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A STUDY ON THE RELATIONSHIP BETWEEN E-HEALTH LİTERACY LEVELS AND TECHNOLOGY USE OF UNIVERSITY STUDENTS

ÜNİVERSİTE ÖĞRENCİLERİNİN E-SAĞLIK OKURYAZARLIK DÜZEYLERİ İLE TEKNOLOJİ KULLANIMLARI ARASINDAKİ İLİŞKİ

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ABSTRACT:

The study wants to answer questions such as whether the technology use levels of university students affect their e-health knowledge, reading and evaluation, and if so, to what extent. The study is carried out to find out whether there is a relationship between the e-health literacy levels of university students and their technology use levels. In the study, data were collected from 376 students studying at a foundation university with the convenience sampling method. The data were collected by face-to-face survey method and the survey consists of three parts: socio-demographic information form, e-health literacy scale and technology usage scale. In addition to the descriptive analyzes of the obtained data, it was used in parametric analyzes when it showed a normal distribution. Pearson Correlation was used to evaluate the relationships between the scales, and Multiple Linear Regression was used to examine the effects between them. The results were evaluated within the 95% confidence interval. As a result of the reliability analysis made on the obtained data, the data were found reliable. Looking at the descriptive information, while the e-health literacy scale was at a high level, the technology usage level was found at a medium level. According to the correlation analysis, a weak and positive relationship was found between the scales. According to the results of the regression analysis, technology usage level factors affect e-health literacy significantly.

Keywords: E-health Literacy, Use of Technology, University.

ÖZET:

Çalışma üniversite öğrencilerinin teknoloji kullanım düzeylerinin e-sağlık bilgilerini, okumalarını ve değerlendirmelerini etkiliyor mu ve etkiliyorsa ne düzeyde etkiliyor gibi sorulara cevap vermek istemektedir. Çalışma üniversite okuyan öğrencilerin e–sağlık okuryazarlık düzeylerinin ve teknoloji kullanım düzeylerinin arasında bir ilişki olup olmadığını ortaya çıkarmak amacıyla yapılmaktadır. Çalışmada örneklem olarak bir vakıf üniversitesinde okuyan 376 öğrenciden kolayda örneklem yöntemiyle veri toplanmıştır. Veriler yüz yüze anket yöntemiyle toplanmıştır ve anket sosyo-demografik bilgi formu, e-sağlık okuryazarlığı ölçeği ve teknoloji kullanım ölçeği olmak üzere üç bölümden oluşmaktadır. Elde edilen verilerin tanımlayıcı analizlerinin yanı sıra normal dağılım gösterdiğinden parametrik analizlerde kullanılmıştır.

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Elde edilen verilere yapılan güvenilirlik analizi sonucunda veriler güvenilir bulunmuştur. Tanımlayıcı bilgilere bakıldığında, e-sağlık okuryazarlığı ölçeği yüksek bir düzeydeyken teknoloji kullanım düzeyi orta düzeyde bulunmuştur. Yapılan ilişki analizine göre ölçekler arasında zayıf düzeyde ve pozitif yönlü bir ilişki tespit edilmiştir. Regresyon analizi sonucuna göre teknoloji kullanım düzeyi e-sağlık okuryazarlığını anlamlı şekilde etkilemektedir.

Anahtar kelimeler: E-sağlık Okuryazarlığı, Teknoloji Kullanımı, Üniversite

INTRODUCTION

Consumer behavior in health services, unlike other services, generally does not consist of rational choices. In other services, the customer can evaluate the rationality of the payment made in proportion to the quality of the service received. However, it is very difficult for the patient to evaluate the quality of the service in health services. The main reason for this is the inadequacy of basic medical knowledge. This lack of information may lead to results such as demanding the service even though it does not need it, or not demanding the service even though it needs it. In the solution of the problem in question, examining the concept of "Health Literacy" takes its place among the current issues (Tengilimoğlu et al., 2014).

Health literacy is both social and cognitive skills that determine the ability and desire of people to access information, understand this information and use it when necessary, in order to contribute to and maintain a better health (Deniz, 2020). In short, it is the ability of individuals to read and understand health information and make appropriate decisions (Schwartzberg et al., 2007). E-health literacy is defined as obtaining this health information from the internet, finding, reading, understanding and evaluating and using it in solving existing problems (Doganay et al., 2018).

Technology, on the other hand, is defined as the objects and information obtained from physical objects that make people's lives easier in daily life, combining them with human activities (MacKenzie & Wajcman, 1999; Aksoy, 2018). Technology usage levels are related to the usage period of the technology and the way it is used. In the study, it has been tried to determine how technology is used, what it is used for and what it is used for.

The aim of the study is to determine the e-health literacy levels and technology use levels of university students and to reveal whether there is a relationship and effect between them.

MATERIALS AND METHODS

2.1. Universe and Sample

The universe of the study consists of the students of the faculty of health sciences studying at a foundation university in Istanbul. As the sampling method, a face-to-face questionnaire was applied to the students who were determined by the convenience sampling method. As a result of the applied questionnaire, 403 out of 500 students were reached. However, after 27 questionnaires that were removed due to incomplete filling, analyzes were carried out on 376 questionnaires.

2.2. Data Collection Tool

Questionnaire technique was used as a data collection tool in the research. The survey consists of three parts. In the first part of the questionnaire, there are five variables to determine the socio-demographic characteristics of the participants.

In the second part of the questionnaire, "E-Health Literacy" (EHL), developed by Norman and Skinner (2006) and validated and reliable in Turkish by Tamer Gencer (2017), was used to measure the e-health literacy of the participants. The scale consists of 8 statements and one dimension. The statements of the participants are evaluated according to a 5-point Likert-type scale ranging from "I totally disagree" to "I totally agree". In addition to these, there are also two statements that do not participate in the analysis of the scale. These expressions are: “How useful do you think the internet is in helping you make decisions about your health?” and “How important is it to you to have access to health resources on the Internet?”.

In the last part of the questionnaire, the "Technology Usage Scale" (TUS) developed by Zincirkiran and Tiftik (2014) was used to measure the technological use of the participants. The scale consists of 12 statements and 3 dimensions (Innovation Perception, Technology Follow-up

and Technology Madness). The statements of the participants are evaluated according to a 5-point Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree".

2.3. Analysis Methods

SPSS 25.0 version program was used in the analysis of the data in the research. Skewness and kurtosis values were checked for the data to be suitable for normal distribution and it was seen that they showed normal distribution (Tabachnick & Fidell, 2013). Parametric tests were used due to the normal distribution of the data. Pearson Correlation was used to evaluate the relationships between the scales, and Multiple Linear Regression was used to examine the effects between them. The results were evaluated within the 95% confidence interval.

2.4. Reliability Analysis

In the study, Cronbach's Alpha coefficient was used to test the reliability of the data. Cronbach's Alpha Coefficient takes values between 0 and 1 (Özdamar, 2010). The Cronbach's Alpha value of the e-Health Literacy Scale was found to be 0.842, and the data were found to be reliable for analysis. The Technology Use Scale was found to be 0.787, the dimensions of the scale were Innovation Perception, 0.685, Technology Follow-up 0.619, and Technology Madness 0.727, and it was concluded that it was appropriate for the analyses.

RESULTS

Table 1 shows the descriptive information of the university students participating in the research. Of the students, 304 (80.9%) were female, 95 (25.3%) were 20 years old, 115 (30.6%) were in the nutrition and dietetics department, 169 (44.9%) used the Internet for 4-5 hours, and 208 (55.3%) stated that they had good internet usage skills.

Table 1. Socio-Demographical Information of the Participants (n=376)

Değişkenler		n	%
Gender	Man	72	19,1
	Woman	304	80,9
Age	18	15	4,0
	19	49	13,0
	20	95	25,3
	21	85	22,6
	22	79	21,0
	23	25	6,6
	24	28	7,4
Department	Health Management	51	13,6
	Nurse	101	26,9
	Nutrition and Dietetics	115	30,6
	Physiotherapy and Rehabilitation	109	29,0
Daily Internet Usage	3 Hours and Less	70	18,6
	4-5 Hours	169	44,9
	6 Hours and Over	137	36,4
Internet Usage Skill	Weak	7	1,9
	Normal	161	42,8
	Good	208	55,3

Table 2 shows the distribution of the answers given to the preliminary questions of the E-Health Literacy Scale. While 68.4% of the participants found the expression "How useful do you think the internet is in helping you make decisions about your health?" useful and very useful, they said “How important is it to you to have access to health resources on the Internet?” 85.1% found the expression important and very important.

Table 2. Preliminary Questions of the E-Health Literacy Scale

Expressions		n	%
How useful do you think the internet is in helping you make decisions about your health?	Not helpful at all	9	2,4
	Not helpful	58	15,4
	No idea	52	13,8
	Beneficial	224	59,6
	Very helpful	33	8,8
How important is it to you to have access to health resources on the Internet?	Does not matter	3	,8
	It does not matter	21	5,6
	No idea	32	8,5
	Important	233	62,0
	Very important	87	23,1

Table 3 shows the mean and standard deviation values of the general and expressions of the E-Health Literacy Scale. The EHL ($\bar{X}$=3.83±0.515) scale has a high mean. Looking at the expressions, "I am confident in using information from the Internet when making health-related decisions." while "I know how to find useful health resources on the Internet." has the lowest average.

Table 3. E-Health Literacy Scale Descriptive Information

Expressions	$\bar{X}$	S.S.
1. I know which health resources are available on the Internet.	3,79	0,737
2. I know where to find useful health resources on the Internet.	3,75	0,767
3. I know how to find useful health resources on the Internet.	3,89	0,660
4. I know how to use the internet to find answers to my questions about health.	3,92	0,726
5. I know how to use the health information I find on the internet to help me.	3,86	0,719
6. I have the skills I need to evaluate the health resources I find on the Internet.	3,88	0,709
7. I can distinguish high quality health resources from low quality health resources on the Internet.	3,85	0,811
8. I am confident in using information from the Internet when making health-related decisions.	3,74	0,842
Average of E-Health Literacy Scale	**3,83**	**0,515**

Table 4. Technology Usage Scale Descriptive Information

Expressions	$\bar{X}$	S.D.
1. I always follow technology closely	3,84	0,833
2. I can't imagine a lifestyle without technology.	3,90	1,003
3. Technological innovations and changes are important for my social life.	3,89	0,772
4. All kinds of innovations, changes and developments in my daily life affect my life positively.	3,45	0,911
5. Not being able to keep up with the innovations and changes in daily life makes me unhappy.	3,43	1,014
6. I buy a newly released technological product (mobile phone, tablet, laptop, etc.) to follow the technology.	2,60	1,091
7. I buy a new technological product (mobile phone, tablet, laptop, etc.) for prestige (showing off to my friends).	2,01	1,229
8. I buy a newly released technological product (mobile phone, tablet, laptop, etc.) to meet my needs in that area.	3,87	1,029
9. I buy a newly released technological product (mobile phone, tablet, laptop, etc.) with the thought of personal satisfaction.	2,59	1,251
10. I buy a newly released technological product (mobile phone, tablet, laptop, etc.) with the thought of a need due to my social status.	2,87	1,245
11. I buy a newly released technological product (mobile phone, tablet, laptop, etc.) because I am bored with the old one.	2,47	1,219
12. I buy a newly released technological product (mobile phone, tablet, laptop, etc.) in terms of aesthetics (external appearance).	2,41	1,234
Technology Usage Scale Average	**3,11**	**0,591**
Innovation Perception	**3,70**	**0,606**
Technology Follow-up	**2,76**	**0,788**
Technology Madness	**2,58**	**0,991**

In Table 4, the TUS scale ($\bar{X}$=3.11±0.591) has a moderate mean, while the mean values of its dimensions are Innovation Perception ($\bar{X}$=3.70±0.606), Technology Follow-up ($\bar{X}$=2.76±0.788), respectively. and Technology Madness ($\bar{X}$=2.58±0.991). When we look at the expressions, "I buy a newly released technological product (mobile phone, tablet, laptop, etc.) with the thought of personal satisfaction." expression has the highest average, while "Technological innovations and changes are important for my social life" has the lowest average.

Table 5. EHL and TUS Correlation Results

Variables	ESO
EHL	1
TUS	**,207****
Innovation Perception	,359**
Technology Follow-up	,123*
Technology Madness	-,002

** Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table 5 shows the results of correlation analysis in order to determine the relationship between TUS and its sub-dimensions and EHL level. According to the results of the analysis, it was determined that there was a positive but low-level significant relationship between TUS and EHL ($r = .207$, $p<0.05$). In addition, while a significant positive relationship was found between EHL and TUS dimensions, Innovation Perception ($r = ,359$, $p<0.05$) and Technology Follow-up ($r = ,123$, $p<0.05$), no significant relationship was found with Technology Madness ($r = -.002$, $p>0.05$).

Table 6. Regression Results of the Effect of TUS on EHL

		Regression				
Dependent variable	E-Health Literacy	**B**	**S.E.**	**β**	**T**	**P**
Independent variables	Fixed	2,688	,159		16,856	,000
	Innovation Perception (X_1)	,306	,043	,359	7,178	,000
	Technology Follow-up (X_2)	,094	,044	,144	2,164	,031
	Technology Madness (X_3)	-,095	,034	-,182	-2,783	,006
Model Summary	**R^2**			**0,147**		
	Adjusted R^2			**0,140**		
	F			**21,356**		
	P			**0,000**		

The regression model created according to the results of the multiple regression analysis in Table 6 was found to be significant (F=21,356; p=0.000). According to the results of the analysis, the independent variables explain 14% of the change in the dependent variable. The reason for the 86% change is unknown.

According to the analysis result, since the value of the constant is β1 2.688, the value of the β2 parameter is 0.306, the value of the β3 parameter is 0.094, and the β4 parameter is -0.095, the regression equation that predicts the EHL is as follows:

$EHL = 2{,}688 + 0{,}306.X_1 + 0{,}094.X_2 – 0{,}095.X_3$

or

EHL = 2,688 + 0,306. Innovation Perception + 0,094. Technology Follow-up – 0,095. Technology Madness

CONCLUSION

In the light of the findings obtained from the study, it was determined that the e-health literacy levels of the students were quite high. This allows us to infer that students can understand, interpret and use information related to health literacy in virtual environments at a high level.

When students are asked whether it is beneficial to use the internet while making decisions about their health, 67% of them think it is useful or very useful. In addition, being able to access health-related data on the internet was found to be important or very important at a rate of 85%. In the light of this information, it is seen that while it is important for students to find e-health information on the internet, they strongly agree that this information is useful.

When we look at the technology usage levels of the students, it is seen that it is at an average level. This situation enables us to interpret that students can use technology partially well. In addition, the fact that university students can use a medium level of technology in the technology age causes us to conclude that it is an element that needs to be developed in the future. In addition to this information, while the dimension of following innovations in technology usage levels is quite high than other dimensions, the use of technology craze, that is, for showing off in general, has a very low average. This is an indication that innovations are followed, but not at the level of madness.

When we look at the result of the analysis of the relationship between e-health literacy and the level of technology use, a significant relationship was found. This relationship is low but positive. This means that as the technology use levels of the participants increase or their e-health literacy levels increase, they increase each other. The dimension with the highest correlation with e-health literacy is the perception of innovation dimension. Following innovations also provides a moderate and positive increase in e-health literacy.

According to the results of the impact analysis, the level of technology use explains e-health literacy by 14%. In other words, the level of technology use is effective in 14% of e-health literacy. In the light of the information obtained, as a result of the sufficient level of technology use of the students, their use of e-health literacy is also affected.

As a result, a significant relationship and effect was determined between students' e-health literacy levels and technology use levels. Students need to be able to use technology sufficiently so that they can search for information about health on the internet or use their e-health literacy levels actively.

Conflict of Interest:

There is no conflict of interest between the authors.

Ethical Approval:

It was taken from Beykent University.

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