

Original Article

Investigation of Women's Access to Cervical Cancer Screening During the Covid-19 Pandemic: The Case of Turkey

Nilay Sener Ozovali, PhD Candidate

Istanbul University-Cerrahpaşa, Faculty of Health Sciences, Department of Midwifery, Istanbul, Turkey

Nuran Gencturk, PhD

Associate Professor, Istanbul University-Cerrahpaşa, Faculty of Health Sciences, Department of Midwifery, Istanbul, Turkey.

Correspondence: Nilay Sener Ozovali, PhD Candidate, Istanbul University-Cerrahpaşa, Faculty of Health Sciences, Department of Midwifery, Istanbul, Turkey e- mail: nilay.sener@hotmail.com

Location of the Study: This study was carried out through online surveys in Turkey.

Abstract

Background: Covid-19, which affected countries all over the world have disrupted health services and cancer screenings worldwide.

Aims: The study aimed to determine women's access to cervical cancer screening during the Covid-19 pandemic in Turkey.

Methods: The study was planned as a descriptive cross-sectional. This study was completed by 443 sexually active women. The data were collected between 19 March and 27 April 2021 using the "Data Collection Form" and the "Attitudes Towards Prevention of Cervical Cancer Scale".

Results: More than half of the women stated that Covid-19 and pandemic restrictions did not affect their pap-smear. However, the Attitudes Towards Prevention of Cervical Cancer Scale Cognitive and Affective mean scores of the women who stated that the pandemic restrictions did not affect her getting pap-smear were lower than the women who stated that it did. This situation shows that the attitudes of women who stated that pandemic restrictions do not affect their pap smears have low attitudes towards protection from cervical cancer.

Conclusions: It has been found that the Covid-19 pandemic and the restrictions in accessing the health services related to the pandemic have an impact on the attitudes towards protection from cervical cancer, such as having a pap smear.

Keywords: Cervical cancer screening, Covid-19, Pap Smear

Introduction

Covid-19 pandemic has disrupted the health services and cancer screenings worldwide and has caused the temporary suspension of national cancer screening programs in some countries in Europe to reduce demand for the healthcare system due to Covid-19 (Marcum, et al., 2020; Dinmohamed, et al., 2020). WHO has accepted preventive health services as the primary health care service that should continue during the Covid-19 pandemic process (WHO, 2020a).

According to the National Cancer Institute (NCI) data, there has been a significant reduction in cancer diagnoses since the start of the pandemic; however, no decrease in actual cancer incidence was observed (Sharpless, 2020). WHO has identified the "2030 targets of the WHO Global strategy" to expand preventive, screening and treatment interventions to eradicate cervical cancer, a public health problem in the 21st century (WHO, 2020b). According to Turkish Health

Statistics 2016 data, the rate of women in our country not having any smear test is 69.3% (The Ministry of Health of Turkey Health Statistics Yearbook, 2019).

Due to the worldwide pandemic, there have been situations such as the fact that the provision of health services has been altered in terms of care and treatment of infected people, as well as increases in the capacity of the health system, a decrease in cancer consultations as a result of the complete closure due to the pandemic, and the cancellation of cancer appointments (Graboyes, et al., 2020; Rao, et al., 2020). It is believed that current shortcomings will lead to significant problems in the interruption of national cancer screenings. On the other hand, there may be a reduction in the behavior of seeking health services due to fear and anxiety of catching Covid-19 (Afzal, et al 2021). Therefore, we assume that the evolving Covid-19 pandemic may affect routine services, including cancer screening. Based on this idea, this study aimed to determine women's access to cervical cancer screening during the Covid-19 pandemic.

The Study

Purpose and type of the study: The study was planned as a cross-sectional, descriptive study. Data were collected between 19 March and 27 April 2021.

Population and sample of the study: The population of the research consists of women over the age of 18 who have sexual experience throughout Turkey. The sample is planned to reach 323 women, which is the maximum population that can be taken with a margin of error of 0.05 for descriptive studies and the minimum sample number (Yazicioglu & Erdogan, 2014). The study was completed with 443 people.

Inclusion criteria: Women who had internet access, have been sexually active, over the age of 18, not diagnosed with any psychiatric disease, could read, understand, write in Turkish, and volunteered for enrollment were included in the study.

Data Collection Tools: Data were collected using the "Data Collection Form" and the

"Attitudes Towards Prevention of Cervical Cancer Scale".

Data Collection Form: The questions were included in the online questionnaire, which was descriptive, cervical screening, and about the impact of the Covid-19 pandemic on cervical cancer screening. This form was created by the researchers through Google Forms.

Attitudes Towards Prevention of Cervical Cancer Scale (APCCS): APCCS was first developed by Dadak and Koyun in 2017, revised in 2021, consists of 22 items and three sub-dimensions. The scale's Cronbach's alpha was 0.87, APCCS cognitive, affective, behavioral sub-dimension Chronbach's alpha was found in order 0.91, 0.80 and 0.80. There are ten items in the perceived cognitive sub-dimension, five items in the affective sub-dimension and seven items in the behavioral sub-dimension. Likert-type grading was used in the scale and items were evaluated as follows: (1) I do not agree, (2) I somewhat agree, (3) I agree at a moderate level, (4) I mostly agree, (5) I completely agree. The total score to be obtained from the scale is Min=23.00, Max=110.00 points. A high score indicates that the individual's attitudes towards protection from cervical cancer are high (Dadak & Ouyaba, 2021). APCCS was used with written permission obtained via e mail from the author.

Data analysis: Data were analyzed using the SPSS 22.0 package program and evaluation was performed using descriptive statistics. Whether the data were suitable for normal distribution was assessed with the Kolmogorov-Smirnov test of normality. In addition, Mann Whitney U test was used for evaluations between two groups and Kruskal Wallis test was used for evaluations between more than two groups. Post-hoc test was used to determine the group that caused the difference. Results were evaluated using a 95% confidence interval representing the 0.05 significance level ($p < 0.05$).

Ethical aspect of study: Written approval was obtained from the Halic University Ethics Committee (Date: 25.03.2021 Ethics committee no: 49). At the beginning of the Google Forms, the women were first mark the statement "I consent to participate in the research". The

study was conducted in accordance with the Declaration of Helsinki.

Results

It was determined that 47.6% of the women were in the 29-39 age group, the mean age of the first sexual intercourse was 24.41 ± 4.060 , 50.8% of them were university graduates. The rate of having pap smear during the pandemic period was %11.7, and 89.4% had knowledge about cervical cancer and pap-smear. It was determined that 44.0% of the women had a gynecological examination during the pandemic and 40.2% of them were affected by the restrictions applied during the pandemic (Table 1).

A significant difference was found when the age groups of women were compared with regard to having a gynecological examination in the last year, and impacts of Covid-19 and pandemic restrictions on having a Pap smear (Table 2).

In this study, with regard to APCCS, total, cognitive, affective, behavioral sub-dimensions Chronbach's alpha was found in order 0.826, 0.817, 0.737 and 0.694. The mean score of the total score of APCCS was 83.58 ± 11.867 , and the mean score of the APCCS item was 3.799. According to the mean APCCS item score, the

average level of the responses was "mostly agree".

A statistically significant difference was found between the age groups of the women and the total mean score of APCCS, and mean score of cognitive and behavioral sub-dimensions of APCCS ($p < 0.05$). In terms of mean APCCS total score and mean APCCS cognitive, behavioral sub-dimensions scores, it was found that women between the ages of 40-50 and 51-65 had higher scores than the mean scores of women between the ages of 18-28 and 29-39. A statistically significant difference was found between educational status and the cognitive sub-dimensions of APCCS ($p < 0.05$) (Table 3).

A statistically significant difference was found between the time of the last pap-smear and the total APCCS score, and the mean scores of the cognitive, behavioral sub-dimensions of APCCS ($p < 0.05$). The difference was found to be between those who had pap smear in the last two years and those who had it in the last 5 years or earlier. It was found that those who answered that the pandemic restrictions "affected" the intentness to have a Pap smear had higher total APCCS cognitive and behavioral sub-dimensions scores than those who answered "didn't affect" (Table 3).

Table 1 The women's descriptive features (N=443)

		n	%
Age	18-28 age	55	12.4
	29-39 age	211	47.6
	40-50 age	126	28.5
	51-65 age	51	11.5
Age at the time of first sexual intercourse	24.41 ± 4.060 Min=16	Max=40	
Age at first marriage	24.91 ± 4.054 Min=18	Max=40	
Educational status		n	%
	Primary school	17	3.8
	Middle school	18	4.1
	High school	84	19.0
	University	225	50.8
	Post graduate	99	22.3
Income status	Income less than expenses	71	16.0
	Income equal to expenses	233	52.6
	Income more than expenses	139	31.4

Birth control methods used	Not using birth control method	70	15.8
	In menopause	34	7.7
	Oral Contraceptives (OCs)	31	7.0
	Condom	142	32.0
	Intrauterine Device (IUD)	43	9.7
	Traditional method	98	22.1
	Others	25	5.7
Time last Pap smear was done	In the last 6 months	53	12.0
	In the last 1 year	52	11.7
	In the last 2 years	127	28.7
	5 years and over	101	22.8
	I have never done a pap smear	110	24.8
Information status about cervical cancer and Pap smear	Yes	396	89.4
	No	47	10.6
Availability of gynecological examination in the pandemic	Yes	195	44.0
	No	248	56.0
Do you think Covid-19 has an impact on getting a Pap smear?	Yes	171	38.6
	No	272	61.4
Did the restrictions due to the pandemic affect your intentness to have a Pap smear?	Yes	178	40.2
	No	265	59.8
Total		443	100.0

Table 2 Comparison of age groups of women with regard to having a gynecological examination in the last year, and impacts of COVID-19 and pandemic restrictions on having a Pap smear test (N=443)

Age group	Have you had a gynecological examination in the last 1 year?				Did the pandemic restrictions affect your intentness to have a Pap smear?				
	Yes		No		Yes		No		
	n	%	n	%	n	%	n	%	
18-28 age	32	58.2	23	41.8	10	18.2	45	81.8	
29-39 age	93	44.1	118	55.9	86	40.8	125	59.2	
40-50 age	57	45.2	69	54.8	52	41.3	74	58.7	
51-65 age	13	25.5	38	74.5	30	58.8	21	41.2	
				$X^2=11.659$ $p=0.009$		$X^2=18.540$ $p=0.000$			

p -value <0.05,

Characteristics of women		n	%	APCCS Cognitive X±SD	APCCS Affective X±SD	APCCS Behavioral X±SD	Total APCCS X±SD
Age group	18-28 age	55	12.4	36.109±7.251	20.072±4.176	24.218±5.265	80.400±12.983
	29-39 age	211	47.6	39.094±6.756	20.132±3.995	23.511±4.760	82.739±10.817
	40-50 age	126	28.5	40.127±6.690	20.000±3.871	25.000±5.280	85.127±12.118
	51-65 age	51	11.5	40.921±7.326	20.451±3.764	25.333±5.490	86.705±13.195
				KW*=16.946 p=0.001	KW*=0.628 p=0.890	KW*=11.183 p=0.011	KW*=13.362 p=0.004
Educational status	Primary school	17	3.8	37.117±10.658	20.117±5.475	25.411±8.116	82.647±21.091
	Middle school	18	4.1	35.388±7.882	20.222±4.479	23.444±5.382	79.055±12.581
	High school	84	19.0	37.309±6.980	20.131±4.224	24.833±5.432	82.273±12.776
	University	225	50.8	39.368±6.632	20.213±3.691	23.835±4.911	83.417±11.576
	Post graduate	99	22.3	41.596±5.98	19.899±3.942	24.565±4.499	86.060±8.879
			KW*=20.841 p=0.000	KW*=0.921 p=0.921	KW*=4.230 p=0.376	KW*=7.369 p=0.118	
Availability of gynecological examination in the pandemic	Yes	195	44.0	38.964±7.163	19.753±4.050	25.425±5.154	84.143±11.478
	No	248	56.0	39.435±6.827	20.415±3.846	23.294±4.864	83.145±12.168
Information status about cervical cancer and Pap smear	Yes	396	89.4	39.565±6.868	20.116±3.858	24.454±5.037	84.136±11.430
	No	47	10.6	36.383±7.266	20.191±4.670	22.361±5.289	78.936±14.371

				U**=6828.500 p=0.003	U**=8856.500 p=0.586	U**=7089.500 p=0.007	U**=7292.50 p=0.150
Time last pap smear was done	In the last 6 months	53	12.0	37.528±7.368	19.641±3.981	26.377±4.927	83.547±12.088
	In the last 1 year	52	11.7	39.673±7.070	19.403±4.375	26.788±5.449	85.865±11.973
	In the last 2 years	127	28.7	40.039±7.129	20.196±3.690	24.653±4.910	84.889±12.054
	5 years and over	101	22.8	40.623±6.143	20.653±3.734	22.970±4.618	84.247±10.326
	I have never done a pap smear test	110	24.8	37.618±6.914	20.127±4.179	22.663±4.797	80.409±12.385
				KW*=16.631 p=0.002	KW*=4.174 p=0.383	KW*=42.658 p=0.000	KW*=12.166 p=0.016
Did the pandemic restrictions affect your intentness to have a Pap smear?	Yes	178	40.2	40.157±6.456	20.842±3.379	24.112±4.426	85.112±10.584
	No	265	59.8	38.603±7.244	19.641±4.223	24.313±5.512	82.558±12.571

U**: Mann–Whitney test value, KW*: Kruskal–Wallis H test value, statistical significance at the $p < 0.05$ level

Discussion

In this study was observed that women are affected by the pandemic and the disruptions in accessing health care caused by the pandemic. It was determined that they wanted to have a smear test after the pandemic.

In the study, it was found that women had a high level of knowledge about the Pap smear, however they had a lower rate of Pap smear done in the last one year. When we look at the data about Pap smear done in our country during the last year, results are similar to the Turkey Health Survey 2019 data (The Ministry of Health of Turkey Health Statistics Yearbook, 2019). In a qualitative study conducted in Spain, it was found that women had low level of knowledge about cervical cancer risk factors and prevention, and they demanded more information about prevention measures (Borrull-Guardeño, et al., 2021). In the study, the women's pap smear screening rates low before and after the pandemic. It is assumed that this may be due to factors such as embarrassment for women to have a gynecological examination, not having time, fear of the possibility of cancer as a result of Pap smear, not seeing themselves in the risky group, and religious beliefs.

Practicing safe sex is one of the ways to prevent cervical cancer. In our study, 32% of the participants used condoms. We found that as the number of people using condoms increased, women displayed more positive attitudes towards protection from cervical cancer. If the pandemic continues, it is believed that there will be an increase in the morbidity and mortality rates of cervical cancer and many diseases due to delays in preventive health and clinical services (Ajenifuja, et al., 2020). In the study, it was found that the pandemic and pandemic restrictions have an impact on having Pap smear and gynecological examination in women aged 40 and over. In a systematic review consisting of 36 articles from countries including all income groups and people aged 35 and younger, it was reported that young people lack knowledge or awareness about protection from cervical cancer (Kirubarajan, et al., 2021). Interruption of screening during the pandemic

means postponements in screening for many women (Castanon, et al., 2021).

These research results show that as age and education level increase, women exhibit more cognitively positive attitudes towards protection from cervical cancer. In the study by Gozuyesil, Duzgun & Aslan (2019), while no statistically significant difference was found between the mean score of APCCS and age, a significant difference was found between the educational status of women in terms of cognitive sub-dimension of APCCS. In the study conducted by Bertucci et al. (2021), it was found that education level significantly affects the level of knowledge about cervical cancer and cervical cancer screening. It may be due to the fact that young women and women with higher education levels have easier access to information in the current technology age. In this study, although the increase in age showed that the attitudes towards prevention of cervical cancer increased, the rate of having Pap smear test in the last year remained below the annual target value of WHO and Turkey.

It has been found that the restrictions on access to the health service due to Covid-19 pandemic and the lockdown during the pandemic have an impact on the status of having Pap smear and attitudes of women towards protection from cervical cancer cognitively and behaviorally. In the study, which measures the secondary effects of Covid-19 epidemic restrictions, cervical cancer screening process and tests, it is stated that temporary disruptions in cancer screening in the USA may cause temporal delays in cancer detection and small increases in cancer burden between 2020-2027 (Burger et al., 2021). According to the data of the state of California, it was reported that pandemic restrictions caused a 78% decrease in Pap smear rates and 82% decrease in HPV test screening rates in women aged 30-65 years (Miller et al., 2020).

In the literature, it has been found that women's knowledge of Pap smear is high, however, their awareness is moderate (Alqahtani, et al., 2021; Chisale Mabotja, et al., 2021). Although results of the research suggest that both the average age and the high level of education affect women's attitudes positively, it is assumed that there is a

lack of transformation into behavior. In this context, it is recommended to support developing countries with programs for the lack of information and to disseminate cancer screening policies.

Conclusion: It has been observed that they were affected by the pandemic and the disruptions in access to health care caused by the pandemic. It was determined that they wanted to have a smear test after the pandemic. Given the unprecedented impact of the pandemic worldwide, negative reflections of Covid-19 pandemic on cancer screenings will be inevitable.

Strengths and Limitations: The strengths of our study are that the number of participants above the minimum number of samples, and participants were recruited from all regions of our country. The limitations of the study included having to accept the information given as correct on social platforms.

Acknowledgements: Authors would like to thank participants for their contributions and answering the Research Questions which form the basis of this paper.

References

- Marcum, M., Kurtzweil, N., Vollmer, C., Schmid, L., Vollmer, A., Kastl, A., Acker, K., Gulati, S., Grover, P., Herzog, T.J., Ahmad, S.A., Sohal, D. & Wise-Draper, T. M. (2020). COVID-19 pandemic and impact on cancer clinical trials: An academic medical center perspective. *Cancer Medicine*, 9(17), 6141-6146.
- Dinmohamed, A. G., Visser, O., Verhoeven, R. H., Louwman, M. W., van Nederveen, F. H., Willems, S. M., Merks, M.A.W., Lemmens, V.E.P.P., Nagtegaal, I.D. & Siesling, S. (2020). Fewer cancer diagnoses during the COVID-19 epidemic in the Netherlands. *The Lancet Oncology*, 21(6), 750-751. DOI: [https://doi.org/10.1016/S1470-2045\(20\)30265-5](https://doi.org/10.1016/S1470-2045(20)30265-5)
- World Health Organization. (2020a). COVID-19: operational guidance for maintaining essential health services during an outbreak: interim guidance. Retrieved from 25 March 2020, <https://apps.who.int/iris/handle/10665/331561>
- Sharpless NE. (2020). COVID-19 and cancer. *Science*. 368(6497):1290.
- World Health Organization. (2020b). Global strategy to accelerate the elimination of cervical cancer as a public health problem. Retrieved from 25 March 2020, <https://apps.who.int/iris/bitstream/handle/10665/336583/9789240014107-eng.pdf>
- The Ministry of Health of Turkey Health Statistics Yearbook- 2019. Retrieved from 25 March 2020, https://ohsad.org/wp-content/uploads/2021/04/health-statistics-yearbook-2019_eng.pdf
- Graboyes, E., Cramer, J., Balakrishnan, K., Cognetti, D. M., López-Cevallos, D., de Almeida, J. R., ... & Brenner, M. J. (2020). COVID-19 pandemic and health care disparities in head and neck cancer: Scanning the horizon. *Head & neck*, 42(7), 1555-1559. <https://doi.org/10.1002/hed.26345>
- Rao, V., Arakeri, G., Subash, A., Ajaikumar, B. S., Patil, R., Hale, B., & Mendes, R. A. (2021). Decreased cancer consultations in the COVID-19 Era: A concern for delay in early cancer diagnosis in India. *JCO Global Oncology*, 7. doi: 10.1200/GO.21.00030
- Afzal, MS, Khan, A., Qureshi, UUR., Saleem, S., Saqib, MAN., Shabbir, RMK., Naveed, M., Jabbar M., Zahoor, S., & Ahmed H. (2021). Community-based assessment of knowledge, attitude, practices and risk factors regarding COVID-19 among Pakistanis residents during a recent outbreak: a cross-sectional survey. *J Community Health*. 46:476–486. <https://doi.org/10.1007/s10900-020-00875-z>
- Yazicioglu Y, Erdogan S. (2014). *SPSS Applied Scientific Research Methods. (SPSS Uygulamalı Bilimsel Araştırma Yöntemleri)*. (4th ed). Detay Broadcasting. Turkey (Turkish).
- Dadak A, Ouyaba AT. (2021). Developing the attitude scale for protection from cervical cancer. *Journal of Nursing Measurement*. 29(2): DOI: 10.1891/JNM-D-19-00081
- Borrull-Guardeño, J., Sebastián-Laguarda, C., Donat-Colomer, F., & Sánchez-Martínez, V. (2021). Women's knowledge and attitudes towards cervical cancer prevention: A qualitative study in the Spanish context. *Journal of clinical nursing*, 30(9-10), 1383-1393.
- Ajenifuja, K. O., Belinson, J., Goldstein, A., Desai, K. T., de Sanjose, S., & Schiffman, M. (2020). Designing low-cost, accurate cervical screening strategies that take into account COVID-19: a role for self-sampled HPV typing. *Infectious agents and cancer*, 15, 1-5.
- Kirubarajan, A., Leung, S., Li, X., Yau, M., & Sobel, M. (2021). Barriers and facilitators for cervical cancer screening among adolescents and young people: a systematic review. *BMC women's health*, 21(1), 1-13.

- Castanon, A., Rebolj, M., Burger, E. A., de Kok, I. M., Smith, M. A., Hanley, S. J., Carozzi, FM., Peacock, S., & O'Mahony, J. F. (2021). Cervical screening during the COVID-19 pandemic: optimising recovery strategies. *The Lancet Public Health*, 6(7), e522-e527. [https://doi.org/10.1016/S2468-2667\(21\)00078-5](https://doi.org/10.1016/S2468-2667(21)00078-5)
- Gozuyesil, E., Duzgun, AA., Aslan, KSU. (2019). Evaluation of the Women's Attitudes Towards Prevention and Early Diagnosis of the Cervical Cancer. *STED*. 28(4):229-238.
- Bertucci, M., Bonnet, E., Satger, L., Kreiche, A., Chappert, J. L., Loy-Morel, S., Segondy, M., Daures, JP., & Boulle, N. (2021). Acceptability of vaginal self-sampling with high-risk human papillomavirus testing for cervical cancer screening: a French questionnaire-based study. *Women & Health*, 61(1), 83-94. <https://doi.org/10.1080/03630242.2020.1831683>
- Burger, E. A., Jansen, E. E., Killen, J., Kok, I. M. D., Smith, M. A., Sy, S., Dunnewind, N., Campos, NG., Haas, JS., Kobrin, S., Kamineni, A., Canfell, K., & Kim, JJ. (2021). Impact of COVID-19-related care disruptions on cervical cancer screening in the United States. *Journal of medical screening*, 28(2), 213-216.
- Miller, M. J., Xu, L., Qin, J., Hahn, E. E., Ngo-Metzger, Q., Mittman, B., & Chao, C. R. (2021). Impact of COVID-19 on cervical cancer screening rates among women aged 21–65 years in a large integrated health care system—Southern California, January 1–September 30, 2019, and January 1–September 30, 2020. *Morbidity and Mortality Weekly Report*, 70(4), 109.
- Alqahtani, H. A., Alqahtani, Y. M., Muqbil, A. S., Alqahtani, A. A., Aldarami, M. S., Alshehri, A. M., Alsaedi, MA., Alalyani, FM., & Alahmari, F. M. (2021). Public Awareness and Knowledge of Pap smear as a Screening Test for Cervical Cancer among Saudi Population in Aseer Region, Saudi Arabia. *World family Medicine. Middle East Journal of Family Medicine*, 19(3), 74-81.
- Chisale Mabotja, M., Levin, J., & Kawonga, M. (2021). Beliefs and perceptions regarding cervical cancer and screening associated with Pap smear uptake in Johannesburg: A cross-sectional study. *PloS one*, 16(2), e0246574.