

ARTICLE / INVESTIGACIÓN

Efficacy of Health Beliefs Model-Based Intervention in Changing Substance Use Beliefs among Mosul University Students: A Randomized Controlled Trial

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Abstract: Substance use disorders (SUD) are a significant health concern worldwide. Substance abuse is a persistent problem linked to high rates of illness and loss. These issues are also responsible for many healthcare workers and health bills. However, the Substance use problems are associated with capitalize health retrogradation, weakness and death due to impacts and exceed. Throughout Iraq, there is growing concern about the effects of violence and war on drug use. To see how effective HBM-based intervention is at changing college students' health beliefs about drug usage. Using a randomized controlled trial approach, experimental design is carried out throughout the current study to determine the efficacy of health beliefs model-based intervention in changing the belief related to substance use among university students in Mosul City from 26-November 2019 to 1-March 2021. The study sample consisted of 80 students who participated in the training program for behavioral change. The intervention for the experimental group involved a health education lecture about substance use. Analyzed data using SPSS, Version 23 using both descriptive statistics and inferential statistics (Means, SD, Number and percentage). These results revealed statistically significant differences among all concepts of the Health Belief Model related to substance use, adding to behavioral motivation, behavioral control and intention) overtime. On the contrary, the perceived barrier was the only belief that showed no significant changes over time. According to the findings, the design of an HBM-based study could impact students' cognition and conduct in the field of drug dependence. Given the positive association across HBM dimensions and pupils' opinions, notably in "significant advantages and regarded harshness," These beliefs seemed to have a strong connection to each other and the avoidance of alcoholism.

Key words: Efficacy, Health Beliefs Model, Belief, Substance Use, Students.

Introduction

Substance use disorders are a significant health concern worldwide. Substance use is inveterate trouble that is associated with substantial morbidity and mortality. These problems also account for essential health care employment and medical costs^{1,2}. Substance use disorders and intemperance represent universal public health problems of substantial socioeconomic inclusion^{3,4}. Many clinical studies signalize an association between substance use and personality troubles with the guide that personality pathology may affect both an etiology and course of substance use troubles^{5,6}. Substance use problems are associated with capitalize health retrogradation, weakness and death due to impacts and exceed^{7,8}. In Iraq, there is a growing issue regarding the impact of violence and war on narcotic use^{9,10}. It has been discovered that alcoholism can have a consequence on civilization systems, as a sickness and as a social one, as well as other narcotics habits, which can pose health struggles and difficulties^{11,12}. Students are among the groups with higher drug risk abuse because they don't know the illegal drugs' outcomes yet have no right convictions about them¹³. Substance use, "alcohol, tobacco, hookah and illicit drugs," is a big issue today^{14,15}. Substance use causes clinical, practical, and significant sicknesses such as health problems, inability and defeat to meet responsi-

bilities at work, school, house, and university¹⁶. Usage of substances by young adults. In a 2010 survey, it was found that approximately 27 million psychological and social disorders were triggered by "high-risk" drugs that posed a danger to their health. Around 300,000 casualties in 2015 were caused by substance use disorders¹⁷. In terms of drug use disorders, evidence now shows that more than (85 percent) of those who meet requirements for a drug use disturbance early in their lifetime do so during puberty. Unlike adulthood, which transmits adolescents without meeting needs for a drug use problem, it is unlikely that one will ever grow^{18,19}. However, preparing for college has historically been looked a defensive factor against the development of substance use troubles; in new decades, substance use has become one of the most diffuse health troubles in universities in the United States^{20,23}. In 2017, (more than 70,000 population) died from medicine overdoses, unmatching the number of deaths from HIV, vehemence or traffic accidents at their peak²⁴.

Smoking use is the single most blockable cause of death in the United States. Although the 2014 Surgeon General's statement on the health successive of Smoking (50 Years) of Progress demonstrated that the spread of stream smoking is on the refuse, the report confirms the need further to

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monitor types of use for all tobacco products, particularly as the disparity in use perseveres. Alternative forms of smoking use are rising in publicity among young²⁵. Mousawi, 2014, found that Iraqi studies on secondary school and university students reported smoking use rates spreading from (3.2- to 21%). According to the World Health Organization (WHO), documentation (3million) passing's in the known universe were precipitated by heavy drinking in 2012²⁶. The above quote further explained that incidents accounted for the two lion's share of vodka deaths after cvds, so a huge proportion of drinking fatalities around the globe are affected by motorized vehicles and take place in poor economies. The most common age ambit of narcotic abusers globally is (18-25) years. Some students are at these ages, and narcotic abuse has been shown in them; among illegal drugs, consuming (3.8%) is the most common abused narcotic in the world^{27,28}.

Materials and methods

Experimental design using the random controlled trial approach is conducted to determine the efficacy of the HBM in changing the belief related to substance use among university students in Mosul City from the 26 of November / 2019 to the 1 of March/2021. A proportion (simple random selection) of (N=80) college students from various fields of study would really be chosen. This study sample will be selected from the Technology, Humanities, Health, and Community Colleges at the College of Nineveh. A sampling pool consisted distributed at four colleges in Mosul University, including (Political Science, Engineering, Sciences, and Nursing)The sampling will be divided into treatment and control groups at unexpected times, with (40) young adults for every category benefitted by gender and university. Such a selection is made from a source of items that fulfill the standards while including pupils who have been using them previously. The study is carried out in Iraq. The University of Mosul is a public university situated in Mosul. It's one of the

largest educational and research centers in Mosul City and the second-largest in Iraq.

Contain 22 colleges in different specialties divided into four colleges in the University of Mosul's Engineering, Sciences, Medicine and Education College. Mosul University is located on the north side of the center of Mosul City at the right braid of the Tigris River. The data are collected from students at the University of Mosul of selected 22 colleges in Mosul City. There are four colleges in the University of Mosul's Political Science, Engineering, Sciences, and Nursing Colleges, from 19 of January up to the 27 of February / 2020. The (SPSS) curriculum for Pc is used to examine the facts (V:26).We calculated the mean, standard deviation, frequency and percentage to describe the entrant of the study. Pearson chi-square and t-test are used to explore the homogeneity of characteristics between experimental and control groups at baseline (Pretest)

Results

Concerning the variations in the Health Belief Model throughout the three times, Table 3 shows substantial variations in the research group participants' perceived benefits of beliefs. Concerning the control group, table 3 reveals the fluctuation of Beliefs over time. However, no exact improvement or stable continuous change in students' beliefs is observed.

Table 4 indicated that before the intervention, mean scores for all concepts of HBM were nearly comparable in terms of interest, manageability, and purchase intent of students. But, posttreatment, the study group was dissimilar, whereas group 2 was not. The difference was higher among the intervention group than the control group, and it was positive for all concepts except for perceived barriers. This issue indicates that education caused a significant increase in scores of sensitivities, severity, perceived benefits, cues to action, self-efficiency, motivation, behavioral control and intentions. It further reduced the perceived barriers of stu-

Socio-demographic	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 ²
Gender							0.694
Male	36	90	37	92.5	73	91.25	
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	

F: Frequency, %: Percent, M: Mean, SD: Standard deviation, t: t-test, χ²: Chi-square, BMI: Body Mass Index, All group differences p > 0.05.

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

Beliefs	Groups				t	p
	Experimental (n=40)		Control (n=40)			
	M	SD	M	SD		
Perceived Susceptibility	2.42	0.76	2.39	0.48	0.217	0.829
Perceived Severity	3.12	0.71	3.17	0.67	-0.339	0.736
Perceived Benefit	2.91	0.76	2.96	0.78	-0.288	0.774
Perceived Barrier	2.75	0.59	2.91	0.56	-1.229	0.223
Cue to action	2.31	0.70	2.27	0.61	0.211	0.779
Perceived Self-Efficacy	2.27	0.91	2.41	0.99	-0.643	0.522
Motivation	2.77	0.76	2.69	0.90	0.482	0.631
Behavioral control	2.83	0.99	2.73	0.54	0.573	0.568
Behavioral Intentions	2.81	1.05	2.92	0.86	-0.443	0.604

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 2. Baseline Homogeneity in the Health Belief Model Concepts, Motivation, Behavioral Control and Intentions Between Experimental and Control Groups Beliefs.

concepts	Groups	Post hoc Using Bonferroni		
		(pretest) vs (post 1)	(pretest) vs (post 2)	(Post1) vs (post 2)
HBM	Exp	0.000	0.000	0.645
	Con	0.616	0.681	1.000

Table 3. Post-hoc Test Using Bonferroni Corrections Procedure for Changing in the Students' Beliefs about Health beliefs Model among Study and Control Group over Times concepts.

HBM Concepts	Groups	M (SD)		
		(T 0)	(T 1)	(T 2)
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)
Cue 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)

Table 4. Descriptive Statistics Measuring Change in Health Belief Model Concepts, Motivation, Behavioral Control and Behavioral Intentions Across Study Group and Over Times.

Health Belief Model	“Repeated Measures ANOVA Tests”			
	F	P	(η ²)	O.P.
Main time effects	26.075	0.000	0.404	1.000
Between group effects	7.877	0.006	0.092	0.792
Groups interaction overtime	11.948	0.000	0.237	0.994

Table 5. Repeated Measures ANOVA Tests the health beliefs model in changing the belief related to substance use among university students.

dents in the intervention group.

The findings of Table 5 show that the interaction of time and group is significant ($F = 11.948, p = 0.000$) and that the key impact of time is significant ($F = 26.075, p = 0.000$) in the subject's test. And the test between groups shows the importance of the variable group $F = (7.877, p = 0.006)$ there.

Discussion

The findings showed a positive influence of health education on improving student beliefs in preventive addiction based on the Health Belief Model. In particular, the participants found post-education that substance use is a serious condition for substance use if they did not participate in preventive substance use behaviors. In addition, participants' susceptibility, benefits, cues to action, motivation, control, self-efficacy, and perceived intentions to modify future substance use behaviors improved significantly after the intervention based on the health belief model. According to the results of (Table 1), the mean \pm SD age of the study group and control group was (23.37 ± 2.09) and (23.70 ± 2.04) respectively. In addition, the same table demonstrated that the majority of the participant were normal body weight, and the overall mean (\pm SD) of the body mass index was (21.23 ± 2.53). Concerning other demographic characteristics, the majority of the participant were male (91.25 %) and house owners (76.25 %). Most of the participants were single (70 %) regarding marital status. Table (1) this study is inconsistent with (9), who found that the male participants reported a significantly higher prevalence of tobacco use, alcohol use, and drug abuse than females. This study is similar to (29,30), which found the average age of students was (21.21 ± 2.90). About 97.9% were single, 72.9% had low family income, and 81.3% lived in houses. This study agrees with (31) who found the mean age of the studied population was (23.48 ± 2.51). 56.6% of fathers and mothers had low-level education. One explanation of this table (2) is normal in the initial testing of the two groups (Experimental and Control) that their knowledge and belief about substance use is little or weak because they are not exposed to a program, as well as the fact that the two groups are homogeneous with each other, the results are convergent and logical. This outcome is consistent with the research (Mahmood et al., 2018) that showed the homogeneity of students' awareness participants regarding the harms of substance use³². This study, consistent with Bonyani *et al.*, 2018³³ in Iran, also showed no substantial difference in the baseline attitude between students, and they had a relatively negative attitude toward substances abuse³³. This result is consistent with Fadaei *et al.*, 2020³⁴. The mean score of prevention behaviors in substance use showed the pre-test, and their measurements were not substantially different at (p -value = 0.641 and $t = -2,597$) between the study and control

groups³⁴. These analysis findings are in line with the results of other studies by Mohammadi and Tavafian., 2020³⁵, who found that before implementing the software, there was no substantial difference between the mean score of the HBM constructs ($P > 0.05$)^{35,36}. The post-doc test revealed that the mean score of the changed Health Belief Model differed significantly among study group participants ($p > .000$). Relative to control group participants, the findings showed no significant change in the mean score of Beliefs throughout the educational program. Specifically, the Health Belief Model score among the study group at post-test-1 and post-test-2 differed significantly from the pre-test. Conversely, there is no significant change from posttest-1 to posttest-2. This result indicates that the student's beliefs are improved significantly after education. According to the results of (Table 4), 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 a 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. Still, the difference was substantial after the experiment and indicates the positive effect of health education in changing students' health beliefs about substance use and minimizing students' perceived substance use barriers. Table (4). This means that the students' belief was low before implementing the intervention in the pre-test. It was also found that there were no statistically significant differences between the study and control groups ($p > 0.05$) in the score of the students' beliefs towards all concepts of the Health Belief Model related to substance use at pre-test (table 4). All students who participated in the study (study and control groups) were homogeneous and had the same information and knowledge about substance use at baseline. After that, all intervention sessions were given to study group participants only. After completion of the intervention, a posttest-1 was carried out for both groups (study and control). The results showed a clear change in mean except for perceived barriers for a study group. This indicates that the interference has become positively affected. The main purpose of this step was to evaluate the outcomes of the educational program contrary to the control group. And then, after (2) months, a posttest-2 was also performed for both groups to investigate the efficacy of the education program. The main purpose of this step was to identify the efficacy of the educational program in retaining adequate information and knowledge by the study group participants. This research is consistent with the findings of studies performed on the target group on substance use and the impact of education on the health belief model^{37,38}. This result is consistent with the study of Barjouny, *et al.*, 2012³⁹ showed that there is a significant correlation between the health belief model

parts and preventive behaviors of addiction and drug abuse and also a significant correlation between the variables of students and (HBM) in preventive behaviors of drug abuse ($P=0.002$)^{39,40}. This outcome is consistent with the (Fadaei *et al.*, 2020)³⁴ 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.*, 2018³², after introducing a health education program, students' knowledge of drug use has increased significantly, reflecting the effectiveness of health education programs in enhancing awareness of substance use amongst students. This study is similar to Nayak & Jose., 2018⁴¹; this research also aligned with our results, as students' expectations regarding drugs have increased following an education program with a (3.03) Mean gap f^{41} .

Conclusions

This study concludes that health education through a belief model demonstrates the importance of substance use prevention and positively impacts students' perceptions of susceptibility, severity, and perceived benefits of advised interventions to stop substance use in preventing addiction and reducing various health risks.

Cues for action to activate "readiness" to quit in substance users and self-efficacy for confidence in their ability to end substance use students' behavior on the topic of addictions could be affected by the structure of a Greater management study. Noting the positive relationship between HBM elements and peer perceptions, mainly on "benefits and considered harshness," These thoughts seem to have a clear connection and habit mitigation.

Conflicts of Interest

The author declares that there is no conflict of interest in this study.

Bibliographic references

- Maqbool, M., Dar, M. A., Rasool, S., Gani, I., & Khan, M. (n.d.). Substance use disorder and availability of treatment options (2018): an overview.
- Mahmoud Mohammed Ahmed, Nasir Muwfaq Younis and Ahmed Ali Hussein. Prevalence of Tobacco use among Health Care Workers at Primary Health care Centers in Mosul City. *Pakistan Journal of Medical and Health Sciences*, 2021, 15(1), pp. 421–424
- Whiteford, H. A., Ferrari, A. J., Degenhardt, L., Feigin, V., & Vos, T. (2015). The global burden of mental, neurological and substance use disorders: an analysis from the Global Burden of Disease Study 2010. *PLoS One*, 10(2), e0116820.
- Lina Qays Yaseen, Sura Hameed Nayyef & Nadia Ibraheem Salih. The inhibitory effect of aqueous and alcoholic extract of red pepper on some isolated pathogenic bacteria from different areas of human body. *Bionatura*. 2021. volume 6. Number 4: .DOI. 10.21931/RB/2021.06.04.21
- Moran, S., Isa, J., & Steinemann, S. Perioperative management in the patient with substance abuse. *Surgical Clinics*, (2015). 95(2), 417–428.
- Nasir Muwfaq Younis, Mahmoud Mohammed Ahmed, and Ahmed Ali Hussein. Nurses' knowledge, attitude and practice towards preparedness of disaster management in emergency of mosul teaching hospitals. *Medico-Legal Update*, 2020, 20(3), pp. 775–779.
- McLellan, A. T. Substance misuse and substance use disorders: why do they matter in healthcare? *Transactions of the American Clinical and Climatological Association*, (2017). 128, 112.
- Salim Rabea Znad, Mazin Nazar Fadhel, Ayça Erdem Ünşar. Investigate workers' health in the western industrial region, Mosul, Iraq *Bionatura*. 2021. volume 6. Number 4: DOI. 10.21931/RB/2021.06.03.16.
- Al_Hemiery, N., Dabbagh, R., Hashim, M. T., Al_Hasnawi, S., Abutiheen, A., Abdulghani, E. A., Al_Diwan, J. K., Kak, N., Al Mossawi, H., & Maxwell, J. C. (2017). Self-reported substance use in Iraq: findings from the Iraqi National Household Survey of Alcohol and Drug Use, 2014. *Addiction*, 112(8), 1470–1479.
- Ahmed MM, Younis NM, Hussein AA. Violence towards nurses staff at teaching hospitals in Mosul City. *Indian J. Forensic Med. Toxicol* 2020;14(3):2598-603.
- Silverman, K., Holtyn, A. F., & Subramaniam, S. Behavior analysts in the war on poverty: Developing an operant antipovertry program. *Experimental and Clinical Psychopharmacology*, (2018). 26(6), 515.
- Castro Dario, Cuasquer Joselyn, Chavez Eva. Use of natural diatoms for drug delivery. *Bionatura*. 2021. Number 2: DOI. 10.21931/RB/2021.06.03.16.
- Panahi, R., Ramezankhani, A., Tavousi, M., & Niknami, S. Adding health literacy to the health belief model: effectiveness of an educational intervention on smoking preventive behaviors among university students. *Iranian Red Crescent Medical Journal*, (2018). 20(2).
- Montazeri, Z., Nyiraneza, C., El-Katerji, H., & Little, J. Waterpipe smoking and cancer: systematic review and meta-analysis. *Tobacco Control*, (2017). 26(1), 92–97.
- Nasir Muwfaq Younis, Mahmoud Mohammed Ahmed and Nawaf Mohammed Dhahir. Prevalence of Covoravirus among Healthcare Workers. *International Journal of Medical Toxicology & Legal Medicine*. 2021. Volume 24, Nos. 1-2, jan-jaune
- Vahia, V. N. (2013). Diagnostic and statistical manual of mental disorders 5: A quick glance. *Indian Journal of Psychiatry*, 55(3), 220.
- Nelson, S. E., Van Ryzin, M. J., & Dishion, T. J. Alcohol, marijuana, and tobacco use trajectories from age 12 to 24 years: Demographic correlates and young adult substance use problems. *Development and Psychopathology*, (2015). 27(1), 253–277.
- Yahya HB, Al-Shaker Y, Hamoshi RM. Investigation About the Health of sulfur water and effect on tourist users in Hammam Al-Alil sub-district, Nineveh governorate. *Revis Bionatura* 2022;7(1). 3. <http://dx.doi.org/10.21931/RB/2022.07.01.3>
- Hanson, K. L., Medina, K. L., Padula, C. B., Tapert, S. F., & Brown, S. A. Impact of adolescent alcohol and drug use on neuropsychological functioning in young adulthood: 10-year outcomes. *Journal of Child & Adolescent Substance Abuse*, (2011). 20(2), 135–154.
- Schulenberg, J. E., Johnston, L. D., O'Malley, P. M., Bachman, J. G., Miech, R. A., & Patrick, M. E. (2017). Monitoring the Future national survey results on drug use, 1975–2016: Volume II, college students and adults ages 19–55. Institute for Social Research, The University of Michigan.
- Khodaveisi, M., Salehi Khah, M., Bashirian, S., Karami, M., & Khodaveisi, M. The effect of health belief model-based training on preventive behaviors of hepatitis B in addicts. *International Journal of High Risk Behaviors and Addiction*, (2018). 7(2).
- Naji AB, Ahmed MM, Younis NM. Adherence the Preventive Measure Against for COVID-19 among Teachers at University of Mosul. In *J Med Tox Leg Med* 2021;24(3&4).
- Prom-Wormley, E. C., Ebejer, J., Dick, D. M., & Bowers, M. S. The genetic epidemiology of substance use disorder: a review. *Drug and Alcohol Dependence*, (2017). 180, 241–259.
- Ahmad, F. B., Rossen, L. M., Spencer, M. R., Warner, M., & Sutton, P. Provisional drug overdose death counts. *National Center for Health Statistics* (2018).

25. Tsai, H.-W., Chen, S.-C., Wu, H.-L., Hong, M.-Y., Lee, Y.-H., & Lai, Y.-H. Validation of the Smoking Cessation Counseling Scale Chinese Version in Taiwan. *Cancer Nursing*, (2019). 42(6), E32–E39.
26. Busse, R., Blümel, M., & Organization, W. H. (2014). Germany: health system review.
27. Reza Hosseini, O., Roohbakhsh, A., Tavakolian, V., & Assar, S. Drug abuse among university students of Rafsanjan, Iran. *Iranian Journal of Psychiatry and Behavioral Sciences*, (2014). 8(2), 81.
28. Younis NM, Mahmoud M, Ahmed A, et al. University Students' Attitude Towards E-Learning. *Bahrain Medical Bulletin* 2021;43(2):460-2.
29. Kissal, A., & Kartal, B. Effects of health belief model-based education on health beliefs and breast self-examination in nursing students. *Asia-Pacific Journal of Oncology Nursing*, (2019). 6(4), 403.
30. Oveisi, S., Zahedifar, F., Atashgar, E., Yadegary, Z., Amole, N., & Taherkhaneh, S. Prediction of Dental Caries Preventive Behaviors using Health Belief Model (HBM). *Health Education and Health Promotion*, (2019). 7(3), 105–109.
31. Younis Nasir Muwfaq, Mahmoud Mohammed Ahmed, Rafah Raad Abdulsalam. Assessing Quality of Life in Palliative Care. *Bahrain Medical Bulletin* .September ,2021; Vol. 43, No. 3, pp:594-596.
32. Mahmood, N., Othman, S., Al-Tawil, N., & Al-Hadithi, T. Impact of an education intervention on knowledge of high school students concerning substance use in Kurdistan Region-Iraq: A quasi-experimental study. *PloS One*, (2018). 13(10), e0206063.
33. Bonyani, A., Safaeian, L., Chehrizi, M., Etedali, A., Zaghian, M., & Mashhadian, F. A high school-based education concerning drug abuse prevention. *Journal of Education and Health Promotion*, (2018). 7.
34. Fadaei, M. H., Farokhzadian, J., Miri, S., & Goojani, R. Promoting drug abuse preventive behaviors in adolescent students based on the health belief model. *International Journal of Adolescent Medicine and Health*, (2020). 1(ahead-of-print).
35. Mohammadi, K., & Tavafian, S. S. Effect of Educational Intervention Based on Health Belief Model on Prevention of Substance Abuse Among the Students of Khatam Al-Nabieen University in Afghanistan. *Iranian Red Crescent Medical Journal*, (2020). 22(5).
36. Mahmoud Mohammed Ahmed, Nasir Muwfaq Younis, Nawaf Mohammed Dhahir, Kareem Nasir Hussien. Acceptance of COVID-19 Vaccine among Nursing Students in Mosul University. *Rawal Medical Journal*. 2022. Volume 47 No. 2 .
37. Solhi, M., Haghighi, M., Rahmati Najarkolaei, F., & Zemestani, A. HIV prevention perception among barbers according to health belief model case study from Marand. *Journal of Research and Health*, (2014). 4(1), 592–598.
38. Shojaei Zadeh, D., Changizi, M., & Sadeghi, R. The effect of education about addiction through health belief model (HBM) on knowledge and perceptions of high school students in Shadegan. *J Sci Today's World*, (2014)3, 240–244.
39. Barjouny. Evaluation of preventive behaviors of addiction based on health belief model (HBM) among male high school students in Boroujen, Iran. (2012).
40. Vélez-Paez JL, Montalvo MP, Esteban Jara F, Aguayo-Moscoso S, Tercero-Martínez W, Stalin Saltos L, Jiménez-Alulima G, Irigoyen-Mogro E, Castro-Reyes E, Mora-Coello C, López-Rondón E, Toapanta P, Vásconez-González E, Ortiz-Prado E. Predicting mortality in critically ill patients with COVID-19 in the ICU from a secondary-level hospital in Ecuador. *Revis Bionatura* 2022;7(1) 1. <http://dx.doi.org/10.21931/RB/2022.07.01.1>
41. Nayak, A. K., & Jose, T. T. A study Determine the Effectiveness of an awareness program on knowledge on substance abuse and its consequences among the students of a selected pre university college of Udipi district, Karnataka. *Nitte University Journal of Health Science*, (2015). 5(1).