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RESEARCH ARTICLE

Predictors of Adopting Heart-Health-Preventive Behaviors among High School Female Students

Afnan Hadi Khudair [1*], Mohammed Baqer Habeeb[2]

1. *Academic Nurse, MSc, Department of Community Health Nursing, College of Nursing, University of Baghdad, Baghdad, Iraq. E-mail (Corresponding Author) Afnan.Hadi1206b@conursing.uobaghdad.edu.iq*
2. *Instructor, PhD, Department of Community Health Nursing, College of Nursing, University of Baghdad, Baghdad, Iraq. E-mail: mhabdali1@my.okcu.edu*

Corresponding author: Afnan Hadi Khudair
Email: *Afnan.Hadi1206b@conursing.uobaghdad.edu.iq*

ABSTRACT

***Objective(s)**: This study aimed mainly to determine the predictors of adopting heart-health-preventive behaviors among high school female students.*

***Methodology**: Part of the study was an experimental randomized controlled trial used to guide this study. The study was carried out at Fatima Al-Zahraa High School for females in Al-Diwaniyah City. The study included a simple random sample of 142 high school female students (72 students in each of the study and control groups). The study instrument consists of subjects' sociodemographic characteristics. It includes the Expanded Health Belief Model Scales for Heart-Health Preventive Behaviors (Perceived Susceptibility to Develop Heart Disease Scale, Perceived Severity of Heart Disease Scale, Perceived Barriers to Adopt Heart-Health Preventive Behaviors Scale, Perceived Benefits of Adopting Heart-Health Preventive Behaviors Scale, Self-Efficacy of Adopting Heart-Health Preventive Behaviors Scale, Health Motivation for Adopting Heart-Health Preventive Behaviors Scale, Subjective Norms for Adopting Heart-Health Preventive Behaviors Scale, Cues-to-Action Related to Adopting Heart-Health Preventive Behaviors Scale, and Behavioral Intention to Adopt Heart-Health Preventive Behaviors Scale. Data were analyzed using the statistical package for social science (SPSS), version 26. The statistical measures of frequency, percent, mean, standard deviation, Repeated Measures ANCOVA, linear regression, One-way analysis of variance (ANOVA), and independent-sample t-test will be used.*

***Results of the study**: There are significant differences in the values of the Perceived Susceptibility of developing cardiovascular disease over time for participants both in the study and control groups ($F = 109.284$, $df = 2$, $p < .01$ vs. $F = 25.484$, $df = 2$, $p < .01$).*

***Conclusion**: The greater the Subjective Norms for adopting heart-health-preventive behaviors, the better the Behavioral Intention of adopting heart-health-preventive behaviors.*

The greater the Ques-To-Action for adopting heart-health-preventive behaviors, the better the Behavioral Intention of adopting heart-health-preventive behaviors.

***Key Words**: Health Beliefs, High School Students, Behavioral Intention, Heart-Health-Prevention Behavior.*

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INTRODUCTION

Cardiovascular illnesses are the leading cause of death among noncommunicable diseases, killing 17.9 million people each year. Cardiovascular diseases are long-term conditions caused by a mix of genetic, physiological, environmental, and behavioral factors (WHO, 2021). CVD was expected to be the major cause of death in both developing and developed countries in 2010. (WHO, 2016). Cardiovascular disease claimed the lives of 17.9 million individuals worldwide in 2019, accounting for 32% of all deaths. Heart attacks and strokes were responsible for 85 percent of these deaths (WHO, 2021).

The rate of ischemic heart disease in hospitalized female patients in Iraq in 2016 was 16.11 percent, according to the Iraqi Ministry of Health. This rate was 20.15 percent in the Governorate of AL-diwaniyah in 2016. Cerebrovascular disease was the leading cause of death in 2016, accounting for 60.69 percent of all deaths, followed by ischemic heart disease at 8.38 percent and hypertension at 6.13 percent. In the same context, cerebrovascular illness was the leading cause of death for women in 2016, accounting for 11.98 percent, followed by heart failure at 9.70 percent and ischemic heart disease at 8.91 percent.

The rate of ischemic heart disease in hospitalized female patients in Iraq in 2017 was 15.64 percent. This rate was 19.2 percent in the Governorate of AL-diwaniyah. Cerebrovascular disease was the leading cause of death in 2017, accounting for 10.38 percent of all deaths, followed by ischemic heart disease (9.34 percent) and hypertension (8.48 percent). In the same context for females in 2017, cerebrovascular disease was the leading cause of death with 10.74 percent, followed by heart failure with 8.90 percent and ischemic heart disease with 8.67 percent.

Ischemic heart disease affects 13.5 percent of female hospitalized patients in Iraq in 2019. This rate was 18.7% in the Governorate of AL-diwaniyah. Ischemic heart disease is the leading cause of mortality in 2019, accounting for 12.03 percent of all deaths, followed by cerebrovascular illness at 8.4 percent and hypertension at 6.8 percent. Ischemic heart disease was the leading cause of mortality for women in 2019, accounting for 13.7 percent of all deaths, followed by cerebrovascular illness at 10.6 percent and hypertension at 9.08 percent.

METHOD

This study was guided by an experimental randomized controlled trial. The most conclusive technique to prove causation is to use experimental designs. Researchers use these designs because they ensure a high level of internal validity because random assignment creates very similar experimental and control groups. The study was carried out at Fatima Al-Zahraa High School for females in Al-Diwaniyah City.

The study included a partial simple random sample of high school female students who agreed to participate in this study. The study subjects were recruited from three grades in this school which Fourth Grade, Fifth Grade, Sixth Grade. Subjects were randomly assigned into both study and control groups; 72 students for the study group and 72 students for the control group. The simple random sampling involved having the lists of students' names in Fatima Al-Zahraa High School for females generated on Microsoft Office Word software. The names of students in each grade were cut in identical pieces of paper, in the same color of paper, and folded in the same way. The names of students of each grade were put in a separate container. One of the student researcher's colleagues started stirring well the pieces of paper and drawing one piece alternatively. The first piece drawn would be in the study group and the second one would in the control group till obtaining the required sample size for each grade for each of the study and control groups. The final sample size is 144.

After receiving the approval of the College of Nursing, University of Baghdad for the study, the student researcher discussed study details with officials at the selected high school. The general purpose of the study was explained to the participants, as well as how to complete the questionnaire, to ensure that they understand that participation is optional and that they can withdraw at any time they wish to. The student researcher assured participants that the confidentiality of their data will be safeguarded and securely maintained during and following study participation. The student researcher further assured study participants that their identities will remain anonymous in the presentation, reporting, and/or any eventual publication of the study.

RESULTS

Table 1
Multivariate Tests of the Within-subjects for the Perceived Susceptibility of developing cardiovascular disease

Multivariate Tests[a]							
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Per Susc (Study)	Pillai's Trace	.757	109.248[b]	2.000	70.000	.000	.757
	Wilks' Lambda	.243	109.248[b]	2.000	70.000	.000	.757
	Hotelling's Trace	3.121	109.248[b]	2.000	70.000	.000	.757
	Roy's Largest Root	3.121	109.248[b]	2.000	70.000	.000	.757
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Per Susc (Control)	Pillai's Trace	.421	25.448[b]	2.000	70.000	.000	.421
	Wilks' Lambda	.579	25.448[b]	2.000	70.000	.000	.421
	Hotelling's Trace	.727	25.448[b]	2.000	70.000	.000	.421
	Roy's Largest Root	.727	25.448[b]	2.000	70.000	.000	.421

Table 2
Mauchly's Test of Sphericity for the Perceived Susceptibility of developing cardiovascular disease

Mauchly's Test of Sphericity[a]							
Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Susceptibility	.917	6.035	2	.049	.924	.947	.500

Table 3
Tests of Within-Subjects Effects for the Perceived Susceptibility of developing cardiovascular disease

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Susceptibility (Study)	Sphericity Assumed	2941.815	2	1470.907	134.622	.000	.655
	Greenhouse-Geisser	2941.815	1.847	1592.414	134.622	.000	.655
	Huynh-Feldt	2941.815	1.895	1552.787	134.622	.000	.655
	Lower-bound	2941.815	1.000	2941.815	134.622	.000	.655
Error (Susceptibility Study)	Sphericity Assumed	1551.519	142	10.926			
	Greenhouse-Geisser	1551.519	131.165	11.829			
	Huynh-Feldt	1551.519	134.512	11.534			
	Lower-bound	1551.519	71.000	21.852			
Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Susceptibility (Control)	Sphericity Assumed	595.583	2	297.792	20.300	.000	.222
	Greenhouse-Geisser	595.583	1.865	319.411	20.300	.000	.222
	Huynh-Feldt	595.583	1.913	311.341	20.300	.000	.222
	Lower-bound	595.583	1.000	595.583	20.300	.000	.222
Error (Susceptibility Control)	Sphericity Assumed	2083.083	142	14.670			
	Greenhouse-Geisser	2083.083	132.389	15.735			
	Huynh-Feldt	2083.083	135.820	15.337			
	Lower-bound	2083.083	71.000	29.339			

DISCUSSION

The values of the Perceived Benefits of adopting heart-health preventive behaviors for the study group noticeably increase by time with significant difference in these values. The omnibus effect (measure of association) for this analysis was .699, which indicates that approximately 69% of the total variance in the Perceived Benefits of adopting heart-health preventive behaviors values is accounted for by the variance in the administered intervention. The pairwise comparison demonstrated that there were statistically significant differences in these value over time. These findings reflect the positive effect of the administered Expanded Health Belief Model-based intervention in making invariant, consistent change in the Perceived Benefits of adopting heart-health preventive behaviors. This finding is consistent with that obtained by Hosseini et al., (2017) and Malverdy and Kazemi (2016) who stated that there was a positive and weak link between physical activity duration and the Perceived Benefits. Also, Healthy nutrition behaviors have a positive significant association with the Perceived Benefits, according to Morowa tisharif abad et al., (2018). On the other hand, this finding is inconsistent with that obtained by Dumitrescu and Iacob (2021) who stated that there were no significant links between the Perceived Benefits and healthy eating.

The values of the Perceived Barriers to adopt heart-health preventive behaviors for the study group noticeably increase by time with significant difference in these values. The omnibus effect (measure of association) for this analysis was .699, which indicates that approximately 69% of the total variance in the Perceived Barriers to adopt heart-health preventive behaviors values is accounted for by the variance in the administered intervention. The pairwise comparison demonstrated that there were statistically significant differences in these value over time. These findings reflect the positive effect of the administered Expanded Health Belief Model-based intervention in making invariant, consistent change in the Perceived Barriers to adopt heart-health preventive behaviors. This finding is congruent with those obtained by Mo et al., (2016) who concluded that the Perceived Barriers was displayed to be strongly linked with physical activity. Also, Alexandra (2018), Roth et al., (2018), and Ross and Melzer (2016) stated that students with obesity face more Perceived Barriers to Exercise than students of normal weight. According to Malverdy and Kazemi (2016), the Perceived Barriers had a strong and substantial relationship with the Stage of Change of nutrition practices. Kaufman et al., (2018) stated that participants who reported higher Perceived Barriers of smoking-related diseases were less likely to stop smoking. On the other hand, this finding was incongruent with those obtained by Rahmati-Najarkolaei et al., (2015); Almutari and Orji (2021); Ar-yuwat et al., (2013), and Hosseini et al., (2017) who stated that there was a weak and negative relationship between Perceived Barriers and physical activity behavior. Rahmati-Najarkolaei et al., (2015) and Wang and Li (2013) demonstrated a negative relationship between the Perceived Barriers and nutrition behavior.

CONCLUSIONS

The greater the Subjective Norms for adopting heart-health-preventive behaviors, the better the Behavioral Intention of adopting heart-health-preventive behaviors. The greater the Ques-To-Action for adopting heart-health-preventive behaviors, the better the Behavioral Intention of adopting heart-health-preventive behaviors.

RECOMMENDATIONS

There is a need for the community health nurses to initiate collaboration with the Ministry of Health, Ministry of Higher Education and Scientific Research, Mass Media, and non-governmental organizations to establish health campaigns that seek to raise public's health awareness about the severity of cardiovascular disease and the vital role of heart-health preventive behaviors.

ETHICAL CONSIDERATIONS COMPLIANCE WITH ETHICAL GUIDELINES

This study was completed following obtaining consent from the University of Baghdad.

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AUTHOR'S CONTRIBUTIONS

Study concept, Writing, Reviewing the final edition by all authors.

DISCLOSURE STATEMENT:

The authors report no conflict of interest.

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