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Research Article

A GLOBAL RISK IN THE COVID-19 PANDEMIC: ANALYSIS WOMEN'S UNMET NEEDS FOR MODERN CONTRACEPTIVE

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Abstract: *The unmet need for contraception in the COVID-19 pandemic is a global risk. This study analyzed the unmet modern contraceptive needs of Turkish women in the COVID-19 pandemic. This cross-sectional study was conducted with 263 Turkish women of reproductive age who were reached through social media channels between February and December 2022. Categorical data on unmet family planning needs were compared using Chi-square tests, and the effects of risk factors were analyzed through multivariate logistic regression. Women were administered a web-based online questionnaire with data. During the COVID-19 pandemic, the risk of unmet needs increased 5.29 times in women aged 30-39 years compared to women aged <30 years (p=0.028). The risk of unmet need was 4.69 times higher in women whose husbands had a high school education level or less compared to women whose husbands had a university degree (p=0.044). The unmet need of those who did not have an abortion during the pandemic increased 5.34 times (p=0.013). Women who did not receive information on modern contraceptive methods from nurses/midwives had a 15.6-fold higher risk of unmet needs than those who did (p=0.013). Being in their 30s during the COVID-19 pandemic, having a spouse's education level of high school or less, not experiencing abortion during the pandemic, and not receiving information about contraceptive methods from nurses/midwives were factors that increased the risk of unmet modern contraceptive need. Contraceptive healthcare providers should prioritize women at risk, especially during times of restrictions such as the pandemic. They should guide all women, men, and adolescents with telemedicine and/or hybrid care practices.*

Keywords*: Contraception, COVID-19, Global Health, Pandemics, Women,*

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1. Introduction

Coronavirus disease (COVID-19), caused by the SARS-CoV-2 virus, was declared a pandemic on March 11, 2020. The COVID-19 pandemic has affected the whole world in social, economic, and health areas to the present day [1,2] Reasons such as pandemic restrictions and fear of going to a health institution negatively affected the choice, use, and maintenance of contraceptive methods [3]. Difficulties in accessing contraceptive services started with the quarantine process. Unintended pregnancies in women increased [4] An increase in unintended pregnancies was also reported in past pandemics [5]. The effects of unmet contraceptive needs in pandemics are long-term [6].

The unmet need for contraception is the family planning needed to space births when women are undecided about the desire and timing of a child [7]. Reducing the need to zero for all is one of the main goals of the Sustainable Development Goals [8]. The United Nations Population Fund (UNFPA) estimated that if the quarantine lasted six months at the start of the pandemic, unplanned pregnancies

would increase by seven million [9]. During the pandemic, ensuring access to long-acting and emergency contraceptives has become even more critical to reduce the unmet need for contraception [10].

During the pandemic, contraceptive use decreased, especially in low- or middle-income countries, due to service disruption or deemed unnecessary [11]. Therefore, an increase in unintended pregnancies is a global risk. The pandemic, which has affected the whole world, has shown countries worldwide the necessity to be prepared for possible pandemics [12]. During pandemic processes, especially in poor countries, access to modern contraceptives and determining the unmet need are essential for evaluating the continuity of the service [2,10]. There are no published reports on the unmet modern contraceptive needs of Turkish women in the COVID-19 pandemic. This study in Turkey analyzed Turkish women's unmet contemporary contraceptive needs during the COVID-19 pandemic.

Research Questions

1. Is there a difference between the obstetric data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic?
2. Is there a difference between the contraception data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic?
3. What are the risk factors that have an impact on the unmet need for modern contraceptives?

2. Materials and methods

2.1. Setting

This is a descriptive and cross-sectional study. Consent for the web-based survey was obtained by the Declaration of Helsinki. This study was conducted between February and December 2022 by sharing a web-based online survey (Google Forms) with Turkish women on WhatsApp, Facebook, and Instagram social media channels. The responses to the study were asked to be answered considering the process experienced during the quarantine period from March 2020, when the pandemic was declared. The sample selection was based on the study by Roy et al. (COVID-19 family planning prevalence 23%). It was calculated that n = 425 women should be included in the study to determine the determined prevalence value at a 95% confidence level and with a margin of error of d = 0.04.[13] The sample size was calculated as n=425. The form was completed by n=425 women aged between 18 and 49 years, married or sexually active, with an ongoing menstrual cycle. They confirmed they agreed to participate in the study through the online questionnaire. n=162 women were excluded from the study because they stated they did not need contraceptives. Data from the remaining n=263 women were analyzed (Figure 1).

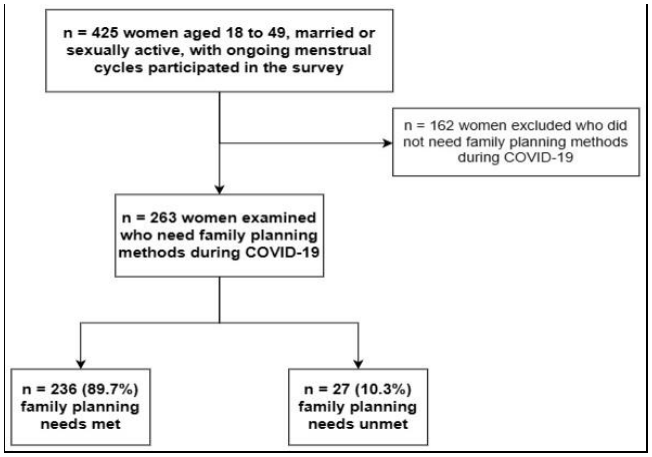

Figure 1. Flow chart of the study

On the first page of the questionnaire, an informed consent form with information about the purpose and procedure of the study was presented. After those who agreed to participate gave consent, the data collection form was displayed. The form consisted of 16 structured questions on personal, obstetric-gynecological, COVID-19 pandemic contraceptives, and unmet needs for modern contraceptives [2, 13-18].

Ethical statement

Ethics committee approval was obtained from the Committee for Evaluation of Non-invasive Scientific Research of Trakya University, Faculty of Medicine (TUTF-GOBAEK 2022/30).

2.2. Statistical analysis

Results were expressed as numbers and percentages. Pearson, Yates, or Fisher Chi-square tests were used to compare the categorical data of women with and without unmet family planning needs. Effects of risk factors on unmet needs for family planning were examined by multivariate logistic regression analysis with enter method. Odds Ratios and %95 Confidence Interval for Odds Ratios were calculated. A p-value <0.05 was accepted as statistically significant. Statistical analysis was done using IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.

3. Results

Comparison of personal data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic was examined and the results were presented in Table 1.

Table 1. Comparison of personal data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic (n=263)

		Unmet Need for Modern Contraceptives		
		Without (n=236) ***n (%)***	**With (n=27)** ***n (%)***	**p**
Age group	20-29	71 (95.9)	3 (4.1)	0.065
	30-39	107 (85.6)	18 (14.4)	
	>39	58 (90.6)	6 (9.4)	
Marital status	Married	228 (90.1)	25 (9.9)	0.274
	Single	8 (80)	2 (20)	
Working in a pandemic	Yes	97 (91.5)	9 (8.5)	0.567
	No	139 (88.5)	18 (11.5)	
Education	High school and below	117 (86.0)	19 (14.0)	0.065
	University and above	119 (93.7)	8 (6.3)	
Husband's education	High school and below	102 (83.6)	20 (16.4)	**0.004****
	University and above	134 (95.0)	7 (5.0)	
Family type	Nuclear family	213 (89,9)	24 (101)	0.738
	Extended family	23 (88.5)	3 (11.5)	
Income status	Income less than expenditure	29 (80.6)	7 (19.4)	0.132
	Income equal to expenditure	166 (90.7)	17 (9.3)	
	Income more than expenditure	41 (93.2)	3 (6.8)	
Place of residence	Province	158 (92.9)	12 (7.1)	**0.038***
	District	69 (85.2)	12 (14.8)	
	Village	9 (75)	3 (25)	
COVID-19 infection in the pandemic	Yes	126 (88.7)	16 (11.3)	0.707
	No	110 (90.9)	11 (9.1)	

Pearson, Yates, or Fisher Chi-square test; *:p<0.05; **:p<0.01

In the study, women whose husbands were university graduates had a less unmet need for modern contraceptives (p=0.004). Women in provinces and districts were also less in need (p=0.038). Among n=236 women with non-unmet needs, 88.7%, and among n=27 women with unmet needs, 11.3% had COVID-19 infection (Table 1).

Comparison of obstetric and contraception data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic were examined and the results were presented in Table 2.

Table 2. Comparison of obstetric and contraception data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic (n=263)

		Unmet Need for Modern Contraceptives		**p**
COVID-19 pandemic		**Without (n=236)** ***n (%)***	**With (n=27)** ***n (%)***	
Desired/planned pregnancy	Yes	56 (94.9)	3 (5.1)	0.213
	No	180 (88.2)	24 (11.8)	
Giving birth	Yes	54 (91.5)	5 (8.5)	0.786
	No	182 (89.2)	22 (10.8)	
Unwanted/unplanned pregnancy	Yes	21 (80.8)	5 (19.2)	0.162
	No	215 (90.7)	22 (9.3)	
Having an abortion	Yes	15 (75)	5 (25)	**0.041***
	No	221 (90.9)	22 (9.1)	
Receiving information on modern contraceptive methods	Yes	160 (90.9)	16 (9.1)	0.498
	No	76 (87.4)	11 (12.6)	
Family	Yes	44 (86.3)	7 (13.7)	0.516
	No	192 (90.6)	20 (9.4)	
Friends	Yes	28 (87.5)	4 (12.5)	0.754
	No	208 (90)	23 (10)	
Nurse/Midwife	Yes	82 (98.8)	1 (1.2)	**0.002****
	No	154 (85.6)	26 (14.4)	
Physician	Yes	56 (93.3)	4 (6.7)	0.422
	No	180 (88.7)	23 (11.3)	
Internet	Yes	59 (90.8)	6 (9.2)	0.935
	No	177 (89.4)	21 (10.6)	
Use of modern contraceptive methods				
Birth Control Pill	Yes	39 (100)	0 (0)	**0.019***
	No	197 (87.9)	27 (12.1)	
Intrauterine Device	Yes	37 (100)	0 (0)	**0.019***
	No	199 (88.1)	27 (11.9)	
Injection	Yes	6 (100)	0 (0)	1.000
	No	230 (89.5)	27 (10.5)	
Tubal Ligation	Yes	6 (100)	0 (0)	1.000
	No	230 (89.5)	27 (10.5)	
Condom	Yes	107 (100)	0 (0)	**0.000****
	No	129 (82.7)	27 (17.3)	
Purchase of modern contraceptive method service from a health institution	Yes	34 (91.9)	3 (8.1)	0.778
	No	202 (89.4)	24 (10.6)	

Pearson, Yates, or Fisher Chi-square test; Pearson, ; *:p<0.05; **:p<0.01; ***:p<0.001

Women who did not have an abortion during the COVID-19 pandemic had fewer unmet needs (p=0.041). Women who received information about modern contraceptive methods from a nurse/ midwife had fewer unmet needs (p=0.002). Condoms (n=107), birth control pills (n=39), and intrauterine devices (n=37) were the 1st, 2nd, and 3rd modern contraceptive methods, respectively. During the COVID-19 pandemic, all women who used modern contraceptives such as birth control pills (p=0.019), intrauterine devices (p=0.019), and condoms (p<0.001) had no unmet needs (Table 2).

The effect of risk factors on the unmet need for modern contraceptives by multivariate logistic regression analysis was examined and the findings of the study were presented in Table 3.

Table 3. Effect of risk factors on unmet need for modern contraceptives by multivariate logistic regression analysis[a]

Factors	Category	p	Odds Ratio	%95 Confidence Interval for Odds Ratio
Age	20-29		1 (Reference)	
	30-39	0.028	5.29	1.19 – 23.45
	>39	0.383	2.09	0.40 – 10.90
Education	University		1 (Reference)	
	High school and below	0.687	0.75	0.18 – 3.11
Husband's education	University		1 (Reference)	
	High school and below	**0.044***	4.69	1.04 – 21.01
Place of residence	Province	0.295		
	District	0.281	1.70	0.65 – 4.47
	Village	0.162	3.48	0.61 – 20.06
Having an abortion in the COVID-19 pandemic	Yes		1 (Reference)	
	No	**0.013***	5.34	1.43 – 19.95
Getting information from nurse/ midwife about modern contraceptive methods in COVID-19 pandemic	Yes		1 (Reference)	
	No	0.013*	15.60	1.80 – 135.12

[a]Multivariate logistic regression analysis ; *p<0.05

When we examined the effect of risk factors on unmet need for modern contraceptives by multivariate logistic regression analysis, the risk of unmet need was 5.29 times (95% CI: 1.19 - 23.45) higher in women aged 30-39 years compared to women aged <30 years during the pandemic (p=0.028). The risk of unmet need was 4.69 times (95% CI: 1.04 - 21.01) higher in women with a spouse with a high school education or less than women with a spouse with a university degree (p=0.044). Women who did not have an abortion during the pandemic had a 5.34-fold (95% CI: 1.43 - 19.95) higher risk of unmet needs. The risk of unmet need was 15.6 times (95% CI: 1.80 - 135.12) higher in women who did not receive information about modern contraceptive methods from nurses/midwives (p=0.013) (Table 3).

4. Discussion

This study showed that Turkish women who preferred the modern contraceptive method used during the COVID-19 pandemic did not have unmet needs. Being in their 30s during the pandemic, having a spouse's education level of high school or less, not having a pregnancy abortion during the

pandemic, and not receiving information about contraceptive methods from the nurse/mother were factors that increased the risk of unmet modern contraceptive need.

Participants mostly used condoms, followed by the contraceptive pill and intrauterine device (IUD) as modern contraceptive methods during the pandemic. All women (100%) who used modern contraceptives during the COVID-19 pandemic had no unmet need for contraception (Table 2). In Nigeria, 30.8% of women used modern contraceptive methods early in the pandemic [2]. In Jordan, 79.7% of women accepted traditional methods. In addition, 35.3% of women became pregnant during curfew, and 90% of pregnancies were unplanned [13]. In Nigeria, the prevalence of modern contraceptive use was 32.8% [14]. In Bangladesh, the rate of contraceptive method use was 36.03% [15]. In other studies conducted during the pandemic, traditional methods were more common. In Italy, it was reported that women used both long-acting and short-acting oral contraceptives during the pandemic, and none experienced unplanned pregnancies [16]. In Australia, oral contraception was the only standard method among women of reproductive age at the onset of the pandemic [17]. In Ireland, it was determined that 72% of women did not use any contraceptive in the first six months of the pandemic, while 23% preferred hormonal contraceptive use [18]. In the US states of Arizona, Iowa, and Wisconsin, during the pandemic, most women (86-87%) were using oral contraceptives [19]. In Bangladesh, the rate of contraceptive method use was 36.03%. About 40.95% used oral contraceptives, 8.04% injections, 6.53% condoms, and 5.03% Norplant [20]. In Jordan, more than 56% of women reported using a variety of contraceptives, with the most commonly used being IUD (28.9%), coitus interruptus (16.3%), and male condoms (13.6%) [13]. In India, it was reported that only the progesterone pill could be safely initiated without face-to-face counseling and that 3-month injections, intrauterine contraception, or subcutaneous implant placement are appropriate options [20]. Economically disadvantaged populations have experienced inequitable access to contraception during the pandemic. Free contraception and promoting the most effective methods in disadvantaged people can reduce unintended pregnancies [21] .This study showed that modern contraceptives during the pandemic reduced unmet needs. As a result, countries can encourage women to use long-term modern contraceptives during pandemics.

The population survey conducted before the pandemic in Turkey (Turkey Demographic and Health Survey-TDHS 2018) announced that the unmet need for contraceptives increased significantly in women over 35 years of age and women who did not intend to give birth more [7]. This study found that women aged 30-39 had a 5.29-fold increased risk of unmet needs compared to women aged <30 during the pandemic. In addition, women aged 30-39 were less likely to seek contraceptive services (Table 3). In Bangladesh, women aged 20-24 years were 1.85 times more likely to use contraceptives than women aged 35-49 years [15]. In Nigeria, women aged 30-34 were 4.46 times more likely to be inconsistent in their fertility preferences than women aged 15-24 years [14]. Another study in Nigeria found that women aged 20-29 were 50% less likely to use modern contraceptives during the pandemic than women aged 30-39. However, due to the closure of educational institutions during the pandemic, parents asked young people to return home, which was interpreted as limiting their sexual activities [2]. In Ethiopia, women under 20 were 5.2 times more likely to experience unintended pregnancies than those over 34 [22]. In Australia, women aged 25-34 had fewer problems accessing contraception than women aged 18-24 and working women [17]. In the USA, younger people (aged 18-34) reported more frequent delays or inability to obtain contraception services due to COVID-19 than those older than 35 years [19]. The relationship between age and the risk of unmet contraceptive needs varies between countries. The results of this study suggest that the increased risk among Turkish women over 30 years of age may be due to their indecisiveness about their fertility choices during the pandemic and their avoidance of service provision. Health professionals, authorities, and politicians should pay close attention to young and young adult women to reduce unintended pregnancies during the pandemic.

The unmet need for modern contraceptives was lower in women whose husbands were university graduates (Table 1). The risk of unmet needs was 4.69 times higher for women whose husbands had a high school education or less (Table 3). In TDHS 2018, one in every five educationally disadvantaged women was found to have an unmet need [7]. In Nigeria, respondents with secondary education reported higher rates of modern contraceptive use than those with only primary education [2]. In Bangladesh, women with secondary education were 1.65 times more likely to use contraceptives than those with a bachelor's degree or higher. It was stated that this result, which remains unclear, should be further investigated [15]. This study's finding was that having a spouse with a university degree or higher increased awareness of contraceptive service uptake in Turkey.

In this study uniquely, the unmet need of women who did not have an abortion during the COVID-19 pandemic was 5.34 times higher (Table 3). In Turkey before the pandemic, it was announced that the desire to have fewer births led women to use contraceptives [7]. This study found that women who did not need abortion or curettage because they did not desire to become pregnant during the pandemic needed contraception. In the US, telemedicine abortion service increased from 67% in the six months before the pandemic to 90% in the first six months after. The pandemic announcement made access to abortion more difficult. Experts advocated for adopting "no-test medication abortion " without face-to-face consultation [23]. The COVID-19 pandemic announcement and the requirement to stay at home and exercise restraint worsened barriers to accessing abortion care.

Participants reported that they received the most information on contraceptive methods during the pandemic from nurses/midwives (n=83), the Internet (n=65), and physicians (n=60) (Table 2). The risk of unmet needs was 15.6 times higher for those who did not receive information on contraceptive methods from nurses/midwives during the pandemic (Table 3). In Bangladesh, friends/relatives (26.58%) and health workers (17.09%) were reported to be the primary source of information on contraceptive methods. It was determined that women who followed the contraceptive method recommendations given by family medicine workers were 2.68 times more likely to use contraceptives than women who did not [15]. In a study of contraceptive providers in 49 US states during the pandemic, 85% of providers reported that their clinics continued offering telehealth services. Providers have experienced numerous challenges in contraceptive service delivery, including technological access and confidentiality. It was noted that the hybrid care model could be used for contraceptive care delivery during the pandemic [24]. Many practices that did not have services or strategies for some contraceptive methods before the pandemic initiated these services during the pandemic. Services started included telehealth for contraception initiation (43%) and continuation (48%) and renewal of contraception prescriptions without the need for a visit (36%) [25]. In pandemic restrictions, implementing healthcare delivery strategies that reduce the need for face-to-face visits, such as telehealth, where a hybrid care model can be applied, may reduce contraception service interruptions.

The fact that access to modern contraceptives during the pandemic period was provided by means other than healthcare institutions, is a limitation of the research in terms of clarity of unmet need.

5. Conclusion

During the COVID-19 pandemic, the contraception needs of Turkish women using modern contraceptives for birth control were adequately met. During the pandemic, the risk of unmet current contraceptive needs was high among women in their 30s, women with a husband's education of high school or less, women who did not have an abortion during the pandemic, and women who did not receive information on contraceptive methods from nurses/midwives. Uninterrupted access is essential as the need for modern contraceptive services continues under all circumstances. Increasing rates of unplanned pregnancies due to unmet needs suggest that telemedicine and/or hybrid care should be prioritized in healthcare delivery. Considering the pandemic phase, especially in low- or middle-income

countries should provide the basis for continuous safe contraceptive service through local policies. In addition, healthcare providers should be guided and motivated to ensure that all women/men/adolescents can access secure contraceptive services in future pandemics, especially by identifying women at high risk of need.

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Ethical statement:

Ethics committee approval was obtained from the Committee for Evaluation of Non-invasive Scientific Research of Trakya University, Faculty of Medicine (TUTF-GOBAEK 2022/30).

Conflict of interest:

The authors declare no conflict of interest.

Authors' Contributions:

H. K. S: Conceptualization, Methodology, Acquisition of data for the study, Formal analysis, Writing - Original draft preparation

Z. E. K: Acquisition of data for the study, Formal analysis, Writing - Original draft preparation

All authors read and approved the final manuscript.

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