Multidisciplinary

Perceived benefits of intervention on health beliefs model about internet addiction prevention of female high school students

Enas Ghany Abdulhussein[1*] and Arkan Bahlol Naji[2]

[1] Ph.D, Community Health Nursing Department, College of Nursing, University of Baghdad, Iraq

[2] Professor, Community Health Nursing Department, College of Nursing, University of Baghdad, Iraq

Correspondence Author: Enas Ghany Abdulhussein

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Abstract

Background: Internet addiction is critical wellbeing concern around the world. Web habit is deep rooted inconvenience which is related with numerous infections and wellbeing issues.

Materials and method: The present study employs an experimental design, specifically utilizing a study-control groups approach, to assess the effectiveness of the health beliefs model in preventing internet addiction among female high school students in the Al-Rusafa District of Baghdad City. The study will be conducted from October 4th, 2023 to January 4th, 2024.

Results: The findings of this study indicate that there were statistically significant differences in the perceived advantages concept of the health belief model in relation to the prevention of internet addiction.

Conclusions: This study found that implementing a health intervention using a health belief model demonstrates the importance of preventing internet addiction and has a positive impact on female students' beliefs about their own health.

Keywords: perceived benefits, health beliefs model, internet addiction

Introduction

In contemporary times, cell phones, the internet, and similar technology have become indispensable for both professional and personal activities. Various choices exist for daily communication, entertainment, and meeting requirements, so enhancing convenience and expediting daily living. However, in recent decades, the escalating utilization or mishandling of these tools has resulted in extensive and significant adverse consequences. The user's text is a reference to a source or citation [1]. Prolonged, compulsive, and uncontrollable internet use that negatively impacts users' psychological and physical well-being is known as internet addiction. In the US and Europe, about one in ten people suffer from an internet addiction. The majority of those impacted are teenagers, the majority of them are students [2].

The Internet is vital as it enables young individuals to explore and encounter fundamental topics such as sexuality, identity, and autonomy. In the past decade, there has been a rapid increase in the availability and use of modern information and communication technology, including social media platforms, cellphones, personal computers, and various other electronic devices. The user's text is "[3]." The predominant demographic of users for these technologies consists of teenagers and young adults, who primarily utilize them for interpersonal communication and social interaction. Although teenagers utilize these new technologies to meet their developmental obligations, research indicates that they may also hinder their growth. Adolescents may engage in excessive or maladaptive Internet use, namely as a means to cope with psychological distress and negative feelings that arise from opposing parental and peer influence. Both influences and potential risks the user's text is "[4]." Internet addiction refers to the inability to regulate Internet usage despite its detrimental consequences. Internet addiction, sometimes referred to as pathological or problematic Internet use, is linked to withdrawal symptoms and negative effects [5]. Multiple research indicate that IA can negatively impact teenagers' social connections, academic performance, and overall well-being. This type of addiction diminishes the significance of activities that do not involve accessing the Internet, and when someone is denied access to the Internet, their worry and anger intensify. In addition, one's social, personal, and familial interactions steadily decline [6]. One of the first models to apply behavioral science theories to health issues and show how behavior and beliefs are related is the Health Belief Model (HBM) [7]. And among the psychological theories of health behavior that are applied the most widely. The health belief model (HBM), which consists of six elements perceived susceptibility and severity, benefits, barriers, cues to action, and self-efficacy integrates both normative and contextual influences on health behavior as well as psychological preparation [8]. Principles of the health belief mode-

- Perceived susceptibility refers to an individual's personal assessment of their probability of acquiring a disease or illness. The user's text is "[9]".
- Perceived severity refers to an individual's subjective assessment of the seriousness of acquiring a sickness or condition, as well as the potential consequences of not seeking treatment [10].
- Perceived benefits refer to an individual's evaluation of the effectiveness of various actions in either preventing or treating illness or disease [11].
- Perceived hurdles- This refers to an individual's feelings about the obstacles that prevent them from engaging in a

recommended health-related activity. The user's text is "[12]".

- Cue to action- Typically, the stimulus needed to activate the decision-making mechanism in order to recognize a proposed health-related action. The user's text is "[13]".
- Self-efficacy refers to an individual's confidence in their ability to successfully carry out a specific behavior. This build was introduced to the model lineup in the mid-1980s. Self-efficacy is a concept that is commonly used in several behavioral theories because it directly pertains to an individual's likelihood of engaging in a given behavior. The user's text is "[14]".

Significance of the study

Internet addiction is defined as a disorder of self-control in the use of the Internet that has detrimental effects on one's quality of life, employment, family relationships, and emotional well-being. Adolescents grow up in an atmosphere where the use of the Internet has become increasingly important in several aspects of life. Adolescents typically exhibit diminished self-restraint when engaging in online activities and are more prone than adults to develop a dependency on the Internet. Engaging in excessive internet use has been associated with several psychosocial problems, including poor academic performance, strained parent-child interactions, physical and mental health issues, social withdrawal, a decline in quality of life, and aggressive behavior. The specific significant risk factors of internet addiction include engaging in sexual encounters online, experiencing family problems, having low self-esteem, facing social isolation, displaying impulsivity, having unrestricted internet access, and engaging in other risky behaviors. The Wellbeing Conviction Demonstrate (HBM), a widely used theory, has been applied to explain various health-related behaviors (such as condom use, tooth brushing, bike helmet use, and prevention of internet addiction) and to design relevant interventions (such as flu vaccination and helmet promotion programs) among young people. The framework comprises six components: perceived vulnerability, perceived severity, perceived benefits, perceived barriers, trigger to action, and self-efficacy.

Aim

Evaluate the impact of the health beliefs model on the perception of the benefits of internet addiction prevention among female high school students.

Research hypothesis

There is a statistically significant in perceived benefits concept of the health belief model related to internet addiction prevention.

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 this study dependent variable is female student beliefs.

Research settings

The study was carried out among female high school students in the Al-Rusafa District of Baghdad City.

Study participants

A probability sample of 144 female students attending high schools in the Al-Rusafa District of Baghdad City. The sample is chosen in a random manner and divided into two groups: the experimental group and the control group. Each group consists of 72 students, who are evenly dispersed based on their age and grades. This selection is used from a pool of subjects who meet the following criteria:

- Only female pupils are allowed.
- Students in the ninth, tenth, and twelfth grades.

Tools of data collection

Self-report questionnaires are created specifically for the purpose of the study.

The instruments are presented in the following manner:

Part I: Demographic data

This section contains demographic information such as age, grade level, marital status, and residential unit. Family structure, educational level for both parents. The variables to include in this study are the family's monthly income, the purpose of internet usage, the locations where the internet is used, the duration of internet usage, the motivation behind online usage, and the preferred device for accessing the internet.

Part 2: Assessing the attitudes of high school students towards preventing Internet addiction by applying the principles of the health belief model.

- Perceived Susceptibility Scale consists of seven items that assess the perceived susceptibility of internet addiction among high school female students. This scale is a 5-point scale. The Likert scale is a measurement tool that assigns values to responses, ranging from strongly agree (5) to strongly disagree (1).
- The Perceived Severity Scale consists of ten items that assess the level of perceived severity of internet addiction among high school female students. This scale is a 5-point scale. The Likert scale is a measurement tool that assigns values to responses based on the degree of agreement or disagreement. It uses a five-point scale, with "strongly agree" assigned a value of 5, "agree" assigned a value of 4, "neutral" assigned a value of 3, "disagree" assigned a value of 2, and "strongly disagree" assigned a value of 1.
- Perceived barriers: this section consists of five items that assess the perceived barriers of internet addiction prevention among high school female students. This scale is a 5-point scale. The Likert scale is a measurement tool that assigns values to responses, ranging from strongly agree (5) to strongly disagree (1).
- The section consists of seven items that assess the perceived benefits of internet addiction prevention among

high school female students. This scale is a 5-point Likert scale that measures responses on a continuum from strongly agree (5) to strongly disagree (1).

- Cues to action: this section consists of four items that assess the cues to action of internet addiction prevention among high school female students. This scale is a 5-point Likert scale that measures responses on a continuum from strongly agree (5) to strongly disagree (1).

Validity

The study instrument's content validity is achieved by consulting a panel of 10 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 2 physicians employed by the Ministry of Health. The participants are given a copy of the intervention program and the study instruments and are then asked to evaluate the clarity and suitability of their content. The participants' feedback indicated that both the intervention program and the study tools were 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 responses of 14 pupils at a female high school. The results of this computation reveal that the correlation coefficient confirms that the instruments used in this study are highly dependable measures for the phenomenon being investigated.

Pilot study

Pilot research was undertaken by 14 female students, representing 10% of the total, to assess the dependability of the instruction program and study instrument. 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 the Al-Rusafa District of Baghdad City.

Ethical consideration

The students who took part in the study have signed a consent form, agreeing to share their information for research purposes. They were advised that their participation is voluntary and that their information will be kept confidential.

Data collection

Data are acquired by utilizing the independent variable and employing the pretest-posttest and method as means of data collection. From October 4th, 2023 to 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) displays the equal distribution of students across multiple grades (10th, 11th, and 12th) in both the study and control groups. Each grade accounts for roughly 33.3% of the total. The p-value is 1.000, indicating that there is no statistically significant correlation in the distribution.

The research group and the control group both had a majority of single people, with 41.0% and 40.3% respectively. The distribution of marital status is similar among the groups, as indicated by a p-value of 0.948, which is not statistically significant.

The distribution of residential unit ownership across the study and control groups exhibits a slight disparity, with 37.5% of the study group possessing residences in comparison to 30.6% in the control group. The p-value of 0.074 indicates a weak but statistically significant connection.

The distribution of family types is approximately equal between the research and control groups, with extended, nuclear, and mixed families each comprising approximately 15-25%. The p-value of 0.976 suggests that there is no statistically significant difference.

There is no significant correlation between the educational degrees of fathers in both groups, as indicated by a p-value of 0.890.

The study and control groups exhibit a comparable distribution of father's jobs, and the p-value of 0.984 indicates that there is no statistically significant correlation.

There is no statistically significant disparity in the educational attainment of mothers between the study and control groups (p-value = 0.211).

There is no statistically significant association between the study and control groups in terms of monthly household income distribution (p-value = 0.301).

Table 1: Socio-demographic characteristics

		Type of student				*p* value [a]
		Study group		Control group		
		F	%	F	%	
Grad	10th	24	16.7	24	16.7	1.000 NS
	11th	24	16.7	24	16.7	
	12th	24	16.7	24	16.7	
Marital status	Single	59	41.0	58	40.3	0.948 NS
	Married	7	4.9	6	4.2	
	Divorced	5	3.5	7	4.9	
	Widowed	1	0.7	1	0.7	
Residential unit	Owner	54	37.5	44	30.6	0.074 NS
	Rent	18	12.5	28	19.4	
Family type	Extended	22	15.3	22	15.3	0.976 NS
	Nuclear	36	25.0	35	24.3	
	Mixed	14	9.7	15	10.4	
Level educational father	No formal education	3	2.1	2	1.4	0.890 NS
	Basic Education	19	13.2	20	13.9	
	Higher Education	44	30.6	46	31.9	
	Advanced Education	6	4.2	4	2.8	
Occupation of father	Unskilled manual occupations	3	2.1	2	1.4	0.984 NS
	Semi-skilled manual occupations	8	5.6	9	6.3	
	Skilled manual and non-manual occupations	11	7.6	11	7.6	
	Associate professional occupations	21	14.6	23	16.0	
	Skilled professional or senior managerial occupations	23	16.0	23	16.0	
	Highly skilled professional occupations	6	4.2	4	2.8	
Level educational mother	No formal education	2	1.4	4	2.8	0.211 NS
	Basic Education	28	19.4	38	26.4	
	Higher Education	38	26.4	26	18.1	
	Advanced Education	4	2.8	4	2.8	
The monthly income of the family (in Iraqi dinars)	Less than 200.000	0	0.0	2	1.4	0.301 NS
	200.000-500.000	5	3.5	2	1.4	
	500.000-800.000	5	3.5	10	6.9	
	800.000-1.000000	22	15.3	25	17.4	
	1.000000-1.500.000	27	18.8	25	17.4	
	More than 1.500.000	13	9.0	8	5.6	

Table (2) displays the P-value A for Perceived Benefits. Initial assessment: The p-value of 0.279 (NS) suggests that there is no statistically significant difference between the study group (mean = 13.2, standard deviation = 3.2) and the control group (mean = 13.7, standard deviation = 2.6) in terms of perceived advantages at Posttest 1.A p-value of less than 0.001 indicates a highly significant difference between the study group (mean = 29.9, standard deviation = 2.1) and the control group (mean = 13.1, standard deviation = 3.2) in reported benefits at the posttest 1 stage.

Posttest 2: The p-value of less than 0.001 indicates a highly significant difference in perceived benefits between the study group (mean = 31.2, standard deviation = 2.8) and the control group (mean = 12.3, standard deviation = 1.5) at the posttest 2 stage.

The study group examined the p-value B in perceived benefits. A value of less than 0.001 for B indicates that there were significant comparisons made within the study group throughout the three time points (pretest, posttest 1, and posttest 2). The statement suggests a substantial and meaningful shift in the perceived advantages experienced by the Control Group over a period of time. Value B of 0.009 represents the statistical significance of the within-group comparisons over the three time points in the control group. It signifies a notable shift in the perceived advantages over time within the control group.

Table 2: Assessing changes in perceived benefits: a comparative analysis between study and control groups

Perceived benefits	Type of student		*p* value [A]
	Study group	Control group	
	M (±SD)	M (±SD)	
(Pretest)	13.2 (3.2)	13.7 (2.6)	0.279 NS
(Posttest 1)	29.9 (2.1)	13.1 (3.2)	< 0.001**
(Posttest 2)	31.2 (2.8)	12.3 (1.5)	< 0.001**
P. Value [B]	< 0.001**	0.009*	

Table (3) displays the statistical analysis findings that indicate notable variations in perceived benefits scores among students in the study group at different time intervals. There was a notable decline in perceived advantages from the pretest to Post 1 (Mean Difference = -16.764, Std. Error = 0.465, $p < 0.001$) and from the pretest to Post 2 (Mean Difference = -18.042, Std. Error = 0.463, $p < 0.001$). The presence of a negative sign in these mean differences indicates a significant decrease in

perceived benefits over time after the intervention. Furthermore, the adjusted p-values, taking into account multiple comparisons using the Bonferroni method, remained extremely significant for both the Pretest vs. Post 1 and Pretest vs. Post 2 comparisons ($p < 0.001$). There was a notable disparity in perceived advantages between Post 1 and Post 2, with a mean difference of -1.278, a standard error of 0.416, and a p-value of 0.009. This suggests that there was a further decline in benefits from Post 1 to Post 2.

To summarize, the results show a significant and meaningful decline in the perceived advantages among the students in the study group following the intervention. The validity of these findings is verified by implementing the Bonferroni correction to account for multiple comparisons.

Table 3: Pairwise comparisons for perceived benefits over time: study group analysis

Pairwise Comparisons[a]						
Measure: MEASURE_1						
(I) Perceived benefits	(J) Perceived benefits	Mean difference (I-J)	Std. error	*p* value [c]	95% Confidence interval for difference[c]	
					Lower bound	Upper bound
Pretest	Post 1	-16.764-*	0.465	<0.001	-17.905-	-15.623-
	Post 2	-18.042-*	0.463	<0.001	-19.177-	-16.906-
Post 1	pretest	16.764*	0.465	<0.001	15.623	17.905
	Post 2	-1.278-*	0.416	0.009	-2.299-	-0.257-
Post 2	pretest	18.042*	0.463	<0.001	16.906	19.177
	Post 1	1.278*	0.416	0.009	0.257	2.299

Based on estimated marginal means. *- The mean difference is significant at the 0.05 level. a. Type of student = study group. c. Adjustment for multiple comparisons: Bonferroni.

Table (4) indicates that the statistical analysis did not identify any significant variations in perceived benefits scores among students in the control group at different time points. There was no noticeable difference in perceived advantages between the pretest and Post 1 (Mean Difference = 0.611, Std. Error = 0.527, p = 0.749) or from the pretest to Post 2 (Mean Difference = 1.431, Std. Error = 0.373, $p < 0.001$). The p-values for both comparisons were not statistically significant.

In addition, the adjusted p-values, accounting for multiple comparisons using the Bonferroni technique, were 0.749 for the comparison between the Pretest and Post 1, and less than 0.001 for the comparison between the Pretest and Post 2. Thus, there were no notable disparities noted in the perceived advantages among students in the control group throughout the duration of the study.

To summarize, the results indicate that there were no statistically significant changes in perceived benefits among the students in the control group. This suggests that the intervention did not have a notable impact on their views in this particular aspect.

Table 4: Pairwise comparisons for perceived benefits over time: control group analysis

Pairwise Comparisons[a]						
Measure: MEASURE_1						
(I) Perceived benefits	(J) Perceived benefits	Mean difference (I-J)	Std. error	*p* value [c]	95% Confidence interval for difference[c]	
					Lower bound	Upper bound
Pretest	Post 1	0.611	0.527	0.749	-0.680-	1.902
	Post 2	1.431*	0.373	<0.001	0.516	2.345
Post 1	pretest	-0.611-	0.527	0.749	-1.902-	0.680
	Post 2	0.819	0.420	0.165	-0.210-	1.849
Post 2	pretest	-1.431-*	0.373	<0.001	-2.345-	-0.516-
	Post 1	-0.819-	0.420	0.165	-1.849-	0.210

Based on estimated marginal means, *. The mean difference is significant at the 0.05 level, a. Type of student = Control, c. Adjustment for multiple comparisons: Bonferroni.

Discussion

Table (1) displays the equal distribution of students across multiple grades (10th, 11th, and 12th) in both the study and control groups. Each grade represents roughly 33.3% of the total. The p-value is 1.000, indicating that there is no statistically significant correlation in the distribution. The research group and control group both have a predominant number of single people, with 41.0% and 40.3% respectively. The distribution of marital status is similar across all groups, with a p-value of 0.948, which indicates that the difference is not statistically significant. The findings of this study align with those of [15], which reported that the majority of participants were unmarried (45%). The distribution of residential unit ownership across the study and control groups exhibits a slight disparity, with 37.5% of the study group possessing residences in contrast to 30.6% in the control group. The p-value is 0.074, indicating a weak but statistically significant connection.

The research and control groups have roughly equal distribution of family types, with extended, nuclear, and mixed families each making up approximately 15-25%. The p-value of 0.976 suggests that there is no statistically significant

difference. The educational levels of fathers in both groups are similar, and there is no statistically significant correlation identified (p-value = 0.890).

The study and control groups exhibit a comparable distribution of father's occupations, with a p-value of 0.984 indicating no statistically significant correlation. This finding in the study is congruent with. The user's text is a reference to a specific source or piece of information. It was discovered that a significant proportion of fathers possess advanced levels of education. There is no statistically significant disparity in the educational attainment of mothers between the study and control groups (p-value = 0.211). There is no statistically significant association between the study and control groups in terms of monthly household income distribution (p-value = 0.301). The findings in this study align with those reported in reference [17].

Table (2) displays the perceived benefits. The pretest analysis yielded a p-value of 0.279 (NS), indicating that there is no statistically significant difference between the study group and the control group in terms of perceived advantages during the pretest stage. Posttest 1: The p-value A being less than 0.001 indicates a highly significant difference between the study group and the control group in reported benefits at the posttest 1 stage. The posttest 2 results indicate a highly significant difference ($p < 0.001$) in perceived advantages between the study group and the control group. The findings of this study align with those of [18], which reported substantial differences between the study and control groups.

Table (3) demonstrates a statistically significant and practically significant decline in perceived advantages among students in the study group following the intervention. The validity of these findings is verified by implementing the Bonferroni correction to account for multiple comparisons. The findings in this study align with those reported in reference [19]. Table (4) displays the findings which indicate that there were no statistically significant alterations in perceived benefits among students in the control group. This suggests that the intervention did not have a visible effect on their views in this particular aspect. The findings of this investigation align with the results reported in reference [20].

Conclusions

The intervention based on the health belief model resulted in improving high school students' perceived benefits in preventing Internet addiction

Recommendations

The study suggests the necessity of conducting future research utilizing the Health Belief Model (HBM) on a significant portion of the Iraqi population. The objective is to modify individuals' behavior towards internet addiction.

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