 1 faculty person from the College of Medicine at the University of Baghdad, and 3 physicians employed by the Ministry of Health. The participants are given a copy of the intervention program and the study instruments and are asked to assess the clarity and suitability of their content. Based on their comments, it may be inferred that the intervention program and study instruments are both comprehensible and sufficient.

Reliability

Test-retest reliability is used to assess the consistency and stability of the study instrument. The Pearson correlation coefficient is calculated based on the replies of 15 students from Girlish High School. The results of this computation reveal that the correlation coefficient confirms that the instruments used in the present investigation are very dependable measurements for the underlying phenomenon.

Pilot study

A pilot research was undertaken to assess the dependability of the teaching program and study instrument. The study involved 15 female students, representing 10% of the total sample. The female students in the pilot study exhibit the same criteria as the original study group. The pilot study sample was removed from the main study sample, which was conducted in Al-Diwaniyah City.

Ethical consideration

The students who took part in the study have signed a consent form, agreeing to share their information for the purpose of learning. They were informed that their participation is voluntary and that their records will be treated secretly and used solely for research purposes.

Data collection

Data are gathered by employing study instruments and implementing the pretest-posttest procedure to collect data. From October 10th, 2023 until January 4th, 2024.

Data analysis techniques

All subsequent analyses were conducted using the IBM SPSS 23.0 program. Variables were categorized using numbers and percentages (No. and %), whereas continuous variables were characterized using the mean and standard deviation (mean and SD).

Results

Table 1- The study included 150 female students between the ages of 16 and 20. Among the female students, 45.3% were in the control group and 25.3% were in the study group. In terms of other demographic features, the majority of participants in the control group were female students who were unmarried (76.0%) and owned their own homes (78.7%). The majority of individuals in the study group were unmarried (62.7%) and owned their own homes (72.0%). The majority of participants in the control group (34.7%) had a monthly income between 300 and 500, while individuals in the study group (26.7%) have insufficient monthly income.

Table 1: Demographical characteristics between control and study groups

Demographic characteristics	Rates and intervals	Control group=75		Study group=75	
		Frequency	Percentage	Frequency	Percentage
Age	16	10	13.3	11	14.7
	17	8	10.7	9	12
	18	10	13.3	19	25.3
	19	13	17.3	17	22.7
	20	34	45.3	19	25.3
Stage	Fourth stage	12	16	12	16
	Fifth stage	20	26.7	29	38.7
	Sixth stage	43	57.3	34	45.3
Marital status	Married	16	21.3	12	16
	Single	57	76	61	81.4
	Dead	0	0	1	1.3
	Divorce	2	2.7	1	1.3
Educational level of father	doesn't read	2	2.7	1	1.3
	writes and reads	7	9.3	2	2.7
	Primary	8	10.7	2	2.7
	Medium	13	17.3	2	2.7
	Junior high	13	17.3	16	21.3
	Institute	15	20	17	22.7
	Bachelor's	11	14.7	19	25.3
	Diploma	2	2.7	3	4
	Master's	2	2.7	7	9.3
	doctorate	2	2.7	6	8
Educational level of mother	doesn't read	3	4	1	1.3
	writes and reads	9	12	4	5.3
	Primary	15	20	7	9.3
	Medium	17	22.7	8	10.7
	Junior high	14	18.7	14	18.7
	institute	7	9.3	14	18.7
	Bachelor's	7	9.3	15	20
	diploma	2	2.7	3	4
	Master's	1	1.3	5	6.7
	doctorate	0	0	4	5.3
Job description of father	professional	19	25.3	11	14.7
	Semi-professional	16	21.3	17	22.7
	skilled worker	14	18.7	7	9.3
	Semi-skilled worker	7	9.3	5	6.7
	Unskilled	6	8	8	10.7
	Writer	7	9.3	7	9.3
	does not work	6	8	20	26.7
Monthly income	Lower class	5	6.7	13	17.3
	Upper lower class	26	34.7	20	26.7
	Lower middle class	21	28	14	18.7
	Upper middle class	14	18.7	16	21.3
	Upper class	6	8	8	10.7
	And more	3	4	4	5.3
Residence	House owner	59	78.7	54	72
	House rent	16	21.3	21	28

Table 2 indicates that the majority of participants in the control group had the highest usage of drugs. The group had the highest response rate of "yes" (29), while the response rate of "no" (38.7) was highest for those who reported never used the medication. In regards to the research group, 18 participants responded affirmatively while 24 participants responded negatively. Additionally, 1-2 beers per month was the most common response. In the control group, 28 participants answered "yes" and 37.3 participants answered "no". In the study group, 45 participants answered "yes" and 60.0 participants answered "no".

Table 2: Distribution and homogeneity of behavioral habits between control and study groups

Drug abuse	Control group		Study group	
	Yes	No	Yes	No
Never	29	38.7	18	24.0
1-2 daily	5	6.7	2	2.7
3-4 daily	2	2.7	2	2.7
5 daily	0	0	1	1.3
1-2 weekly	11	14.7	7	9.3
1-2 monthly	28	37.3	45	60.0

According to Table 3, the results reveal that there was no statistically significant difference ($p > 0.05$) in the health beliefs. The baseline (pretest) includes the model elements of Perceived Susceptibility, Perceived Severity, Perceived Benefit, Perceived Barrier, Cue to action, and Perceived Self-Efficacy.

Table 3: Baseline homogeneity in the health belief model concepts between study and control groups

HBM concepts	Groups				T-test value	*p*-value
	Study (n=75)		Control (n=75)			
	M	SD	M	SD		
Perceived Susceptibility	2.99	0.69	2.89	0.82	.796	.427
Perceived Severity	3.36	0.42	3.39	0.29	-.519	.604
Perceived Benefit	3.38	0.57	3.31	0.45	.898	.371
Perceived Barrier	3.42	0.49	3.46	0.48	-.586	.559
Cue to action	3.48	0.43	3.40	0.44	1.038	.301
Perceived Self-Efficacy	3.44	0.55	3.43	0.56	.048	.962

M: mean; SD: Standard Division; t: t-test; (p): P-value; Minimum value for health belief model constructs= 1; Maximum value for health belief model constructs= 5

Table 4 shows that prior to the intervention, the average rankings for all concepts of the Health Belief Model (HBM) among students were nearly identical. However, the intervention resulted in significant differences in the find out about group, while it was not significant in the control group. The contrast between the intervention group and the control group used to be more pronounced, and it was remarkable for all ideas, except for perceived limitations. This problem suggests that education has significantly increased rankings of vulnerability, severity, perceived advantages, cues to action, and self-efficacy. The intervention group experienced a decrease in the perceived obstacles faced by school students. The visible comments for (Table 4.) indicates that the Mean scores and Standard Deviations for the variables related to the study were altered among participants over time. To assess the importance of these changes in the average ratings and determine the effectiveness of our fitness education session, which was solely based on the health belief model, in promoting improvement in participant beliefs.

Table 4: Descriptive statistics measuring change in health belief model concepts across study group and over times

HBM concepts	Groups	M (SD)		
		Pre-test	Post-test 1	Post-test 2
Perceived susceptibility	Exp.	2.99 (0.69)	4.38 (0.37)	4.03 (0.41)
	Con.	2.89 (0.82)	2.96 (0.75)	3.08 (0.66)
Perceived severity	Exp.	3.36 (0.42)	4.20 (0.41)	4.06 (0.38)
	Con.	3.39 (0.29)	3.46 (0.31)	3.41 (0.31)
Perceived benefit	Exp.	3.38 (0.57)	4.12 (0.49)	4.02 (0.33)
	Con.	3.31 (0.45)	3.38 (0.43)	3.39 (0.42)
Perceived barrier	Exp.	3.42 (0.49)	4.20 (0.44)	4.01 (0.34)
	Con.	3.46 (0.48)	3.48 (0.47)	3.40 (0.45)
Cue to action	Exp.	3.48 (0.43)	4.16 (0.43)	4.03 (0.34)
	Con.	3.40 (0.44)	3.48 (0.48)	3.44 (0.48)
Perceived self-efficacy	Exp.	3.44 (0.55)	4.21 (0.53)	4.01 (0.45)
	Con.	3.43 (0.56)	3.31 (0.44)	3.44 (0.56)

HBM: Health Belief Model, Ex: Experimental group (n = 75), Co: Control group (n = 75), M: mean, SD: Standard Deviation, Minimum beliefs score = 1, Maximum beliefs score = 5

Discussion

Table (1) presented the findings showing the majority of participants in both the study group and control group were 20 years old. Furthermore, with regards to other demographic

features, the majority of participants were homeowners, accounting for 78.7% of the total. The majority of participants (81.4%) were unmarried. The tables (1) were in agreement with the study (14) which indicated that there was no significant correlation between variations in knowledge scores and certain sociodemographic factors such as gender, age, parental education, paternal occupation, and home ownership. This study concurs with the findings of references 22 and 23. This study revealed that the life expectancy of students aged 20 years is being examined.

The research table (2) indicates that the study groups (60.0%) and control group (37.3%) had the highest proportions of drug users. A study conducted by Goings, Hidalgo, & McGovern (2018) revealed that drug use throughout adolescence is a strong predictor of continued drug use, with a prevalence rate of 57 percent.

In 2017, similar results were observed in Baghdad, Iraq. The lifetime prevalence of drug use was 7.02% and alcohol use was 17.8% [9]. The observed escalation in the consumption of alcohol, prescription drugs, and illicit substances potentially signifies a surge in drug abuse problems within the population, necessitating a greater demand for treatment interventions.

The study findings suggest that the population employed was homogeneous, as randomized controlled trials (RCTs) necessitate homogeneity in the groups. Randomized controlled trials (RCTs) are often regarded as the most effective method for assessing the effectiveness of a specific program using the Health Belief Model (HBM). As a result, there was a noticeable similarity in the outcomes between the study group and the control group. Furthermore, most of the individuals in both the experimental and control groups had their household income estimated to be between 300-500, with around 34.7% and 26.7% respectively.

An alternative analysis of this data suggests that individuals with restricted or low family incomes, and whose parents, including mothers, have lower levels of education, may have a higher susceptibility to drug addiction and a greater likelihood of using narcotic drugs at this location due to their own educational deficiencies and the low educational level or breakdown within their families.

Table with three items The findings of this study indicate that prior to the test, there was no noticeable disparity in the participants' perceptions of perceived vulnerability, perceived severity, perceived advantage, perceived barrier, perceived self-efficacy, or cues to action. There is evidence of consistency between the experimental and control groups in terms of their beliefs, perceived vulnerability, perceived severity, perceived benefit, perceived barrier, cues to action, and reported self-efficacy. This could be attributed, at least partially, to the absence of any previous exposure to the program among both the research group and the control group, resulting in their limited or non-existent knowledge and beliefs regarding drug usage. The two groups also produce consistent and logical results since they are internally homogeneous. Mahmood's study [14] also found that there was a consistent level of student understanding of the dangers of drugs. Moreover, based on Bonyani's study conducted in Iran, there was no noticeable variation in the initial feelings of the students, and they all shared a predominantly negative attitude towards drug abuse [24].

Table 4 Thus, it can be inferred that the drug use health training sessions result in significant progress among participants in changing their attitudes and intentions related to drug use over time.

Conclusions

The findings of this study suggest that the design of an HBM-based study may have an impact on students' perceptions and actions related to drug use. Taking the positive link between the HBM construct and female school student beliefs—specifically, the relationship between "perceived benefits and perceived severity"—into account. These ideas suggested a strong relationship between them and the focus on addiction prevention.

Recommendations

This study recommends conducting future research based on the Health Belief Model to investigate the habits of a diverse range of the Iraqi population. The purpose is to modify people's behavior towards addiction.

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