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Associations Between E-Health Literacy and Perception of Control of Covid-19 Among Adolescents

Adölesanlarda E-Sağlık Okuryazarlığı ile Covid-19'un Kontrolü Algısı Arasındaki İlişki

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ASSOCIATIONS BETWEEN E-HEALTH LITERACY AND PERCEPTION OF CONTROL OF COVID-19 AMONG ADOLESCENTS

ABSTRACT

Aim: The purpose of this study was to determine the associations between eHealth literacy in adolescents and their levels of perception of control over COVID-19.

Method: This descriptive and correlational study was conducted with 303 adolescents who volunteered to participate in the research between April and August 2021. Data were collected online through the Participant Information Form, eHealth Literacy Scale in Adolescents and COVID-19 Control Perception Scale (PCo-COVID-19).

Results: The mean age of the participants was 19.36±2.29 years, 76.6% were female, 23.4% were male, and 71.3% were university graduates. The mean score of the eHealth Literacy Scale in Adolescents was 27.49±6.51. The mean total score of the PCo-COVID-19 was 2.85±0.50. There was a positive correlation between adolescents' eHealth literacy and perception of COVID-19 control ($r=0.262$, $p<0.001$). It was found that the ehealth scores of those whose mothers had a university education or higher were higher than those who were illiterate ($p< 0.05$). The PCo-COVID-19 scores of those who perceived their health condition as good were higher than those who perceived it as medium ($p<0.05$).

Conclusion and Suggestions: The result showed that eHealth literacy is important in increasing adolescents' perception of control of COVID-19. Thus, eHealth literacy should be used in interventions to promote adolescents' perceptions and attitudes regarding COVID-19.

Keywords: Adolescent; COVID-19, E-Health; Health Literacy, Perception.

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ADÖLESANLARDA E-SAĞLIK OKURYAZARLIĞI İLE COVİD-19'UN KONTROLÜ ALGISI ARASINDAKİ İLİŞKİ

ÖZ

Amaç: Bu çalışmanın amacı, adölesanlarda e-sağlık okuryazarlığı ile COVID-19'un kontrolü algısı arasındaki ilişkiyi belirlemektir.

Yöntem: Tanımlayıcı ve ilişki arayıcı türde planlanan araştırma, Nisan-Ağustos 2021 tarihleri arasında araştırmaya katılmaya gönüllü olan 303 adölesan ile gerçekleştirildi. Veriler, çevrimiçi olarak Katılımcı Bilgi Formu, Adölesanlarda E-Sağlık Okuryazarlığı Ölçeği ve COVID-19'un Kontrolü Algısı Ölçeği (PCo-COVID-19) ile toplandı.

Bulgular: Katılımcıların yaş ortalaması 19.36±2.29 yıl, %76.6'sı kadın, %23.4'ü erkek ve %71.3'ü üniversite mezunudur. Adölesanlarda E-Sağlık Okuryazarlığı Ölçeği puan ortalaması 27.49±6.51'dir. PCo-COVID-19'un toplam puan ortalaması 2.85±0.50 olarak belirlendi. Adölesanların E-Sağlık okuryazarlığı ile COVID-19 kontrolü algısı arasında pozitif bir ilişki bulundu ($r=0.262$, $p<0.001$). Anne eğitim düzeyi üniversite ve üzeri olanların E-Sağlık okuryazarlığı puanları, okur-yazar olmayanlara göre daha yüksek olduğu bulundu ($p< 0.05$). Sağlık algısı iyi olanların PCo-COVID-19 puanlarının, sağlık algısı orta düzeyde olanlardan daha yüksek olduğu saptandı ($p<0.05$).

Sonuç ve Öneriler: E-sağlık okuryazarlığının adölesanlarda COVID-19 kontrolü algısını artırmada önemli olduğu görüldü. Bu nedenle, adölesanların COVID-19 pandemisi ile ilgili algı ve tutumları geliştirmeye yönelik yapılacak girişimlerle e-sağlık okuryazarlığı kavramı ele alınmalıdır.

Anahtar Kelimeler: Adölesan, COVID-19, E-Sağlık, Sağlık Okuryazarlığı, Algı.

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INTRODUCTION

The Coronavirus Disease (COVID-19) is an infectious disease and global outbreak, which was characterized by disorders of the respiratory system. It was first seen in the city of Wuhan in China in December 2019 (Ministry of Health, 2022). In the struggle against the pandemic, information about the coronavirus and measures against it are being shared worldwide by the internet and other communication technologies (Sanz Suarez-Lledo & Álvarez Gálvez, 2021; Ye, Zhou & Wu, 2020). In this context, eHealth literacy, which is the ability to search for health information on the internet, access correct information, and use it for solving health problems, is important to protect individuals and communities from COVID-19 disease (Li & Liu, 2020; Park, Cormier, Gordon & Baeg, 2016; Patil et al., 2021). In addition, adolescents, who are the most frequent users of the internet, have an increased risk of infection as they have few or no symptoms of COVID-19, and they are active socially, and therefore it is difficult to make them comply with preventive measures (Park & Oh, 2022; Turkish Statistical Institute, 2020; WHO, 2022). Thus, it is of great importance to determine adolescents' levels of eHealth literacy and

their attitudes and perceptions concerning COVID-19 (Dardas, Khalaf, Nabolsi, Nassar & Halasa, 2020; Patil et al., 2021; WHO, 2021).

Health literacy is defined as the skill of an individual to access health information and to understand and use it in order to protect and maintain health (CDC, 2022). At the same time it includes people's knowledge, motivation and efficiencies to access, understand, appraise, and apply health information in order to take decisions and make judgments on health. Increasing the level of health literacy by providing autonomy and empowerment of individuals on health behaviors and health service use, it leads more sustainability in positive health outcomes (Tas ve Akıs, 2016). Studies have shown that the level of health literacy is related to the continuous provision of information, an increase in the incidence of infectious and non-infectious diseases, a low perception of COVID-19 control, an inability to correctly management of the disease, and an increase in the inappropriate use of medications (Chisolm et al., 2021; Riiser, Helseth, Haraldstad, Torbjørnsen & Richardsen, 2020; Salm et al., 2018; Scannell, Oronce & Tsugawa, 2020). A systematic review by Seng et al. (2020) concluded that the level of health literacy relating to the COVID-19 pandemic was low. It was recommended that health authorities and policymakers consider the health literacy levels of individuals and society when cooperating in the struggle against the COVID-19 pandemic (Seng, Yeam, Huang, Tan & Low, 2020). Thus, health literacy levels are of great importance with regard to people accessing reliable information in a crisis situation such as the COVID-19 pandemic and knowing what they have to do in order to protect themselves and others from disease (Dardas et al., 2020; Geçer, Yıldırım & Akgül, 2022; Li & Liu, 2020).

Information shared in the digital world also affects the perception of control of COVID-19, defined as the belief in measures which must be taken to protect individuals from the disease at a personal, community or global level (Geniş et al., 2020; Şentürk, Geniş, Menkü & Cosar, 2021). On the internet, the increasing amount of misinformation along with correct information increases the difficulty of supplying protective health services such as diagnosis, treatment and vaccination and contributes to raised anxiety levels (Berens et al., 2018; Lockyer et al., 2021; Oducadoet al., 2021; Şentürk et al., 2021). In response to the rapidly increasing accumulation of information on the internet, there is a need for people to be able to distinguish reliable and incorrect information and to make informed health decisions (Park et al., 2016; Sanz Suarez-Lledo & Álvarez Gálvez, 2021). Thus, the concept of eHealth literacy, meaning searching electronic sources for health information which is needed, finding it and evaluating it, becomes important (Hernández-García, & Giménez-Júlvez, 2020; Li & Liu, 2020). Some studies state that COVID-19 knowledge, attitude and behavior levels are lower because of low health literacy (McCaffery et al., 2020; Seng et al., 2020; Wolf et al., 2020). However, very few studies have examined the relation between the concepts of health literacy and the perception of control of COVID-19 (Şentürk et al., 2021).

Adolescents can be less susceptible than adults to COVID-19 and show milder symptoms (WHO, 2021). However, person-to-person spread plays a critical role in the transmission of coronavirus. Thus, it is important to acquire protective behavior to prevent it from being carried to other people (CDC, 2022; Riiser et al., 2020). Adolescents also have a greater tendency to take risks and have a more active social life, so they may have difficulty in conforming to protective measures and thus may present a risk to society (Andrews, Foulkes & Blakemore, 2020). Many studies have shown that young adults' COVID-19 knowledge and attitude levels are lower than in other age groups (Enticott et al., 2021; Ferdous et al., 2020; Sulistyawati, Rokhmayanti & Aji, 2021). At this stage of life, when interacting with the family is important, keeping social distance and making decisions independently of the family may be difficult, so knowledge and skills relating to health may be deficient (Andrews et al., 2020). Therefore, at a time when information on the pandemic is being followed on the internet, it is important to determine the eHealth literacy levels and perceptions of control of COVID-19 of adolescents, the group which uses the internet the most (Riiser et al., 2020; Şentürk et al., 2021; WHO, 2021).

There are many studies examining the relationship between the eHealth literacy of adolescents and their demographic characteristics, health-related information-seeking behaviors and health promotion behaviors (Sengül, H., Cınar, F., & Capar, 2017; Yılmaz, Saygılı & Kaya, 2020). However, few studies have investigated the relationship between the perception of control of COVID-19 and eHealth literacy (Oducado et al., 2021; Patil et al., 2021). Thus, the aim of this study was to determine the associations between eHealth literacy and the perception of control of COVID-19 among adolescents and the affecting factors. The research questions were as follows:

1. What are adolescents' levels of eHealth literacy and perception of control of COVID-19?
2. Is there a correlation between adolescents' level of eHealth literacy and perception of control of COVID-19?
3. What are the factors relating to adolescents' level of eHealth literacy and perception of control of COVID-19?

METHODS

Study Design and Sample

This descriptive and correlational study was conducted with adolescents between April and August 2021 using an online questionnaire. The population of the study consisted of all adolescents living in Turkey between April and August 2021.

The sample consisted of 303 adolescents between 14 and 21 ages who voluntarily agreed to participate in the study. The snowball sampling method was used for the study. Snowball sampling is a non-random sampling technique in which study participants are asked to help researchers reach other individuals with inclusion criteria for the study (Parker, Scotti & Geddes, 2020). In this study, reference individuals with the desired characteristics of the study are chosen, and other individuals are reached through these study participants between April and August 2021.

Instruments

Data were collected using the Participant Information Form, the COVID-19 Control Perception Scale and the E-Health Literacy in Adolescents Scale.

Participant Information Form

The researchers prepared this form to determine the participants' sociodemographic and internet use characteristics. It contained questions on age, gender, education, mother's and father's education level, income perception, health perception, family type, duration and purpose of internet use and reading health-related information on the internet.

The COVID-19 Control Perception Scale (PCo- COVID-19)

This scale consists of 12 items of five-point Likert type. The items are assessed as 1: I definitely disagree, 2: I disagree, 3: I am undecided, 4: I agree, and 5: I definitely agree. PCo-COVID-19 consists of three subscales: macro control, personal (micro) control and controllability. Macro control concerns beliefs concerning the effectiveness of measures taken at an institutional, national or global level. The second subscale, personal control, concerns the effectiveness of measures taken not to catch the disease. The final subscale assesses the perception of the controllability of the disease. Items on the controllability subscale are scored in reverse. The total score obtained by adding together the scores of the items on a subscale and dividing it by the number of items on that subscale gives a value between 1 and 5. High scores on the subscale of macro control indicate that measures taken are adequate, high scores on the subscale of personal control indicate that control of the disease can be achieved at a good level by personal measures, and high scores on the subscale of controllability indicate a belief that the disease can be controlled. The Cronbach alpha coefficient of the total scale was 0.79 (Geniş et al., 2020), which was found to be 0.644 in this study.

The E-health Literacy Scale in Adolescents (E-heals)

E-heals was developed to determine traditional literacy, literacy relating to health, receipt of information, scientific research, media literacy and computer literacy by Norman and Skinner was adapted to Turkish by Coskun and Bebis (2015). E-heals consists of ten items. The scale items are scored according to a five-point Likert-type method as 1: I definitely disagree, 2: I disagree, 3: I am undecided, 4: I agree, and 5: I definitely agree. The lowest possible score is 8, and the highest is 40. A high score on the scale shows a high level of eHealth literacy. The Cronbach alpha value of the scale is 0.78 in the Turkish version of e-Heals (Coşkun & Bebiş, 2015). In this study, the Cronbach alpha value was found to be 0.909.

Data Collection

Online data collection forms created on Google Forms were sent to reference adolescents via e-mail or social media (Facebook, Instagram, and WhatsApp), and other adolescents reached the online form through these study participants. An informed consent form was added to the beginning of online data collection forms as an explanation, and following the approval of the adolescents, responding to the form was started. Answering the forms took approximately 10-15 minutes. In the online data collection form, participants were asked to share the study link with their acquaintances who met the criteria for inclusion in the study (these explanations were included in the form).

Ethical Considerations

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Before starting the research, written permission from the Ministry of Health in Turkey was obtained, and the Non-Interventional Clinical Research Ethical Committee of Amasya University approved the study protocol with file number 13566 dated 20.04.2021. The online informed consent form, which included explanations about participation in voluntary and keeping all information confidential, was obtained from participants. Adolescents who did not agree to participate in the study or who, after taking part, did not desire their data to be used were excluded from the study.

Data Analysis

The data were analysed by using SPSS (Version 23; IBM Inc, Armonk, NY) statistics package program. Conformity of the parameters to normal distribution was tested using the Shapiro–Wilk test. Descriptive statistics (mean,standard deviation [SD] and frequency) were used to express the data. The independent groups t-test

was used to evaluate between two groups the variables which showed normal distribution. In evaluating variables showing normal distribution between more than two groups, a one-way analysis of variance was used. When significance was observed, the Bonferroni test was used to determine its source. The Mann-Whitney U test was used to evaluate two groups' variables that did not show normal distribution. In evaluating variables that did not show normal distribution between more than two groups, the Kruskal-Wallis test was used. The Dunn-Bonferroni test was used when significance was observed to determine its source. Pearson correlation analysis and Spearman correlation analysis were used to determine the correlation between quantitative variables. Data were evaluated to a 95% confidence interval, and $p < 0.05$ was accepted as significant.

RESULTS

The mean age of the participants was 19.36±2.29 years, 76.6% were female, 23.4% were male, and 71.3% were university graduates. With regard to the internet connection, 78.5% of the participants connected to the internet from home and 18.8% by mobile phone. It was found that 52.8% of the participants used the internet for social media, 22.8% to do schoolwork, 20.1% for entertainment and games, 2.6% for news, and 1.7% to access information on health (Table 1).

Table 1: Participants' sociodemographic and internet use characteristics (N=303)

Variables	Mean±SD	n (%)
Age	19.36±2.29	
Gender		
Female		232 (76.6)
Male		71 (23.4)
Education		
Middle School		11 (3.6)
High School		76 (25.1)
University		216 (71.3)
Mother's Education		
Illiterate		24 (7.9)
Basic Literacy		14 (4.6)
Primary School		126 (41.6)
Middle School		55 (18.2)
High School		57 (18.8)
University Degree or Higher		27 (8.9)
Father's Education		
Illiterate		4 (1.3)
Basic Literacy		5 (1.7)
Primary School		101 (33.3)
Middle School		56 (18.5)
High School		70 (23.1)
University Degree or Higher		67 (22.1)

Family Type	
Nuclear	239 (78.9)
Extended	54 (17.8)
Living Alone	10 (3.3)
Income Perception	
Very Bad	3 (1.0)
Bad	27 (8.9)
Medium	186 (61.4)
Good	80 (26.4)
Very Good	7 (2.3)
Health Perception	
Very Bad	1 (0.3)
Bad	14 (4.6)
Medium	75 (24.8)
Good	176 (58.1)
Very Good	37 (12.2)

(Continued)

Table 2: Participants' sociodemographic and internet use characteristics (N= 303)

Variables	**n (%)**
Place of Internet Connection	
Home	238 (78.5)
School	1 (0.3)
Mobile Phone	57 (18.8)
Other	7 (2.3)
Duration of Internet Use	
1 Hour a Day	19 (6.3)
2-3 Hours a Day	185 (61.1)
1 Hour in 2 Days	4 (1.3)
1-2 Hours a Week	1 (0.3)
Other	94 (31.0)
Purpose of Internet Use	
Doing Schoolwork	69 (22.8)
Entertainment, Playing Games, Listening to Music	61 (20.1)
News	8 (2.6)
Accessing Health Related Information	5 (1.7)
Social Media	160 (52.8)
Difficulty in Accessing Health Information on the Internet	
Yes	75 (24.8)
No	228 (75.2)
Reading Health Related Informations on the Internet	
Yes	275 (90.8)
No	28 (9.2)
Information Read About	
My Own Illness	49 (16.2)
Family's Illness	68 (22.4)
Covid-19	85 (28.1)
Sexuality	6 (2.0)
Other	95 (31.4)

Abbreviations: SD, standard deviation

The adolescents' mean E-heals score was found to be 27.49±6.51. The eHealth literacy level of 31.4% (n=95) was found to be low (<26), and in 68.6% (n=208), it was found to be high (≥26). The mean total PCo-COVID-19 score of the adolescents was 2.85±0.50, and the mean scores for the subscales were 2.31±0.81 for macro control, 2.92±0.83 for personal (micro) control, and 3.31±0.94 for controllability (Table 2).

Table 3: Distribution of adolescents by E-heals and PCo-Covid-19 and subscale scores

	No of Items	Min-Max	Mean±SD
E-heals	8	8-40	27.49±6.51
PCo-Covid-19			
Macro Control	4	1-4.5	2.31±0.81
Personal Control	4	1-5	2.92±0.83
Controllability	4	1-5	3.31±0.94
Total	12	1.25-4.33	2.85±0.50

Abbreviations: E-heals, The E-health Literacy Scale in Adolescents; Max, Maximum value; Min, Minimum value, PCo-Covid-19, The COVID-19 Control Perception Scale; SD, Standard deviation

A statistically significant positive correlation was found between the adolescents' total E-heals scores and their total PCo-COVID-19 scores (r=0.262, p<0.001). In addition, a statistically significant positive correlation was found between the adolescents' total E-heals scores and the PCo-COVID-19 subscale scores of macro control (r=0.178, p=0.002) and personal control (r=0.307, p<0.001). However, no statistically significant correlation was found between total E-heals scores and the score of the PCo-COVID-19 subscale of controllability (r = -0.006, p>0.05). It was concluded that as the level of eHealth literacy rose, belief in measures taken at the national or global level and in the effectiveness of personal measures also increased (Table 3).

Table 4: Correlation between total E-heals score and PCo-Covid-19 and subscales

PCo-Covid-19	E-heals Total	
	r	p
Macro Control	0.178	0.002*
Personal Control	0.307	<0.001*
Controllability	-0.006	0.915
Total	0.262	<0.001*

Abbreviations: E-heals, The E-health Literacy Scale in Adolescents; PCo-Covid-19, The COVID-19 Control Perception Scale
r=Pearson correlation coefficient

*p<0.05

A statistically significant difference was found between the mother's education level, income perception and place of connection to the internet and total E-heals score ($p<0.05$). It was found that the scores of those whose mothers' education was university degree level or higher were higher than that of those whose mothers were illiterate or who had basic literacy ($p=0.026$ and $p=0.041$, respectively). The scores of those who perceived their income as good or very good were higher than that of those who perceived it as bad or very bad ($p=0.043$ and $p=0.026$, respectively). The scores of those who connected to the internet from home were higher than those of participants who connected by mobile phone ($p<0.001$) (Table 4).

Examining the factors relating to PCo-COVID-19, a statistically significant difference was found between the adolescents' family type, type of health-related information read from the internet and perception of health condition, and PCo-COVID-19 total score ($p<0.05$). According to the topics of the information they read concerning health, the PCo- COVID-19 scores of those who read information about COVID-19 were higher than the scores of those who read information about their own illnesses ($p=0.041$). Also, the PCo-COVID-19 scores of those who perceived their health condition as good were higher than those who perceived it as medium ($p=0.009$) (Table 4).

Table 5: Evaluation of adolescents' E-heals and PCo-Covid-19 total scores and related factors

Variables	E-heals Total			PCo-COVID-19 Total		
	n	r	p	n	r	p
Age	303	0.065	0.260	303	-0.059	0.310
		Mean±SD			Mean±SD	
Gender						
Female	232	27.58±6.25		232	2.84±0.5	
Male	71	27.18±7.35		71	2.87±0.5	
	[a]t=0.451, p=0.652			[a]t=-0.519, p=0.604		
Education						
Middle School	11	24 (20 - 31)		11	3 (2.67- 3)	
High School	76	28.5 (22.5 - 31.5)		76	2.92 (2.5- 3.21)	
University	216	29 (25 - 32)		216	2.83 (2.5- 3.17)	
	[b]χ^2=5.031, p= 0.081			[b]χ^2=1.267, p=0.531		
Family Type						
Nuclear	239	29 (25 - 32)		239	2.83 (2.5- 3.17)	
Extended	54	27 (24 - 31)		54	2.88 (2.58- 3.17)	
Living Alone	10	28 (24 - 30)		10	2.38 (2.25- 2.67)	
	[b]χ^2=1.512, p=0.470			[b]χ^2=8.149, p=0.017*		
Mother's Education						
Illiterate	24	28 (19.5 - 30.5)		24	2.79 (2.42- 3.17)	
Basic Literacy	14	24 (19 - 30)		14	2.75 (2.08- 3)	
Primary School	126	29 (25 - 32)		126	2.83 (2.58- 3.17)	
Middle School	55	28 (24 - 32)		55	2.83 (2.67- 3.17)	

High School	57	29 (23 - 31)	57	2.75 (2.42- 3.17)
University Degree or Higher	27	32 (28 - 33)	27	2.92 (2.58- 3.25)
	[b]χ^2=15.146, p=0.010*		[b]χ^2=5.398, p=0.369	
Father's Education				
Primary School or Below	110	26.69±6.8	110	2.81±0.45
Middle School	56	26.66±7.81	56	2.85±0.59
High School	70	28.24±5.8	70	2.88±0.47
University Degree or Higher	67	28.7±5.29	67	2.87±0.54
	[d]F=1.957, p=0.120		[d]F=0.379, p=0.768	
Income Perception				
Very Bad / Bad	30	26.13±7.23	30	2.73±0.34
Medium	186	27.04±6.44	186	2.83±0.55
Good / Very Good	87	28.92±6.24	87	2.91±0.43
	[d]F=3.242, p=0.040*		[d]F=1.605, p=0.203	
Difficulty in Accessing Health Information on the Internet				
Yes	75	24.88±6.17	75	2.81±0.57
No	228	28.35±6.41	228	2.86±0.48
	[a]t=-4.101, p<0.001*		[a]t=-0.635, p=0.526	

(Continued)

Table 6: Evaluation of adolescents' E-heals and PCo-Covid-19 total scores and related factors

Variables	**E-heals Total**		**PCo-COVID-19 Total**	
	n	**Mean±SD**	**n**	**Mean±SD**
Health Perception				
Very Bad / Bad	15	24 (20 - 31)	15	2.58 (2.42- 2.92)
Medium	75	26 (20 - 30)	75	2.75 (2.42- 3)
Good	176	29.5 (25 - 32)	176	2.92 (2.58- 3.25)
Very Good	37	31 (27 - 33)	37	2.83 (2.5- 3.08)
	[b]χ^2=24.177, p<0.001*		[b]χ^2=12.746, p=0.005*	
Place of Internet Connection				
Home	238	29 (25 - 32)	238	2.83 (2.58- 3.17)
Mobile Phone	57	25 (19 - 30)	57	2.75 (2.42- 3.08)
Other	8	30 (25 - 36)	8	2.92 (2.63- 3.25)
	[b]χ^2=16.678, p<0.001*		[b]χ^2=1.865, p=0.394	
Duration of Internet Use				
1 Hour a Day	19	25 (17 - 30)	19	2.83 (2.5- 3)
2-3 Hours a Day	185	29 (25 - 32)	185	2.92 (2.58- 3.25)
Other	99	29 (24 - 32)	99	2.75 (2.5- 3.08)
	[b]χ^2=5.695, p=0.058		[b]χ^2=5.043, p=0.080	
Purpose of Internet Use				
Doing Schoolwork	69	28 (24 - 32)	69	2.83 (2.58- 3.17)
Entertainment, Games, Music	61	28 (24 - 32)	61	2.83 (2.5- 3.17)
News	8	30.5 (26.5 - 31.5)	8	2.88 (2.46- 3.38)
Accessing Health Information	5	29 (28 - 30)	5	3.08 (2.67- 3.08)

Social Media	160	29 (25 - 32)	160	2.83 (2.5- 3.08)
	[b]χ^2=0.658, p=0.956		[b]χ^2=1.606, p=0.808	
Reading Health Related Informations on the Internet				
Yes	275	29 (25 - 32)	275	2.83 (2.5- 3.17)
No	28	25.5 (20.5 - 31.5)	28	2.83 (2.58- 3.04)
	[c]z=-1.657, p=0.098		[c]z=-0.035, p=0.972	
Information Read About				
My Own Illness	49	27 (22 - 32)	49	2.58 (2.42- 3)
Family's Illness	68	29 (26 - 32)	68	2.83 (2.5- 3.17)
Covid-19	85	29 (23 - 32)	85	3 (2.58- 3.33)
Sexuality	6	30 (26 - 32)	6	2.46 (2.25- 2.58)
Other	95	28 (25 - 31)	95	2.83 (2.58- 3.17)
	[b]χ^2=1.213, p=0.876		[b]χ^2=13.511, p=0.009*	

Abbreviations: SD, Standard deviation
r=Pearson correlation coefficient,
[a]Independent groups t test,
[b]Kruskal-Wallis test results are presented as median (first quartile, third quartile),
[c]Mann-Whitney U test results are presented as median (first quartile, third quartile),
[d]One way variance analysis

*p<0.05

DISCUSSION

In this study, it was concluded that adolescents' eHealth literacy was at a medium level (27,49±6,51). This is consistent with the literature examining adolescents' eHealth literacy level (Dashti, Peyman, Tajfard & Esmaeeli, 2017; Holch & Marwood, 2020). It was also concluded that as adolescents' eHealth literacy increases, their perception of control of COVID-19 also increases. It has been found in some studies that individuals with high health literacy have a higher perception of COVID-19 control measures and they are more conforming in their behavior (Patil et al., 2021; Riiser et al., 2020). For this reason, it is of great importance in this pandemic which has been going on for almost three years, to increase the level of eHealth literacy of adolescents, who are especially at risk, so as to be able to manage the situation correctly, to access correct information rather than wrong, deficient or exaggerated information, and to increase the perception of control of COVID-19 (Andrews et al., 2020; McCaffery et al., 2020; Patil et al., 2021).

This study found that the eHealth literacy levels of adolescents whose mothers were educated to a university degree level or higher and whose perception of their income was as good or very good were higher. In a systematic review of studies relating to factors affecting the health literacy of university students, it was concluded that the education level of parents was a factor in eHealth literacy (Kühn et al., 2022). In the whole world, the need for the internet and technology has come to the fore because health and education services have been provided at a distance

during the COVID-19 pandemic (Bin Naeem, & Kamel Boulos, 2021; Xiang et al., 2021). This has made internet connection almost necessary for living (Xiang et al., 2021). Thus, adolescents, who are the group which uses the internet the most, are able to quickly and easily access any kind of information which they want using the internet (Turkish Statistical Institute, 2020). However, adolescents tend to have mild COVID-19 symptoms or to be asymptomatic and, because of their age group's characteristics, have difficulty conforming to protective measures. Therefore it is of great importance with regard to reducing and preventing the risk of infection that they should be able to search for information on the internet, access correct information, and understand and implement it correctly (Park & Oh, 2022; WHO, 2021). Thus, it is recommended that studies be conducted to raise eHealth literacy levels, also taking into account sociodemographic variables such as the mother's education level, income level and place of internet connection.

This study found that the adolescents' perception of control of COVID-19 was at a medium level. This showed that their perception of measures taken at a personal, institutional, national or global level and their perception of the controllability of the disease were at a medium level. Several studies with university students evaluating their perceptions of whether the measures taken in the struggle against the COVID-19 pandemic were adequate concluded that this perception was high (Albaqawi et al., 2020; Salameh et al., 2021). The present study found that approximately a quarter of the adolescents read information about COVID-19 on the internet. Some studies have shown that individuals with a high level of knowledge on COVID-19 have a better attitude and perception concerning COVID-19 control measures (An et al., 2021; Silva & Santos, 2021). Besides, a significant positive correlation was found between reading information on COVID-19 on the internet and the level of perception of COVID-19 control in the study. In this regard, even if adolescents tend to have more mild COVID-19 compared to adults, inadequacy of their perceptions and attitude to control measures has a negative effect on the risk of infection in the community (Riiser et al., 2020; Şentürk et al., 2021; WHO, 2021). In addition, although measures taken against COVID-19 in different countries have been gradually reduced, as with other infectious diseases, a high perception of personal control measures and continuing to comply with these measures is of great importance (WHO, 2022). Therefore, it is very important to determine adolescents' perceptions of COVID-19 control and to develop and implement strategies to improve them (Ahmad, Iram & Jabeen, 2020).

Limitations of the Study

The research was conducted with adolescents between the ages of 14 and 21 living in Turkey using an online survey. Thus, it was limited to those who had access to the internet, who used social media networks, and who agreed to participate in

the research, and its generalizability only to the sample group forms a limitation of the research.

CONCLUSION AND SUGGESTIONS

It was concluded that the adolescents' eHealth literacy and their perception of control of COVID-19 were at a medium level. It was found that as their eHealth literacy levels rose, their COVID-19 control perception also rose. In addition, it was found that the adolescents' eHealth literacy levels were related to their mothers' education and perception of income and that their level of perception of COVID-19 control was related to family type, the type of information read on the internet relating to health, and perception of health. Knowledge, perception and attitude concerning the struggle with COVID-19 are of great importance in preventing infection. Therefore, it is recommended that studies should be conducted to raise eHealth literacy levels in adolescents whose COVID-19 symptoms are mild or absent and who, as an age group, have difficulty in conforming to personal protective measures and that strategies should be developed.

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The authors report that there are no competing interests to declare.

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Data Collection (Data Acquisition): GYDG(50%), MAY(50%)

Data Analysis: GYDG(50%), MAY(50%)

Writing Up: GYDG(60%), MAY(40%)

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