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RESEARCH ARTICLE

Stages of Change for Screen Time Behavior among High School Female Students

Salwan Abed Laftah[1*], Mohammed Baqer Habeeb Abd Ali[2]

1. *Academic Nurse, MSc, Department of Community Health Nursing, College of Nursing, University of Baghdad, Baghdad, Iraq. E-mail (For Correspondance): Solwan.Abd1206a@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: Salwan Abed Laftah
Email: Solwan.Abd1206a@conursing.uobaghdad.edu.iq

ABSTRACT

Objective(s): *The aim of this study is to understand stages of change for screen time behavior among high school female students.*

Methodology: *Part of the study was an experimental randomized controlled trial used to guide this study. The study was conducted at Al-Wihdah High School for females in Al-Nasiriyah City. The study encompassed a simple random sample of 144 high school female students. The study instrument includes subjects' sociodemographic characteristics of age, living arrangement, family's socioeconomic status. It also includes the Transtheoretical Model of Change measures of Stages of Change for Screen Time Scale (Short Form) which includes five questions, each question represents one of the Stages of Change for Screen Time. It also includes Stages of Change for Screen Time Scale (Continuous Measure), the Processes of Change for Screen Time Scale, the Self-Efficacy for Screen Time Scale, and the Decisional Balance Scale for Screen Time. Data were collected using a self-reported method for the period from November 1st, 2021 to April 10th, 2022. Data were analyzed using the statistical package for social science (SPSS) for windows, version 26.*

Results: *The values of the Stages of Change of screen time use for the study group noticeably increase by time compared to the control group (Pretest = 76.47 vs. 68.87, Posttest II = 79.05 vs. 69.18, Posttest II = 81.15 vs. 66.90) respectively. Higher score means greater Stages of Change of screen time use.*

Conclusion: *Subjects in the Action Stage of Change for screen time enjoy better Pros and Decisional Balance of refraining from excessive recreational screen time than those in the Preparation and Contemplation Stages of Change respectively.*

Keywords: Screen Time Behavior, High School Female Students

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INTRODUCTION

The sustainability of international health improvement depends on an emphasis on adolescence. Adolescence is the period between childhood and adulthood when a person's personality is formed, knowledge and skills are developed, and healthy behaviors are shaped.

For young people, recreation screen time is one of the most common leisure activities (Rideout et al., 2010). Excessive screen time has been associated to cardiovascular risk, low self-esteem, antisocial conduct, and poor academic achievement in children and adolescents (de Rezende et al., 2014). Excessive screen time is also linked to food consumption, particularly low intake of fruits and vegetables (Lowry et al., 2002), as well as high-calorie foods and foods high in fats, sugars, and sodium.

As published in several international (Dietz & Gortmaker, 1985; Dennison et al., 2002; Jouret et al., 2007; Lumeng et al., 2006; Marshall et al., 2004), and Brazilian studies (Campagnolo et al., 2008; Coelho et al., 2012; Fonseca et al., 1998; Mondini et al., 2007; Rivera et al., 2010; Silva et al., 2008). Longer periods of time spent watching television, playing video games, and using the computer are linked to a variety of health problems, including arterial hypertension (Pardee et al., 2007), metabolic syndrome (Mark & Janssen, 2008), and overweight. Screen time activities have also been linked to negative behavioral changes, such as altered sleep pattern (Cain & Gradisar, 2010; Hart et al., 2011; Thompson & Christakis, 2005), and in interpersonal relationships and attention (Jolin & Weller, 2011), as well as increased aggression (Bushman & Huesmann, 2006; Huesmann & Taylor, 2006). Sleep disturbance incidence significantly increased in girls, but not in boys (Zhu et al., 2020).

METHOD

This research was guided by part of the study was 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 conducted at Al-Wihdah High School for females in Al-Nasiriyah City.

The study comprised of a 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 Al-Wihdah High School for females generated on Microsoft Office Word software.

Data were analyzed using the statistical package for social science (SPSS) for windows, 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.

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. The student researcher informed participants that their data would be kept private and secure throughout and after their participation in the study. 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
Participants' distribution according to Stages of Change over time

Group	Stage of Change	Pretest		Posttest I		Posttest II	
		f	%	f	%	f	%
Study	Precontemplation	17	23.6	0	0.0	0	0.0
	Contemplation	36	50.0	24	33.3	16	22.2
	Preparation	19	26.4	43	59.7	37	51.4
	Action	0	0.0	4	6.9	19	24.6
	Maintenance	0	0.0	0.0	0.0	0	0.0
Control	Precontemplation	19	26.4	27	37.5	26	36.1
	Contemplation	27	37.5	20	27.8	24	33.3
	Preparation	17	23.6	12	16.7	16	22.2
	Action	4	5.6	4	5.6	4	5.6
	Maintenance	5	6.9	9	12.5	2	2.8

Table 2
Descriptive Statistics for the Values of the Stages of Change of screen time use over Time

Stages of Change	Mean	Std. Deviation	N
Study Pretest	76.47	9.55	72
Study Posttest I	79.05	9.00	72
Study Posttest II	81.15	8.57	72
Control Pretest	68.87	9.58	72
Control Posttest I	69.18	8.90	72
Control Posttest II	66.90	8.47	72

Table 3
Multivariate Tests of the Within-subjects for the Stages of Change of screen time use

Multivariate Tests[a]							
Effect		**Value**	**F**	**Hypothesis df**	**Error df**	**Sig.**	**Partial Eta Squared**
SOC (Study)	**Pillai's Trace**	.735	96.892[b]	2.000	70.000	.000	.735
	Wilks' Lambda	.265	96.892[b]	2.000	70.000	.000	.735
	Hotelling's Trace	2.768	96.892[b]	2.000	70.000	.000	.735
	Roy's Largest Root	2.768	96.892[b]	2.000	70.000	.000	.735
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
SOC (Control)	**Pillai's Trace**	.419	25.217[b]	2.000	70.000	.000	.419
	Wilks' Lambda	.581	25.217[b]	2.000	70.000	.000	.419
	Hotelling's Trace	.720	25.217[b]	2.000	70.000	.000	.419
	Roy's Largest Root	.720	25.217[b]	2.000	70.000	.000	.419

DISCUSSION

There was statistically significant difference in the Consciousness Raising among the Stages of Change groups for participants in the study group in the posttest I. Further post hoc analysis revealed that subjects in the Precontemplation Stage of Change use more Consciousness Raising than those in the Preparation and Action Stages of Change respectively.

There was statistically significant difference in the Dramatic Relief among the Stages of Change groups for participants in the study group in the posttest I. Further post hoc analysis revealed

that subjects in the Contemplation Stage of Change use more Dramatic Relief that those in the Action and Preparation Stages of Change respectively.

There was a statistically significant difference in the Helping Relationships among the Stages of Change groups for participants in the study group in the posttest I. Further post hoc analysis revealed that subjects in the Action Stage of Change use more Helping Relationship than those in the Preparation and Contemplation Stage of Change respectively.

There was a statistically significant difference in the Reinforcement Management among the Stages of Change groups for participants in the study group in the posttest I. Further post hoc analysis revealed that subjects in the Action Stage of Change use more Reinforcement Management than those in the Preparation and Contemplation Stage of Change respectively.

There was a statistically significant difference in the Experiential Processes of Change among the Stages of Change groups for participants in the study group in the posttest I. Further post hoc analysis revealed that subjects in the Contemplation Stage of Change use more Experiential Processes of Change than those in the Preparation and Action Stages of Change respectively.

There was a statistically significant difference in the Cons of screen time use among the Stages of Change groups for participants in the study group in the posttest II. Further post hoc analysis revealed that the value of Cons for screen time use was greater among subjects in the Precontemplation than those in the Preparation and Contemplation Stages of Change respectively. This finding is inconsistent with that obtained by Faust (2017) who reported that the Cons for problematic digital games did not have statistically significant differences in means across the Stages of Change. Likewise, these findings go in line with that of Theo and Tan (2010) who reported that the cons of behavior change were related to the Precontemplation Stage.

There was a statistically significant difference in the Decisional Balance among the Stages of Change groups for participants in the study group in the posttest II. Further post hoc analysis revealed that subjects in the Action Stage of Change enjoy better Decisional Balance for screen time use than those in the Preparation and Contemplation Stages of Change respectively. This finding is inconsistent with that obtained by Faust (2017) who reported that the Decisional Balance for problematic digital games did not have statistically significant differences in means across the Stages of Change.

CONCLUSION

Subjects in the Precontemplation Stage of Change use more Consciousness Raising than those in the Preparation and Action Stages of Change respectively. Subjects in the Contemplation Stage of Change use more Dramatic Relief that those in the Action and Preparation Stages of Change respectively. Subjects in the Action Stage of Change use more Helping Relationship and Reinforcement Management than those in the Preparation and Contemplation Stage of Change respectively. Subjects in the Contemplation Stage of Change use more Experiential Processes of Change than those in the Preparation and Action Stages of Change respectively. Subjects in the Action Stage of Change use more Counterconditioning, Helping Relationships, Reinforcement Management, Stimulus Control, Behavioral Processes of Change, and overall Processes of Change than those in the Preparation and Contemplation Stage of Change respectively.

Subjects in the Contemplation Stage of Change use more Consciousness Raising, Environmental Reevaluation, and Self-Reevaluation than those in the Preparation and Action Stages of Change respectively. Subjects in the Action Stage of Change can refrain from excessive recreational screen time when they go in Positive Affect and Negative Affect, and they enjoy better Self-Efficacy of refraining from excessive recreational screen time than those in the Preparation and Contemplation Stages of Change respectively. Subjects in the Preparation Stage of Change have greater Social Cues (Social Situations) than those in the Contemplation and Action Stages of Change respectively. Subjects in the Action Stage of Change for screen time enjoy better Pros and Decisional Balance of refraining from excessive recreational screen time than those in the Preparation and Contemplation Stages of Change respectively. Subjects in the Precontemplation face greater Cons of screen time use than those in the Preparation and Contemplation Stages of Change respectively.

RECOMMENDATIONS

It is vital for the community health nurses to work in partnership with the officials in the Ministry of Education, Ministry of Higher Education and Scientific Research, and different mass media with the goal of raising population's awareness of the deleterious consequences of excessive recreational screen time.

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.

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The authors report no conflict of interest.

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