

RESEARCH / ARAŞTIRMA

Coronavirus Anxiety and Health Literacy in Women: An Intergenerational Study in Türkiye

Kadınlarda Koronavirüs Anksiyetesi ve Sağlık Okuryazarlığı: Türkiye'de Kuşaklararası Bir Araştırma

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Abstract

Objective: Women are already exposed to negativity physically, socially, psychologically and economically because of the gender inequality of society. The addition of the COVID-19 pandemic to this situation means that women must be counted as a disadvantaged group. On the other hand, women's primary role in family and child development makes their knowledge and practice in the field of health that is important. The aim of this study was to examine the health literacy and coronavirus anxiety of women in terms of generations X, Y and Z.

Material and Method: The research has a descriptive and cross-sectional design. The research was conducted with 450 women who applied to a family health center between March and June 2022. The population of the study consisted of women aged 18-57, representing the X, Y, and Z generations registered at the family health center. A description form, the Turkish Health Literacy Scale and the Coronavirus Anxiety Scale were used to collect data. The data were analyzed using descriptive statistics. The Kolmogorov-Smirnov test and Shapiro-Wilk test were used to assess the normality of the variables, along with box plot graphs. In the comparison of variables across groups where normal distribution was not observed, the Kruskal-Wallis test was employed. For the significant variables, post hoc evaluations were conducted using the Dunn test. Spearman's correlation analysis was used for evaluating relationships between quantitative variables. In the evaluation of categorical variables, Pearson Chi-square test and Fisher Freman Halton test were used, and for post hoc significance in multivariate designs, Compare Column Proportions Adjust Bonferroni test was used.

Results: Our study conducted with women seeking care at primary health care institutions demonstrated differences in health literacy and coronavirus anxiety among women from the X, Y, and Z generations. It was found that the generation with the highest health literacy score was the Y generation, and the highest anxiety scores were in the X generation. As the total scores for health literacy increased in the Y and Z generations, it was observed that the level of coronavirus anxiety decreased. Also, there was a statistical difference between generations in the participants' sources of information on COVID-19.

Conclusions: In this study, it was observed that health literacy has a positive impact on coronavirus anxiety across all generations. This effect was particularly significant in Generations Y and Z. It is believed that generational studies related to health could be beneficial in understanding differences among women in different age groups.

Key words: COVID-19, health literacy, anxiety, generation gap, women.

Öz

Amaç: Kadınlar toplumsal cinsiyet eşitsizliği nedeniyle fiziksel, sosyal, psikolojik ve ekonomik açıdan birçok olumsuzluğa maruz kalmaktadırlar. Bu olumsuzluklara COVID-19 salgınının da eklenmesi kadınların dezavantajlı gruplara dahil olmasını gerektirmiştir. Öte yandan kadının aile ve çocuk gelişimindeki öncelikli rolü, sağlık alanındaki bilgi ve uygulamalarını önemli kılmaktadır. Bu çalışmanın amacı kadınlarda sağlık okuryazarlığı ve koronavirüs anksiyetesinin X, Y ve Z kuşakları açısından incelenmesidir.

Gereç ve Yöntem: Araştırma, tanımlayıcı ve kesitsel tasarımıdır. Araştırma, Mart-Haziran 2022 tarihinde, bir aile sağlığı merkezinde 450 kadın ile gerçekleştirilmiştir. Araştırmanın evrenini aile sağlığı merkezine kayıtlı X, Y ve Z kuşağını oluşturan 18-57 yaş aralığındaki kadınlar oluşturmuştur. Verilerin toplanmasında Tanımlayıcı Veri Formu, Türkiye Sağlık Okuryazarlığı Ölçeği ve Koronavirüs Anksiyete Ölçeği kullanıldı. Verilerin analizinde tanımlayıcı istatistikler kullanıldı. Değişkenlerin normal dağılıma uygunluklarında Kolmogorov-Smirnov test; Shapiro-Wilk test ve box plot grafikleri kullanıldı. Normal dağılım göstermeyen değişkenlerin kuşaklararası karşılaştırmalarında Kruskal-Wallis test, anlamlı çıkan değişkenlerin post-hoc değerlendirmelerinde Dunn test kullanıldı. Nicel değişkenler arası ilişkilerin değerlendirilmesinde Spearman's korelasyon analizi kullanıldı. Kategorik değişkenlerin değerlendirmelerinde Pearson Ki kare test ve Fisher Freman Halton test, çok gözlü düzenlerde post hoc anlamlılıklar için ise Compare Column Proportions Adjust Bonferroni test kullanıldı.

Bulgular: Birinci basamak sağlık kuruluşuna başvuran kadınlarla yapılan çalışmamız, X, Y ve Z kuşaklarındaki kadınlar arasında sağlık okuryazarlığı ve koronavirüs anksiyetesi açısından farklılıklar olduğunu gösterdi. Sağlık okuryazarlığı puanı en yüksek olan kuşağın Y, anksiyete puanının en yüksek olduğu kuşağın ise X kuşağı olduğu belirlendi. Y ve Z kuşağında sağlık okuryazarlığının toplam puan ortalamaları arttıkça koronavirüs anksiyete düzeyinin azaldığı tespit edildi. Ayrıca katılımcıların COVID-19 ile ilgili bilgi kaynaklarında da kuşaklar arasında istatistiksel bir fark vardı.

Sonuç: Bu çalışmada, tüm kuşaklarda sağlık okuryazarlığının koronavirüs anksiyetesi üzerinde olumlu etkisi olduğu görüldü. Bu etkinin özellikle Y ve Z kuşağında anlamlı olduğu belirlendi. Sağlıkla ilgili kuşak çalışmalarının, değişik yaş grubu kadınlar arasındaki farklılıkları anlamada fayda sağlayabileceği düşünülmektedir.

Anahtar Kelimeler: COVID-19, sağlık okuryazarlığı, anksiyete, kuşak farkı, kadınlar.

1. Introduction

Since the beginning of the pandemic, there have been many negative social and economic consequences of COVID-19 in the whole world. Social isolation to control the disease, economic difficulties, an increase in death rates and delays in travel plans and supply chains have generally affected people's wellbeing (1, 2). For this reason, researchers who foresaw that the psychological effects of the COVID-19 pandemic would be wide ranging and long lasting started to conduct research from the beginning of the pandemic. It is shown in these studies that the pandemic had negative consequences in terms of anxiety (1-7).

The effective use of health information and the adoption of correct approaches to threats to health are related to health literacy (HL) (8). For this reason, the implementation of measures relating to the pandemic with human awareness necessitates adequate HL (9). The importance of HL was one of the first topics which attracted attention during the COVID-19 pandemic. There are studies examining HL in terms of topics such as quality of life, family welfare, fear, depression and anxiety in the pandemic, but it has been found that HL is still an important public health problem that needs to be examined from different angles (8, 10-12).

Women are already exposed to negativity physically, socially, psychologically and economically because of the gender inequality of society. The addition of the COVID-19 pandemic to this situation means that women must be counted as a disadvantaged group (13, 14). In studies conducted on the course of the pandemic, gender differences have been studied, and it has been found that women's anxiety levels are higher (4-6, 15-18). On the other hand, women's primary role in family and child development makes their knowledge and practice in the field of health important (14, 19). Because in the pandemic women are more prone to preventive behavior and have a greater role in care in the family, they have been identified as a priority target in HL development programs (10).

Age, gender, and culture are factors which affect perception of the pandemic and the state of anxiety (3-5). Also, it has been found that age and female gender are determinants of HL in relation to the pandemic (20). Classification into generations allows us to understand how social, economic, technological, or other factors in society affect people's lives in different ways (21). Individuals in one particular generation will have experienced problems in common in their own time period such as disease outbreaks, shortages, or crises (22). It has also been found that membership of a particular generation affects health perception (21). An adequate level of HL is necessary to pass on the store of health-related information to following generations (23). Considering that psychological effects last for a long time, we thought that it was important to know the HL and coronavirus anxiety levels of women on the basis of generations, since they have a fundamental role in the family and society. There are a number of studies conducted with various groups – the general population, pregnant women, and health workers – examining anxiety and HL together (12, 24, 25). However, no study was found making an intergenerational examination of women's

anxiety and HL in the COVID-19 pandemic. The aim of this study was to examine the HL and coronavirus anxiety of women in terms of generations.

2. Material and Method

2.1. Research design and participants

This was a descriptive and cross-sectional study. This research was conducted at a district family health center in Turkey. The population of the research was the women registered at that family health center who were aged 18-57 years, constituting generation X, Y and Z (N: 2712). The smallest sample size needed to reach a confidence interval of 95%, calculated by the Openepi program, was found to be 338. Using the stratified sampling method, the X generation was determined as 138 persons, the Y generation as 155 persons, and the Z generation as 45 persons. The research was completed with 450 women who came to the family health center for treatment or other health services. Women who volunteered to participate in the study, had no problems with reading, writing or communication, and were between the ages of 18-57 at the time the data were collected were included in the study. Those with a diagnosis of a psychological disorder or those who filled the data collection forms incompletely or wrongly were excluded from the research.

In the literature, there are various chronological classifications of generations. In this study, the generations were accepted as being between the following dates of birth: generation X 1965-1980, generation Y 1981-1999, and generation Z 2000 and later (26).

2.2. Data collection

The research started after all permissions were obtained. Informed oral and written approval was obtained from all participants. Data collection was performed by a researcher working at the family health center between March and June 2022, using the following form and scales.

2.2.1. Descriptive Data Form

This data form was prepared by the researchers from relevant information in the literature and consisted of 15 questions on the participants' sociodemographic, descriptive, and COVID-19-related characteristics (7, 23).

2.2.2. Turkish Health Literacy Scale (THLS-32)

This scale was based on the European Health Literacy Survey (HLS-EU). Turkish validity and reliability study was carried out by Okyay et al. (27). The scale consists of two basic dimensions, Treatment and Service and Protection from Illnesses and Improvement of Health, and four processes, Access to Health-Related Information, Understanding Health-Related Information, Assessing Health-Related Information, and Using or Implementing Health-Related Information. The scale includes a total of 32 questions, each item answered as 1: Very easy, 2: Easy, 3: Difficult, 4: Very difficult, 5: No idea. Scoring in the scale is as follows: 1: 4 points, 2: 3 points, 3: 2 points, 4: 1 point, 5: 0 points. In the evaluation of the scale, the indexes are standardized as 0 to 50, as in the HLS-EU scale. The formula used for this is:

$$\text{Index} = (\text{average}-1) \times (50/30)$$

In this formula, the index represents the index calculated specifically for the person and the average of each item answered by an average person. In the scale, 0 indicates the lowest health literacy, and 50 indicates the highest health literacy. Health literacy scores are classified into 4 categories:

- 0-25: Inadequate HL
 >25-33: Problematic or limited HL
 >33-42: Adequate HL
 >42-50 Excellent HL

The Cronbach alpha value of the scale is 0.927 (27). In the present study, the Cronbach alpha value was calculated as 0.957, and its reliability was seen to be high.

2.2.3. Coronavirus Anxiety Scale (CAS)

This scale was developed by Lee (28) to measure anxiety originating from COVID-19, and Turkish validity and reliability study was performed by Biçer et al. (29). It consists of a single dimension and five items, asking about the previous week. The highest score obtainable on the scale is 20. A score of 9 or above is interpreted as the presence of coronavirus anxiety (29). The Cronbach Alpha coefficient of the scale is 0.832. In the present study, the Cronbach Alpha value was calculated as 0.845, and internal consistency was seen to be high.

2.3. Data analysis

The program NCSS (Number Cruncher Statistical System) 2007 (Kaysville, Utah, USA) was used for the statistical analyses. In the analysis of study data, descriptive statistical methods were used: mean, standard deviation, median, frequency, percentage, minimum and maximum. The Kolmogorov-Smirnov test and Shapiro-Wilk test were used to assess the normality of the variables, along with box plot graphs. In the comparison of variables across groups where normal distribution was not observed, the Kruskal-Wallis test was employed. For the significant variables, post hoc evaluations were conducted using the Dunn test. Spearman's correlation analysis was used for evaluating relationships between quantitative variables. In the evaluation of categorical variables, Pearson Chi-square test and Fisher Freman Halton test were used, and for post hoc significance in multivariate designs, Compare Column Proportions Adjust Bonferroni test was used. Statistical significance was accepted as $p < 0.05$.

2.4. Ethical Consideration of the Research

Before commencing the research, approval was obtained from the Manisa Celal Bayar University Facult Ethics Committee for Health Sciences of the University's Faculty of Medicine to which the researchers are affiliated (No. 23.02.2022/20.478.486/1200). Also, before data collection, permission was obtained for the research from the Provincial Health Directorate of the province where the research was conducted (No. 23.03.2022/E-49998565-799-447). Permission was obtained from the authors who conducted the validity and reliability study of the Coronavirus Anxiety Scale. The women who agreed to take part in the study signed an Informed Voluntary Consent Form. The research was conducted in accordance with the declaration of Helsinki. The authors declare they have no con.

3. Results

Table 1 shows the descriptive characteristics of the women participating in the research, and Figure 1 shows their

distribution by generations. The age of the participants varied between 18 and 57 years, with a mean of 35.59 ± 11.25 . Generation Z included those aged from 18 to 22, with a mean age of 19.96 ± 1.28 . Generation Y included those aged from 23 to 41, with a mean age of 31.37 ± 4.35 . Generation X included those aged from 42 to 57, with a mean age of 47.90 ± 4.93 .

Table 2 shows a comparison of descriptive and COVID-19 characteristics by generation. Statistical differences were observed among generations regarding participants' education, employment status, marital status, parenthood, smoking habits, and the experience of having contracted COVID-19 ($p < 0.01$). Compare Column Proportions Adjust

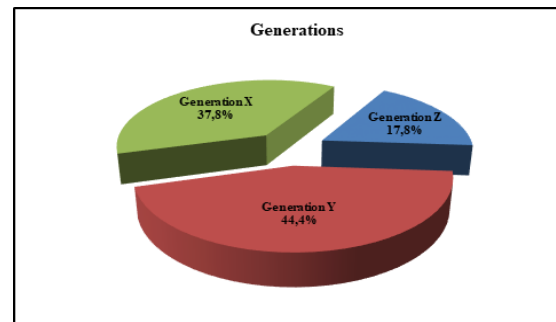


Figure 1. Distribution of Generations

Table 1. Distributions of descriptive characteristics (n=450)

Descriptive characteristics		n (%)
Age	Mean±SD	35.59±11.25
	Median (Min-Max)	34 (18-57)
Generation	Generation Z	80 (17.8)
	Ort±Ss	19,96±1,28
	Generation Y	200 (44.4)
	Ort±Ss	31,37±4,35
Generation X	170 (37.8)	
	Ort±Ss	47,90±4,93
Education status	Primary school / Middle school	135 (30.0)
	High school	141 (31.4)
	University degree	154 (34.2)
	Postgraduate	20 (4.4)
Employment status	Working	115 (25.6)
	Not working	270 (60.0)
	Retired	14 (3.1)
	Studying	51 (11.3)
Marital status	Single	98 (21.8)
	Married/Living together	327 (72.6)
	Partner lost/ Divorced	25 (5.6)
Children	Yes	335 (74.4)
	No	115 (25.6)
No of children (n=335)	1 child	68 (20.3)
	2 children	180 (53.7)
	≥3 children	87 (30.0)

Table 2. Comparison of descriptive and health characteristics by generations

Descriptive and health characteristics		Generation			P
		Generation Z (n=80)	Generation Y (n=200)	Generation X (n=170)	
		n (%)	n (%)	n (%)	
Education status	Primary /Middle school	0 (0.0)	42 (21.0)	93 (54.7)	*0.001**
	High school	18 (22.5)	79 (39.5)	44 (25.9)	
	University degree	61 (76.3)	62 (31.0)	31 (18.2)	
	Postgraduate	1 (1.2)	17 (8.5)	2 (1.2)	
Employment status	Working	9 (11.3)	56 (28.0)	50 (29.4)	*0.001**
	Not working	20 (25.0)	144 (72.0)	106 (62.4)	
	Retired	0 (0.0)	0 (0.0)	14 (8.2)	
	Studying	51 (63.7)	0 (0.0)	0 (0.0)	
Marital status	Single	63 (78.7)	28 (14.0)	7 (4.1)	*0.001**
	Married/Living together	17 (21.3)	162 (81.0)	148 (87.1)	
	Partner lost/Divorced	0 (0.0)	10 (5.0)	15 (8.8)	
Children	Yes	12 (15.0)	161 (80.5)	162 (95.3)	*0.001**
	No	68 (85.0)	39 (19.5)	8 (4.7)	
Smoking	Yes	9 (11.3)	45 (22.5)	16 (9.4)	*0.001**
	No	69 (86.2)	140 (70.0)	134 (78.8)	
	Quit	2 (2.5)	15 (7.5)	20 (11.8)	
Having COVID-19	had Yes	8 (10.0)	83 (41.5)	84 (49.4)	**0.001**
	No	72 (90.0)	117 (58.5)	86 (50.6)	
Source of information about COVID-19	Internet	72 (90.0)	161 (80.5)	117 (68.8)	**0.001**
	Television	77 (96.3)	143 (71.5)	137 (80.6)	
	Newspaper	15 (18.8)	28 (14.0)	40 (23.5)	
	Health worker	54 (67.5)	127 (63.5)	132 (77.6)	

*Fisher Freeman Halton Test, **Pearson Ki Kare Test, *p<0.05, **p<0.01, # More than one option is marked. Post hoc evaluations: Compare Column Proportions Adjust Bonferroni Test

Bonferroni test was used to find the source of differences between groups. The rate of obtaining associate's/ bachelor's degrees among Generation Z was found to be significantly higher compared to Generations Y and X. The employment rate of Generations Y and X was significantly higher compared to Generation Z. The rate of being unmarried among Generation Z was significantly higher compared to Generations Y and X. The rate of parenthood among Generation X was found to be significantly higher compared to Generations Z and Y. The smoking rate of Generation Y was significantly higher compared to Generations Z and X. The rate of experiencing COVID-19 among Generations Y and X was found to be significantly higher compared to Generation Z. There was a statistical difference between generations in the participants' sources of information on COVID-19. The rate of obtaining information from the internet of generations Z and Y was at a significantly higher level than that of generation X (p=0.001; p<0.01). The rate of obtaining information from the television of generation Z was at a significantly higher level than that of generations Y and X (p=0.001; p<0.01). The highest rate of obtaining information from health workers was in generation X, and this was found to be at a significantly higher level than generation Y (Table 2).

3.1. Health literacy

The mean total score obtained by the participants on the THLS-32 scale was found to be 38.24±8.28. The average

total scores of treatment and service subdimensions for generations were as follows: Generation Z 38.39±5.13; Generation Y 40.06±8.33; Generation X 37.61±8.72. The mean total scores obtained by generation Y on the subdimension of Treatment and Service were found to be statistically significantly higher than those of generation X (p=0.001). The total score averages of the generations in the Disease prevention and health promotion subscale were as follows: Generation Z 38.52±9.19; Generation Y 39.03±8.97; Generation X 35.16±8.84. In terms of protection from illnesses and improvement of health dimension; the mean total scores of generations Y and Z were statistically significantly higher than those of generation X (p=0.001). Post hoc Dunn Test was used to determine the source of differences between groups in subdimension scores. (Table 3).

Table 4 shows the comparison of THLS-32 scale processes according to generations. Statistically significant differences were found in the mean scores of participants in the processes of accessing health-related information, understanding information, assessing information, and using/applying information according to generations. In these processes, the mean score of generation Y is higher than generation X (For processes, respectively, p=0.001; p=0.002; p=0.001; p=0.001). Additionally, in the process of using/applying information, the mean scores of the Z generation are higher than those of the X generation (p=0.007). The mean total scores obtained on the scale

Table 3. Comparison of THLS-32 scale subdimensions with generations

Subdimensions of the THLS-32 scale	Generations			P	Post Hoc Dunn Test
	Generation Z (n=80)	Generation Y (n=200)	Generation X (n=170)		
Treatment and service					
Access to information	41.25±5.93	41.14±9.14	37.40±10.00	^b 0.001**	2>3
	40.62 (34.38-50)	40.63 (0-50)	37.50 (0-50)		
Understanding information	40.03±6.57	40.51±9.56	38.89±9.43	^b 0.063	-
	37.50 (25-50)	40.62 (0-50)	40.62 (0-50)		
Assessing information	36.09±7.84	35.64±9.83	36.10±9.98	^b 0.960	-
	37.50 (18.74-50)	37.50 (0-50)	37.50 (0-50)		
Using/Implementing information	40.19±4.15	42.95±9.56	38.03±10.87	^b 0.001**	2>1,3
	40.62 (34.38-50)	46.87 (0-50)	40.62 (0-50)		
Total	38.39±5.13	40.06±8.33	37.61±8.72	^b 0.001**	2>3
	37.89 (30.47-50)	40.62 (0-50)	39.84 (0-50)		
Protection from illness and improvement of health					
Access to information	37.74±10.22	39.57±9.99	37.53±9.71	^b 0.027*	2>3
	37.50 (18.75-50)	40.62 (0-50)	37.50 (0-50)		
Understanding information	41.09±7.01	40.95±9.58	37.77±9.49	^b 0.001**	1,2>3
	40.62 (28.13-50)	40.62 (0-50)	37.50 (0-50)		
Assessing information	35.97±12.10	36.40±10.55	31.26±11.56	^b 0.001**	1,2>3
	37.50 (12.50-50)	37.50 (0-50)	31.25 (0-50)		
Using/Implementing information	39.25±9.24	39.18±9.06	34.06±9.08	^b 0.001**	1,2>3
	37.50 (21.88-50)	37.50 (0-50)	34.37 (0-50)		
Total	38.52±9.19	39.03±8.97	35.16±8.84	^b 0.001**	1,2>3
	37.50 (20.31-50)	39.84 (0-50)	34.37 (0-49.22)		

^aKruskal-Wallis Test
Dunn Test
^{*}p<0.05
^{**}p<0.01
(Post Hoc Test: 1-Generation Z; 2- Generation Y; 3- Generation X) Post hoc evaluations: Dunn Test

Table 4. Comparison of THLS-32 scale processes and total score with generations

Processes of the THLS-32 scale		Generations			p	Post Hoc Dunn Test
		Generation Z (n=80)	Generation Y (n=200)	Generation X (n=170)		
Access to information	Mean±SD	39.51±7.15	40.35±9.14	37.47±9.15	^b 0.001**	2>3
	Median (Min-Max)	37.50 (28.13-50)	42.18 (0-50)	37.50 (0-50)		
Understanding information	Mean±SD	40.56±6.36	40.73±8.94	38.33±8.64	^b 0.002**	2>3
	Median (Min-Max)	39.06 (29.69-50)	42.18 (0-50)	39.06 (0-50)		
Assessing information	Mean±SD	36.03±9.45	36.02±9.21	33.68±9.04	^b 0.001**	2>3
	Median (Min-Max)	35.93 (15.63-46.88)	37.50 (0-50)	32.81 (0-48.44)		
Using/Implementing information	Mean±SD	39.72±6.01	41.07±8.66	36.04±8.90	^b 0.001**	1,2>3
	Median (Min-Max)	37.50 (28.13-50)	42.18 (0-50)	37.50 (0-50)		
THLS-32 Scale Total	Mean±SD	38.96±6.91	39.54±8.39	36.38±8.45	^b 0.001**	2>3
	Median (Min-Max)	37.30 (25.39-48.05)	41.01 (0-50)	36.32 (0-48.44)		

^bKruskal-Wallis Test,^{*}p<0.05,^{**}p<0.01. (Post Hoc Test: 1-Generation Z; 2- Generation Y; 3- Generation X) Post hoc evaluations: Dunn Test

by the participants showed a significant difference by generations. The scores of generation Y were higher than those of generation X (p=0.001) (Table 4).

3.2. Coronavirus anxiety

The CAS scores of the participants ranged from 5 to 21, and the total score average was 6.70±2.98. According to the CAS 9 cut-off value, those with coronavirus anxiety were determined to be 15.6% (n=70) (Table 5). Table 5 shows the distribution of CAS scores by generations, and the

mean scores of generation X were statistically significantly higher than those of generations Y and Z (p=0.001).

3.3. The correlation between of THLS-32 score subdimensions and CAS

Table 6 shows the correlation between the mean total THLS-32 score and the CAS total score. A weak negative statistically significant correlation was found between the CAS and the Treatment and Service subdimension of the THLS-32 scale (p=0.001). A weak negative statistically

significant difference was found between the CAS and the protection from illnesses and improvement of health subdimension of the THLS-32 scale ($r=-0.312$; $p=0.001$).

Regarding the comparison of the CAS and THLS-32 scale processes total scores, a statistically significant weak negative correlation was found between the CAS and the total scores of the processes of accessing information, understanding information and assessing information of the THLS-32 scale ($r=-0.246$; $p=0.001$) ($r=-0.207$; $p=0.001$) ($r=-0.294$; $p=0.001$). Also, a statistically significant moderate negative correlation was found between the CAS and the total score of the subdimension of using/ applying information ($r=-0.403$; $p=0.001$).

Table 5. Comparison of coronavirus anxiety scale with generations

	Coronavirus Anxiety Scale		
	Mean±SD	Median (Min-Max)	p
Generation Z	5.60±1.08	5 (5-9)	0.001**
Generation Y	6.54±2.65	5 (5-15)	
Generation X	7.40±3.71	6 (5-21)	
Post Hoc Dunn Test 3>2($p:0,029$); 3>1($p:0,001$)			
CAS Total	6.70±2.98	5 (5-21)	
Coronavirus anxiety (+) (≥ 9); n (%)	70 (15,6)		

Kruskal-Wallis Test, * $p<0,05$, ** $p<0,01$, Post hoc evaluations: Dunn Test

A weak negative statistically significant correlation was found between the mean total scores of CAS and THLS-32 ($r=-0,301$; $p=0,001$)

Table 6: Comparison of the THLS-32 and the CAS

Subdimensions of the THLS-32 scale		CAS				p
		All Cases (n=450)	Generation Z (n=80)	Generation Y (n=200)	Generation X(n=170)	
Treatment and service						
Access to information	r	-0,261	0,001	-0,283	0,028	
	p	0,001**	0,990	0,000**	0,713	
Understanding information	r	-0,248	-0,444	-0,176	-0,103	
	p	0,001**	0,000**	0,012*	0,183	
Assessing information	r	-0,317	-0,305	-0,221	-0,407	
	p	0,001**	0,006**	0,002**	0,000**	
Using/Implementing information	r	-0,261	-0,116	-0,319	-0,174	
	p	0,001**	0,305	0,000**	0,023*	
Total	r	-0,315	-0,285	-0,261	-0,122	
	p	0,001**	0,010*	0,000**	0,112	
Protection from illness and improvement of health						
Access to information	r	-0,296	-0,573	-0,264	-0,186	
	p	0,001**	0,000**	0,000**	0,015*	
Understanding information	r	-0,292	-0,421	-0,159	-0,097	
	p	0,001**	0,000**	0,024*	0,210	
Assessing information	r	-0,186	-0,733	-0,212	-0,044	
	p	0,001**	0,000**	0,003**	0,572	
Using/Implementing information	r	-0,381	-0,659	-0,566	-0,313	
	p	0,001**	0,000**	0,000**	0,000**	
Total	r	-0,312	-0,706	-0,289	-0,139	
	p	0,001**	0,000**	0,000**	0,070	
Processes of the THLS-32 scale						
Access to information	r	-0,246	-0,466	-0,283	-0,075	
	p	0,001**	0,000**	0,000**	0,334	
Understanding information	r	-0,207	-0,498	-0,156	-0,105	
	p	0,001**	0,000**	0,028*	0,174	
Assessing information	r	-0,294	-0,671	-0,275	-0,123	
	p	0,001**	0,000**	0,000**	0,110	
Using/Implementing information	r	-0,403	-0,570	-0,490	-0,193	
	p	0,001**	0,000**	0,000**	0,012*	
THLS-32 Scale Total	r	-0,301	-0,611	-0,295	-0,147	
	p	0,001**	0,000**	0,000**	0,056	

r: Spearman Correlation Test

* $p<0,05$

** $p<0,01$

3.3.1. The relationship between CAS and all dimensions and processes of THLS-32 in terms of generations (Table 6)

Generation Z: A statistically significant negative correlation has been found between CAS and the treatment and service basic dimension, the subdimension of understanding information, the subdimension of assessing information, and the total scores of treatment and service (Respectively; $r=-0,444$; $r=-0,305$; $r=-0,285$; $p=0,001$).

In the basic dimension of protection from illnesses and improvement of health, a statistically significant negative relationship was found between CAS and all subdimensions and total scores (Respectively; $r=-0,421$; $r=-0,733$; $r=-0,659$; $r=-0,706$; $p=0,001$).

A negative statistically significant relationship has been found between CAS and all processes of THLS-32, as well as the total scores of THLS-32 (Respectively; $r=-0,466$; $r=-0,498$; $r=-0,671$; $r=-0,570$; $r=-0,611$; $p=0,001$).

Generation Y: A statistically significant negative relationship at the $p<0.01$ level was found between CAS and the treatment and service basic dimension, the subdimensions of accessing information, assessing information, using/applying information, and the total scores (Respectively; $r=-0,283$ $r=-0,221$; $r=-0,319$; $r=-0,261$; $p=0,001$). Additionally, a statistically significant relationship at the $p<0.05$ level was observed between understanding information and CAS (Respectively; $r=-0,176$; $p=0,012$).

In the basic dimension of protection from illnesses and improvement of health, a statistically significant negative relationship has been observed between CAS and the subdimensions accessing information, assessing information, using/applying information, as well as the total scores (Respectively; $r=-0,264$; $r=-0,212$; $r=-0,566$; $r=-0,289$; $p=0,001$). There is a statistically significant relationship at the $p<0.05$ level with the understanding information score ($r=-0,159$; $p=0,024$).

A statistically significant negative relationship at the $p<0.01$ level has been found between CAS and the processes of accessing information, assessing information, using/applying information and the total scores of THLS-32 (Respectively; $r=-0,283$; $r=-0,275$; $r=-0,490$; $r=-0,295$; $p=0,001$). Additionally, a statistically significant relationship at the $p<0.05$ level is observed with the score of understanding information ($r=-0,156$; $p=0,028$).

Generation X: A statistically significant negative relationship has been found between CAS and the subdimension assessing information of the treatment and service basic dimension ($r=-0.407$, $p=0.001$). Additionally, a statistically significant weak relationship has been observed at the $p<0.05$ level with the score of using/applying information ($r=-0.174$, $p=0.023$).

In the basic dimension of protection from illnesses and improvement of health, a statistically significant weak negative relationship has been found between CAS and the scores of accessing information at the $p<0.05$ level ($r=-0.186$, $p=0.015$). Additionally, a statistically significant negative relationship has been observed with the score of

using/applying information at the $p<0.01$ level ($r=-0.313$, $p=0.001$).

CAS and the process of using/applying information in THLS-32 were found to have a statistically significant weak negative relationship ($r=-0,193$; $p=0,012$) (Table 6).

4. Discussion

Our study, conducted with women at a primary stage health institution, showed that there were differences in HL and coronavirus anxiety in women in generations X, Y and Z. Differences were found in the study in the distributions of the participants' sociodemographic and descriptive characteristics. The highest level of education is found in Generation Z, while the majority of employed individuals and those living with a spouse or partner belong to Generation X. These are possible differences expected as a result of age differences. Education levels are rising year by year in Turkey, and with the spread of education over time, young women think of themselves as better educated than older women (30). Additionally, due to the fact that Generation Z is still young, and a significant portion is likely to be students, it is expected that the rates of employment and marriage are lower for this generation. It was found that while most of the participants did not smoke, the generation which smoked the most was generation Y. That accords with the age group of 25-44, which is the age group which uses tobacco products the most among Turkish women (31).

Most of the participants (61.1%) had not had COVID-19, but the generation who had faced with it the most was generation X. It is reported that in Turkey, the number of COVID-19 patients was highest among the young and middle-aged, while in women the highest case numbers were in the 25-49-year age group, and the second highest in those aged 50-64 (32). The 42-57-year age range which constitutes generation X enters into both of these categories. In this way, it may be thought that the study accords with the national population results.

Even though there was much misinformation during the pandemic, the main source of health information was online communication channels. Face to face meeting was reduced as a result of the precautions which were taken, and so people had to resort to digital sources (33). Studies have reported that the resources generally most used for information or news on COVID-19 were television, social media, and websites (9, 25, 34). In our study, it was found that the three most used sources of information were television, the internet and health workers. Looking at the differences between generations, it is not surprising that getting information from the internet is less in generation X than in generations Y and Z. While most individuals in generation Y were introduced to computers before the age of five, generation Z, the so-called 'internet generation', were born to digitalization (22). On the other hand, the highest preference for using television as a source of information was in generation Z, and this is an unexpected result. This is because generation Z grew up with technology and socializes in the virtual environment (21). We think that various factors may have played a role in this. The desire to get reliable information on COVID-19 and preferring public television channels to access up-to-date information on topics such as restrictions and patient numbers may have had an effect. Also, an increase

and change in form of contact at home with other family members in connection with pandemic restrictions may have had an effect. It may be thought that the tendency towards television to get news and information along with parents may be the reason for this.

Health literacy is important in the control of disease outbreaks. Studies show that inadequate HL has had some negative consequences such as in finding or understanding information, fear, depression and protective behaviors (8-11, 19, 34). Regarding studies with women, it was found in one study conducted in Iran that the HL level of women admitted to hospital during the pandemic was low (19). In a study conducted in Japan with pregnant and postpartum women, it was found that in women whose HL was high, the adoption of COVID-19 prevention measures was also high (9).

It was found that the participants in the present study had adequate levels of HL. There may be different reasons for this result. First of all, the participants were from young generations. We took generation X as the upper limit. The reason for this was that the baby boom generation did not come to the family health center much in the pandemic and that they could have problems at the form-filling stage. Women at a time with more births or when they are making use of the health centers for protective services such as vaccination or monitoring for small children will visit the center more often. Also, at the time when the study was conducted, the pandemic was at an advanced stage, and had been going on for a considerable time. The exposure during this time to so much health-related information and so many terms and concepts may have advanced the level of HL. Generation Y had the highest HL score, and generation X the lowest. It was found that generation X had the lowest scores in terms of both dimensions and processes. Because generation Y were at the ideal age for having children or because they had small children, they may have wanted to be more careful on health-related topics. They will want to do the right thing for their own and their family's health. This may have raised their awareness and sharpened their perception. These factors may push Y generation women to towards doing more research and finding information, and thus it may have a positive effect on their HL.

It has been found that women are more defenseless against stresses and traumatic events, and that gender is a determining factor for anxiety (5). In the present study, the coronavirus anxiety of 15.9% of the women was found to be high. Looking at the participants' mean anxiety scores; it is seen that anxiety was at a normal level. In the literature on the pandemic, a negative correlation is generally seen between age and anxiety. Even though old people are a higher risk group in the pandemic, it has been found in many studies that anxiety levels fall with advancing age (3, 5, 15, 17, 18). These results are connected to the fact that young people get much more information from social media, triggering stress. Also, authors have interpreted this as older people being having better emotional control because of the stresses to which they have been exposed over time. Two studies were found which arrived at a different conclusion. In a study on the general population in the Netherlands, it was found that participants aged 35-49 were at greater risk of a high anxiety level than those aged 18-34 (35), and in Iran, a study concluded that age

and anxiety were not significantly correlated (16). It was seen in the present study that although participants' anxiety levels were within normal limits, the mean anxiety scores of generation X, which formed the older age group, were higher than those of the others. There may be different reasons for this. First, at the time when the study was conducted, the serious consequences of the pandemic had receded, and people had returned to their normal lives. Conducting the study in the last stages of the pandemic and asking about the previous week may have been why general anxiety levels were not high. Also, other factors may have played a role in the difference between generations. For example, not leaving the house and being alone caused problems for generation X, but generation Z in particular may have no problem had in terms of passing time and being self-sufficient with their use of technology.

A statistically weak negative correlation was found in the study between the Coronavirus Anxiety Scale and the THLS-32 scale dimensions and processes total scores. Also, there was a moderate statistically significant negative correlation with the knowledge implementation process. There are a number of studies examining HL and anxiety together in the pandemic in various countries and populations, although not with regard to generations. In two studies in Japan and Vietnam conducted with pregnant women, it was found that anxiety levels were low in those with high HL (12, 36), and in a study with health workers (n=7124) in Vietnam, lower anxiety was found in those with higher HL (24). In China, Xiao et al. (25) investigated HL specific to infectious disease and resistance to anxiety, and the role of gender. It was found in the study that as the strength of HL increased, this was related to a reduction in anxiety. It was also found that the effect of resistance was stronger in males. Lastly, the coronavirus anxiety levels of women with high HL in the present study were found to be lower. It is seen that our findings on HL protecting against anxiety are in accordance with the literature. On the other hand, this study provides intergenerational information and perspective on the relationship between coronavirus anxiety and health literacy. There is family and environmental interaction in many issues concerning women's health, and intergenerational transfers affect health-related behaviors and thoughts. A high level of health literacy is very important for positive health outcomes. The findings of this study also show that a high level of health literacy has a positive effect on coronavirus anxiety. In addition, some characteristics of three different generations of women were determined in terms of some behaviors and practices during the pandemic. This may be important in terms of guiding the care practices of women in different age groups.

5. Conclusion and Recommendations

The effects of the COVID-19 pandemic on mental health and the topic of HL, which is necessary for health control, are among the basic points which must be examined from all directions. In this study, it was seen that in the pandemic, women in generation Y were in a better situation than those in generations X and Z with regard to HL. Generation X was in a worse situation regarding HL and anxiety than generations Y and Z. Also, it was observed that health literacy has a positive impact on coronavirus anxiety across all generations. This effect was particularly significant in Generations Y and Z. In

this regard, it is important to know the characteristics of the different generations of women, who have important roles in the family and society. Therefore, conducting inter-generational studies and examining the health of different generations can be a guide to an approach to people and to planning health services.

6. Contribution to the Field

The examination of societies from different perspectives is crucial in understanding the consequences of extraordinary situations such as pandemics and in planning healthcare services. In primary healthcare delivery for women's health, midwives play a key role as healthcare professionals. It is important for midwives, as part of their essential duties, to continuously know and assess women to provide appropriate service approaches and positive health outcomes. Women are one of the disadvantaged groups due to gender inequality. Additionally, due to their greater effectiveness in family care practices, it is essential to know and enhance their health literacy levels. Understanding generational characteristics is important to comprehend women's attitudes, behaviors, or perspectives in the face of different health events. Generational studies related to health can be beneficial in understanding differences among women in different age groups. This study presents findings on the anxiety and health literacy levels of women during the COVID-19 pandemic according to generations. The results of the study are believed to guide healthcare professionals in community health services in their approach to family members and in planning services. Moreover, the findings obtained in this area, where there is not enough literature knowledge, can serve as a basis for future studies and provide data.

Conflict of Interest

There is no conflict of interest regarding any person and/or institution.

Authorship Contribution

Concept: DH, NB; **Design:** DH, NB; **Supervision:** NB; **Funding:** DH, NB; **Materials:** DH, NB; **Data Collection/Processing:** DH; **Analysis/Interpretation:** DH, NB; **Literature Review:** DH, NB; **Manuscript Writing:** DH; **Critical Review:** NB.

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