

The Use of Family Planning Methods and the Methods Used in Turkey: A Systematic Review and Meta-Analysis

Yasemin Sökmen¹,
Resmiye Kaya Odabaş²,
Zekiye Karaçam³

¹Department of Midwifery, Ondokuz Mayıs University Faculty of Health Sciences, Samsun, Turkey

²Department of Midwifery, Kocaeli University Faculty of Health Sciences, Kocaeli, Turkey

³Department of Midwifery, Aydın Adnan Menderes University Faculty of Health Sciences, Aydın, Turkey

ABSTRACT

Aim: This study was conducted to determine the use of family planning methods and the rates of the methods used based on previous studies in Turkey.

Methods: This systematic review and meta-analysis study was based on primary studies planned in a descriptive and cross-sectional design. To reach the studies, PubMed, Science Direct, Dergipark, Turkish Clinics, and National Thesis Center databases were systematically searched with keywords “family planning” and “contraceptive” in October 2019. The search, selection of articles, data extraction, and quality assessment procedures were conducted by two authors independently, and all these steps were checked by an experienced researcher. The Joanna Briggs Institute Critical Appraisal Checklist for Analytical Cross-Sectional Studies was used to assess the quality of the studies.

Results: The results of 43 studies, including 28 with cross-sectional and 15 with descriptive design, were synthesized for the meta-analysis (females: 24 548; males: 2218). According to the results of the meta-analysis, the estimated rate of family planning methods was 71% (95% CI: 0.66-0.77) for any methods, 50% (95% CI: 0.44-0.55) for modern methods, and 17% (95% CI: 0.14-0.20) for traditional methods. Also, the estimated rate of the most commonly used modern methods were 17% (95% CI: 0.14-0.20) for intrauterine device use, 17% (95% CI: 0.14-0.20) for condom use, 6% (95% CI: 0.05-0.08) for the use of oral contraceptives, while the rate was 15% (95% CI: 0.13-0.18) for the most commonly used conventional method (withdrawal). In addition, it was determined that while the use of modern methods increased over years (from 47% to 52%), the use of traditional methods decreased (from 19% to 15%) and varied by region. The estimated rate of unintended pregnancy was 20%, and the rate was 10% for curettage.

Conclusion: According to the results of this systematic review and meta-analysis, although the use of modern family planning methods has increased over years in Turkey, it is still not high enough, and a significant part of women experience unintended pregnancies and curettage.

Keywords: Family planning, contraceptive methods, prevalence, meta-analysis, Turkey

Introduction

It has been reported that 15% of the childbirths in the last five years in Turkey are the result of unintended pregnancies and that 11% of them are the result of pregnancies that are planned for the following periods.¹ Unintended, multiple, and frequent pregnancies adversely affect the health of the mother and baby. Although family planning methods are known in developing countries and Turkey, the use of modern methods is still limited.^{1,2} The most serious consequences of unmet needs in family planning include an increase in maternal-infant mortality and morbidity, as well as induced abortions. The rate of induced abortions in Turkey varies between 6% and 18%.^{1,3,4} Therefore, improvement of the use of family planning services and especially modern methods in Turkey is an important issue.

The rate of family planning method used by women worldwide is 62% for any method, 56% for modern methods, and 6% for traditional methods. While these rates are 68%, 59%, and 9% in developed countries, they are 38%, 33%, and 5% in developing countries, respectively.² In our country, according to the Turkey Demographic and Health Survey (TDHS) (2018) data, 70% of currently married women aged between 15 and 49 use any method, while 49% use a modern method. The most commonly used modern methods are condoms (19%) and intrauterine devices (IUD) (14%), and the most common traditional

Cite this article as: Sökmen Y, Kaya Odabaş R, Karaçam Z. The use of family planning methods and the methods used in turkey: A systematic review and meta-analysis. *J Educ Res Nurs.* 2022;19(1):65-79.

Corresponding author: Yasemin Sökmen,
e-mail: ysmn0006@outlook.com

Received: April 29, 2020

Accepted: October 23, 2020



Copyright@Author(s) - Available online at
www.jer-nursing.org
Content of this journal is licensed under a
Creative Commons Attribution-NonCommercial
4.0 International License.

method is withdrawal (20%).¹ Many factors affect women's choice of a family planning method. In the international literature, it has been stated that women's choice of a family planning method is affected by their characteristics (e.g., age, education level, shyness, fear, and trust), experiences, duration of the marriage, approval of the spouse, income level, access to the method, social network, inadequate number of health personnel, and the attitudes of healthcare personnel.⁵⁻⁷ In our country, it has been reported that women's age, education, and income level; the status of having received counseling services; place of residence; and the time between the last two births are effective in choosing a family planning method. These studies have also shown that women who receive family planning counseling services, who are young, and who have higher education and income levels prefer modern methods more.⁸⁻¹¹

Midwives and nurses have legal authority and responsibilities for family planning services. In 1983, the article "using non-physician health personnel to ensure that effective contraceptive methods can be applied widely even in the farthest regions" was added to the population planning law.¹² With this article, midwives' and nurses' provision of family planning services was legally guaranteed, and they were expected to provide more qualified services. In addition, it is stated in the job descriptions of midwives and nurses that they should take part in the provision of sexual and reproductive health services for women of childbearing age.¹³

Family planning services have an important place in health services in the context of protecting and improving mother-baby, family, and community health. National and many regional studies have been carried out in our country on this topic. To obtain more comprehensive national data, there is a need to combine the results of these studies on the use of family planning methods and the methods used, which has motivated us to conduct this systematic review and meta-analysis. It is thought that the data to be obtained will contribute to the planning and presentation of qualified family planning consultancy services, to increasing the use of modern methods, and thus to the development of mother-child, family, and community health.

Purpose of the Research and Research Questions

This study was conducted to determine the use of family planning methods and the rates of the use of modern or traditional methods based on the studies conducted in Turkey.

- (1) What are the rates of the use of any family planning method, modern methods, and traditional methods?
- (2) What are the rates of the use of family planning methods?
- (3) What is the distribution of modern and traditional methods by year and region?

Methods

In this systematic review and meta-analysis, the PRISMA Statement (PRISMA Statement: checklist for items required in the writing of a systematic review or meta-analysis report) was followed in the creation of the study protocol and the writing of the article.^{14,15} The search, selection of the articles, data extraction, and quality appraisal of the included articles were carried out independently by the first and second researchers, and all stages were controlled by the third (experienced) researcher. In case of a disagreement about any study,

it was discussed in a session in the presence of the three researchers, and a consensus was reached. In addition, before the study was initiated, a pilot study was conducted related to all these stages in a session with the participation of the three researchers, and a common road map was identified.

Eligibility Criteria

Studies eligible for this systematic review met the following criteria (PICOS): study group (P: Patient)–women and men; exposure (I: Intervention)–use of family planning methods; comparison (C: Comparison)–none; outcomes (O: Outcomes)–any method of family planning, the use of modern and traditional methods, and unintended pregnancy and abortion; study design (S: Study design)–descriptive and cross-sectional studies published in Turkish and English between 2010 and 2020 in Turkey.

Reviews, case reports, qualitative studies, and congress papers formed the exclusion criteria of the study. In addition, studies that were not review type and included participants who only used methods were also excluded from the scope of the study.

Review Strategy

The search for this systematic review and meta-analysis was conducted in February 2020. In the study, PubMed and Science Direct databases were searched to access articles published in international journals, and Dergipark, Turkish Clinics, and National Thesis Center databases were searched to access publications in national journals. The keywords "family planning" OR "contraceptive" AND "Turkey" were used in the search. An example search for PubMed database included the following search string: "(family planning services' [MeSHTerms]) OR ('family' [AllFields] AND 'planning' [AllFields] AND 'services' [AllFields]) OR ('family planning services' [AllFields]) OR ('family' [AllFields] AND 'planning' [AllFields]) OR ('family planning' [AllFields]) OR ('contraceptive agents' [Pharmacological Action]) OR ('contraceptive devices' [MeSHTerms]) OR ('contraceptive' [AllFields] AND 'devices' [AllFields]) OR ('contraceptive devices' [AllFields]) OR ('contraceptive' [AllFields]) OR ('contraceptive agents' [MeSHTerms]) OR ('contraceptive' [AllFields] AND 'agents' [AllFields]) OR ('contraceptive agents' [AllFields]) AND ('Turkey' [MeSHTerms] OR 'Turkey' [AllFields])." The reference list of the included studies was examined to reach additional studies.

Selection of Studies

The identification and selection of the studies for this systematic review and meta-analysis were done independently by the first and second researchers based on the inclusion criteria. Studies included in this research were selected according to the title, abstract, and full text, respectively, after repetitive studies in the search were excluded. In case of a disagreement about any study, it was discussed in a session by the three researchers, and a consensus was reached. The PRISMA flowchart regarding the selection process of the studies is given in Figure 1.

Assessment of Methodological Quality of Studies

The methodological quality of the articles included in this systematic review was assessed by the first and second researchers and checked by the third researcher. The JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies developed by the Joanna

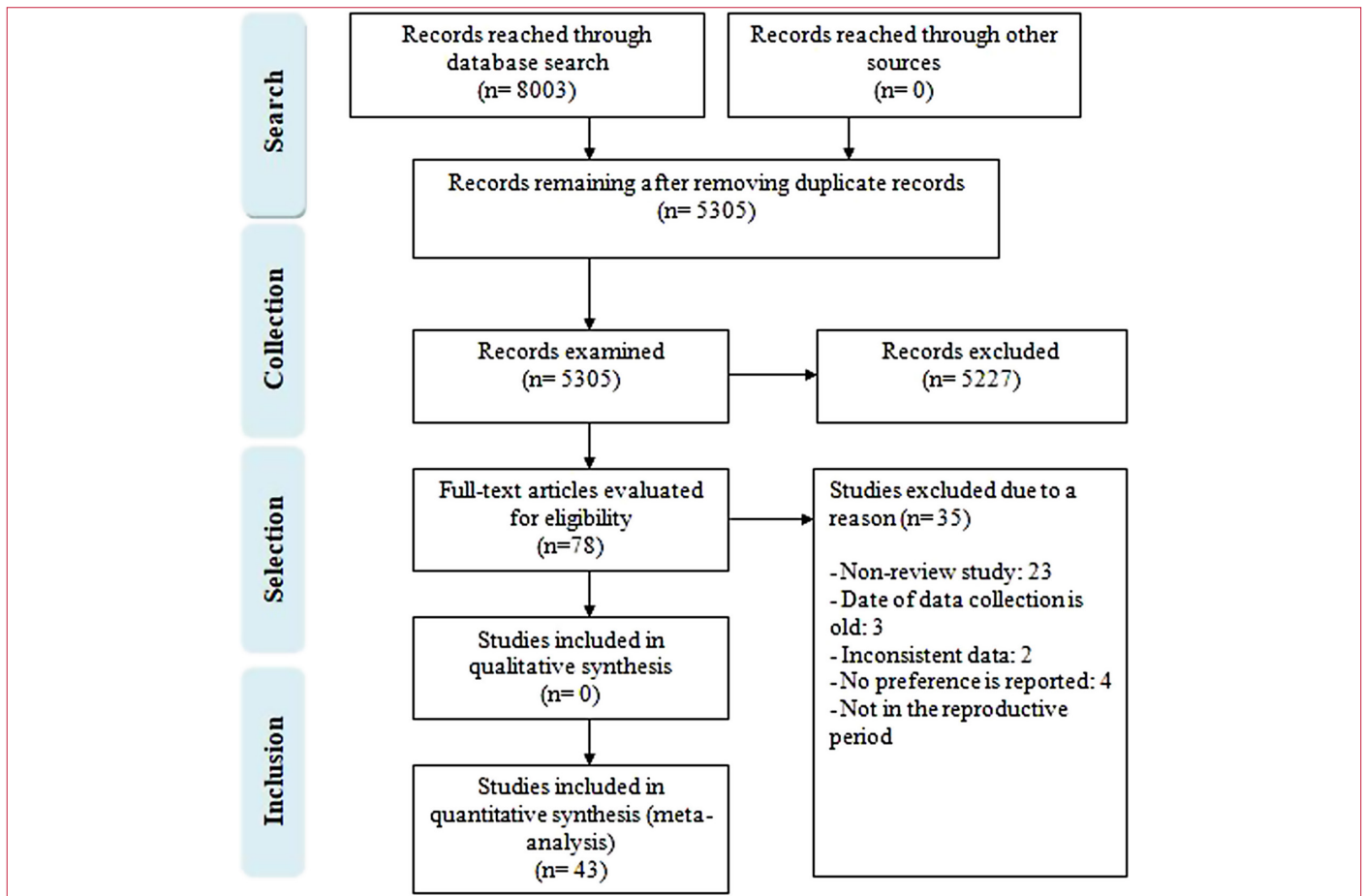


Figure 1. The election process of studies according to PRISMA flowchart.

Briggs Institute (JBI) was used to examine the methodological quality of the studies.¹⁶ There are eight questions in this checklist and the questions are responded with “yes, no, unclear, not applicable” options. The evaluation results for each study included in this review are given in Table 1 as “quality score.”

Data Collection (Retrieval/Extraction)

The data extraction tool developed by the researchers was used to obtain the research data. The data collected with this tool included study design and setting, the year and city, sample size, participant characteristics, mean age and range, use of any family planning method, use of modern and traditional methods, unintended pregnancies, and abortion.

Data Analysis

The results of the studies included in this systematic review were synthesized by doing a meta-analysis. First of all, the results of the studies included in the study were grouped according to the results to be obtained in this systematic review and meta-analysis (the use of any family planning method, use of modern methods, use of traditional methods, methods used, unintended pregnancies, and abortion). In two studies,^{17,18} there were two different data sets obtained in the pre-pregnancy and postpartum periods, and both were included

in the analysis. Then, the results of the studies were grouped according to years (2008-2014 and 2015-2019) and geographical regions of our country for subgroup analysis. The Comprehensive Meta-Analysis Version 3-Free Trial (<https://www.meta-analysis.com/pages/demo.php>) was used to do the meta-analysis. Heterogeneity between studies was assessed with the Cochran Q and Higgins I² tests, and an I² greater than 50% was considered to indicate significant heterogeneity. Random Effect results were obtained in cases where I² was greater than 50% and Fixed Effect results in cases where it was less. A 95% CI and estimated ratios were calculated for each outcome variable. In addition, a percentage difference was calculated to examine the distribution of the rates for the use of modern and traditional methods by year and region.¹⁹ All tests were calculated as two-tailed, and a P-value of less than .05 was considered statistically significant.

Results

Results of the Search

A total of 8031 records were reached initially. As a result of the removal of the repetitive records and the analysis of the titles and abstracts, 78 articles were selected for full-text review. After the full texts were reviewed according to inclusion criteria and extra studies were added, 43 studies were identified for meta-analysis. Explanations about the selection of the studies are shown in Figure 1.

Authors	Study Design/ Setting	Year and City of the Study	Sample Size/Mean Age	Use of Family Planning Method			Unintended Pregnancy/ Curettage	Quality Score
				Modern Methods	Traditional Methods	Any Method		
Aktoprak, 2012	Descriptive FHC	2010 Mersin	166 women 34.96 ± 6.20 (15-49) 166 men 38.07 ± 6.43 (42-)	Oral contraceptives: 19 Condom: 141 IUD: 75 Tubal ligation: 25 Injection: 11	Withdrawal: 27	298	Curettage: 27	Yes: 6/8 No: 2/8
Akyüz, 2016	Cross-sectional Home visits	2012 Izmir	347 women (giving a childbirth in the last 1 year) 29.3 ± 4.7 (18-47)	Oral contraceptives: 28 Condom: 46 IUD: 93 Tubal ligation: 1	Withdrawal: 90 LA: 22	280		Yes: 6/8 No: 2/8
Altuntaş, 2010	Cross-sectional FHC	2009 Bolu	205 women (15-49)	Oral contraceptives: 26 Condom: 46 IUD: 26 Tubal ligation: 3 Injection: 3 Oral contraceptive +Condom: 2	Withdrawal: 39	145		Yes: 6/8 No: 2/8
Aydın Avcı et al., 2018	Descriptive FHC	2014 Samsun	120 women (gypsy) 28.9 ± 1.79 (15-49)	Oral contraceptives: 3 Condom: 9 IUD: 59 Tubal ligation: 9	Withdrawal: 23	103		Yes: 6/8 No: 2/8
Aydın, 2013	Descriptive Mersin Platform for the Disabled	2013 Mersin	108 women with disability (18-49)	Oral contraceptives: 7 Condom: 12 IUD: 11 Tubal ligation: 2	Withdrawal: 1	33		Yes: 6/8 No: 2/8
Ayhan et al., 2017	Cross-sectional Home visits	2015 Şanlıurfa	300 women (15-49)	Oral contraceptives: 33 Condom: 66 IUD: 90 Tubal ligation: 18 Injection: 13	Withdrawal: 36 LA: 4	260		Yes: 6/8 No: 2/8
Ballı, 2011	Cross-sectional Home visits	2010 Izmir	415 women 35.05 ± 7.3 (18-49)	Oral contraceptives: 19 Condom: 39 IUD: 74 Tubal ligation: 19 Injection: 5	Withdrawal: 103	259	Curettage: 61	Yes: 8/8
Bostancı, 2011	Descriptive Hospital (OGC)	2010-2011 Elazığ	423 women 35.4 ± 7.2	Oral contraceptives: 45 Condom: 65 IUD: 43 Tubal ligation: 15 Injection: 26	Withdrawal: 135 Calendar: 50	379	Curettage: 30	Yes: 4/8 No: 4/8
Çeliker Sağıroğlu et al., 2017	Descriptive Hospital	2014-Ankara	209 women 36.90 ± 9.00 (aged ≥18)	Oral contraceptives: 16 Condom: 49 IUD: 61	Withdrawal: 71 Diger:12	209	Curettage: 71	Yes: 4/8 No: 4/8

Table 1. Features, Data, and Quality Evaluation Scores of the Studies (Continued)

Authors	Study Design/ Setting	Year and City of the Study	Sample Size/Mean Age	Use of Family Planning Method			Unintended Pregnancy/ Curettage	Quality Score
				Modern Methods	Traditional Methods	Any Method		
Çubukçu, 2018	Cross-sectional FHC	2016-2017 Samsun	4464 women [15-49] 32.61 ± 7.42	Oral contraceptives: 97 Condom: 479 IUD: 334 Tubal ligation: 498 Injection: 44	Withdrawal: 661 Other: 13	2126	Yes: 5/8 No: 3/8	
Demirgöz Bal and Hotun Şahin, 2011	Cross-sectional Public Hospital Outpatient Clinic	-- Karaman	695 women (aged 15-49)	Oral contraceptives: 38 Condom: 141 IUD: 81 Tubal ligation: 47	Withdrawal: 131 LA: 32	470	Yes: 5/8 No: 3/8	
Demirtaş Alpsalaz, 2019	Cross-sectional FHC	2019 Yozgat	333 women 35.71 ± 7.63 (18-49)	Oral contraceptives: 45 Condom: 53 IUD: 34 Tubal ligation: 24 Injection: 1	Withdrawal: 39	196	Yes: 6/8 No: 2/8	
Diñç, 2018	Cross-sectional FHC	2013 Çanakkale	386 women (40-49)	Oral contraceptives +injection: 9 Condom: 49 IUD: 155 Tubal ligation: 12	Withdrawal: 107 Other: 5	337	Yes: 8/8 Unintended pregnancy: 76	
Ekinci, 2019	Cross-sectional Home Visits	2016 Şanlıurfa	300 men 33.4 ± 8.8 (18-58)	Oral contraceptives: 15 Condom: 68 IUD: 22	Withdrawal: 44	149	Yes: 6/8 No: 2/8	
Eren, 2012	Cross-sectional FHC	2010 Ankara	400 women 36.6 ± 7.8 (18-49)	Oral contraceptives: 30 Condom: 73 IUD: 88 Tubal ligation: 32 Implant: 3 Injection: 6 Vasectomy: 3	Withdrawal: 80 Calendar: 5	320	Yes: 6/8 No: 2/8	
Ertekin Pinar et al., 2019	Cross-sectional Hospital (FPP)	2016 Sivas	259 women (18-55) 32.38 ± 7.49	Oral contraceptives: 26 Condom: 78 IUD: 91 Injection: 8 Implant: 1	Withdrawal +vaginal shower: 55	259	Yes: 8/8	
Göçer et al., 2018	Cross-sectional Hut	2016 Kayseri	126 women (seasonal workers) 34.2 ± 12.1 (methods used previously were used.)	Oral contraceptives: 6 Condom: 2 IUD: 21 Tubal ligation: 5	Withdrawal: 1	35	Yes: 6/8 No: 2/8	
Gür and Sohbet, 2017	Descriptive A craft course	2015 Gaziantep	1394 women (course participant) ± 10.59 33.69	Oral contraceptives +injection: 255 Condom: 170 IUD: 330 Tubal ligation: 47	Withdrawal: 126 Spermicide: 12 LA: 27	967	Yes: 3/8 Unintended pregnancy: 244 No: 4/8 Unclear: 1/8	

(Continued)

Table 1. Features, Data, and Quality Evaluation Scores of the Studies (Continued)

Authors	Study Design/ Setting	Year and City of the Study	Sample Size/Mean Age	Use of Family Planning Method			Unintended Pregnancy/ Curettage	Quality Score
				Modern Methods	Traditional Methods	Any Method		
Hamidanoğlu, 2011	Cross-sectional FHC	2009-2010 Şanlıurfa	300 women 32.3 ± 8.1 40 women 34.7 ± 8.2	Oral contraceptives: 36 Condom: 69 IUD: 61 Tubal ligation: 22 Injection: 4	Withdrawal: 39 Calendar: 1 LA: 11	243	Yes: 8/8	
Kahraman et al., 2012	Cross-sectional University hospital records	2010-2011 Ankara	4022 women mean: 32.3 (15-49)	Oral contraceptives: 76 Condom: 255 IUD: 616 Tubal ligation: 146 Implant: 16	Withdrawal: 218	1327	Yes: 6/8 No: 1/8Unclear: 1/8	
Kara et al., 2010	Descriptive Hospital (OGC)	2008 Ağrı	875 women 28.5 ± 5.57 (17-41)	Oral contraceptives: 142 Condom: 122 IUD: 330 Tubal ligation: 86 Injection: 62	Withdrawal: 120 Other: 13	875	Yes: 5/8 No: 2/8Unclear: 1/8	
Karabulutlu and Ersöz, 2017	Descriptive FHC	2016 Kars	214 women 32.13 ± 7.58 (18-49)	Oral contraceptives: 15 Condom: 38 IUD: 45 Tubal ligation: 11 Injection: 7	Withdrawal: 39 Calendar: 1	156	Yes: 6/8 No: 2/8	
Karacalar Binici, 2019	Descriptive Hospital (OGC)	2016 Sivas	Pregnancy: 396 and 6 months postpartum: 346 women (17- 44)	Oral contraceptives: 4 and 6 Condom: 37 and 145 IUD: 3ve 52 Tubal ligation: -- and 7 Injection: 5ve 24	Withdrawal: 21 and 93 Calendar: 2 and -- LA: 1 and --	G.Ö.: 73 D.S.: 327	Yes: 6/8 No: 2/8	
Karaçalı and Özdemir, 2018	Cross-sectional Home visits	2015-2016 Karabük	300 women 34.8 ± 7.1 (15-49)	Oral contraceptives: 13 Condom: 55 IUD: 27 Tubal ligation: 48 Injection: 3	Withdrawal: 93 LA: 2	241	Yes: 8/8	
Koyuncu et al., 2016	Cross-sectional Hut	2012 Eskişehir	399 women (seasonal workers) (aged 15-49)	Oral contraceptives: 9 Condom: 34 IUD: 30 Tubal ligation: 21 Injection: 4	Withdrawal: 30	128	Yes: 6/8 No: 2/8	
Küçük Gürbüz, 2019	Cross-sectional FHC	2017 İzmir	460 women 32.67 ± 7.69 (17-49)	Oral contraceptives: 33 Condom: 103 IUD: 82 Tubal ligation: 26 Injection: 14	Withdrawal: 130 Calendar: 1 Other: 4	393	Yes: 5/8 No: 3/8	

Table 1. Features, Data, and Quality Evaluation Scores of the Studies (Continued)

Authors	Study Design/ Setting	Year and City of the Study	Sample Size/Mean Age	Use of Family Planning Method			Unintended Pregnancy/ Curettage	Quality Score
				Modern Methods	Traditional Methods	Any Method		
Mavi Aydođdu and Akça, 2018	Descriptive FHC	2017 Amasya	1061 women (17-52)	Oral contraceptives +Injection: 62 Condom: 269 IUD: 108 Tubal ligation: 53	Withdrawal: 330 Other: 2	824	Yes: 6/8 No: 2/8	
Okşan Çalkođlu et al., 2018	Cross-sectional FHC	2015 Erzurum	627 women (15-49)	Oral contraceptives: 21 Condom: 114 IUD: 116 Tubal ligation: 28 Injection: 3	Withdrawal: 162 Calendar: 3 Vaginal shower: 1 Spermicide: 1 LA: 7	456	Yes: 8/8	
Öner, 2019	Cross-sectional FHC	2018-2019 Van	610 women (15-49)	Oral contraceptives: 47 Condom: 118 IUD: 148 Tubal ligation: 2 Injection: 15	Withdrawal: 41	371	Curettage: 10 Yes: 6/8 No: 2/8	
Öztaş et al., 2015	Descriptive Research and training hospital	2012 Ankara	264 women (18-49)	Oral contraceptives: 22 Condom: 36 IUD: 47 Tubal ligation: 12 Injection: 3 Implant: 1	Withdrawal: 49 Calendar: 9 LA: 1 Other: 5	185	Yes: 4/8 No: 4/8	
Pirinççi et al., 2010	Cross-sectional University hospital (OGC)	2008 Elazığ	298 women (18-43)	Oral contraceptives: 11 Condom: 6	Withdrawal: 36 Spermicide: 1 LA: 11	65	Yes: 4/8 No: 3/8 Unclear: 1/8	
Salman, 2014	Cross-sectional Hospital (OGC)	2012 Isparta	460 women (18-49)	Oral contraceptives: 28 Condom: 72 IUD: 96 Tubal ligation: 26	Withdrawal: 48 Calendar: 4 LA: 6	280	Curettage: 10 Unintended pregnancy: 88 Yes: 5/8 No: 3/8	
Temürlenk, 2019	Descriptive FHC	2016-2017 Edirne	395 women 35 ± 8.1 (17-49)	Oral contraceptives+ Injection: 34 Condom: 55 IUD: 68 Tubal ligation: 12	Withdrawal: 75	244	Yes: 6/8 No: 2/8	
Tunç, 2019	Cross-sectional FHC	2018 Edirne	500 women (15-49)	Oral contraceptives: 53 Condom: 108 IUD: 85 Tubal ligation: 40 Injection: 3	Withdrawal: 70 Calendar: 8 LA: 8	375	Yes: 4/8 No: 4/8	
Ünsal Atan et al., 2011	Cross-sectional Hospital	2010 İzmir	440 women	Oral contraceptives: 26 Condom: 115 IUD: 26	Withdrawal: 98 Calendar: 9	274	Yes: 6/8 No: 2/8	

(Continued)

Table 1. Features, Data, and Quality Evaluation Scores of the Studies (Continued)

Authors	Study Design/ Setting	Year and City of the Study	Sample Size/Mean Age	Use of Family Planning Method			Unintended Pregnancy/ Curettage	Quality Score
				Modern Methods	Traditional Methods	Any Method		
Yavuz, 2018	Cross-sectional Hospital (FPP)	2018 Diyarbakır	333 women (15-49) 31.72 ± 7.42	Oral contraceptives: 15 Condom: 36 IUD: 232 Tubal ligation: 4 Injection: 15	Withdrawal: 8	310	Curettage: 22 Unintended pregnancy: 156	Yes: 6/8 No: 2/8
Yazıcı, 2015	Descriptive Hospital (Outpatient clinic)	2015 İstanbul	227 women (18-49) 31.18 ± 1.02	Oral contraceptives: 33 Condom: 38 IUD: 46 Tubal ligation: 10 Injection: 6	Withdrawal: 14 LA: 1	148		Yes: 4/8 No: 4/8
Yıldırım Baş, 2011	Cross-sectional University hospital clinic	2011 Isparta	440 women 28.2 ± 5.07(18-42) (pregnancy and 2-18 months postpartum)	Oral contraceptives: 32 and -- Condom: 108 and 178 IUD: 60 and 62 Injection: 2 and 2 Tubal ligation: -- and 22	Withdrawal: 122 and 118 Calendar: 6 and 6 LA: -- and 52	G.Ö.: 330 D.S.: 440	Curettage: 26	Yes: 6/8 No: 2/8
Yılmaz Tuğal, 2018	Cross-sectional FHC	2017 Ankara	173 women (20-49) 34.47 ± 7.54	Oral contraceptives: 10 Condom: 29 IUD: 48 Tubal ligation: 16 Injection: 1	Withdrawal: 39	143	Curettage: 7/173 Unintended pregnancy: 58/173	Yes: 4/8 No: 4/8
Yılmazel et al., 2020	Cross-sectional FHC	2015 Çorum	400 married men 3.4 (25-64) 24.0 ±	Oral contraceptives: 31 Condom: 65 IUD: 73 Tubal ligation: 33 Injection: 1 Vasectomy: 4	Withdrawal: 40 Calendar: 3	250	Unintended pregnancy: 27	Yes: 8/8
Yücel et al., 2018	Cross-sectional FHC	2016 İzmir	378 women (18-42) 27.8 ± 5.04	Oral contraceptives: 20 Condom: 142 IUD: 48 Tubal ligation: 19 Injection: 15	Withdrawal: 84 LA: 4	332		Yes: 6/8 No: 2/8
Zeyneloğlu et al., 2013	Cross-sectional Hospital	2010-2011 Gaziantep	1352 men 33.71 ± 8.34 (20-52)	Oral contraceptives: 115 Condom: 103 IUD: 84	Withdrawal: 237	539		Yes: 8/8

IUD, intrauterine device; LA, lactational amenorrhea; FHC, family health center; FPP, family planning polyclinic; OGC, obstetrics and gynecology outpatient clinic.

Features of the Studies and the Participants

The total sample size of the studies included in the systematic review and meta-analysis was 26 766 (females: 24 548 and males: 2218). Of the studies, 32 (74.4%) had been published in Turkish and 11 (25.6%) had been published in English. Also, 28 (65.1%) were cross-sectional and 15 (34.9%) were descriptive studies. The studies had been carried out in 2008-2019 and published in 2010-2019. There were 26 articles and 17 theses. The mean time between data collection and publication of studies was 3 years. However, the year of data collection had not been reported in one study.²⁰ The studies had been carried out in 26 different provinces and 7 different regions of Turkey, including the Central Anatolia (11 studies),^{18,20-29} the Eastern Anatolia (6 studies),³⁰⁻³⁵ the Southeastern Anatolia (6 studies),³⁶⁻⁴¹ the Black Sea Region (6 studies),^{8,9,11,42-44} the Aegean Region (5 studies),⁴⁵⁻⁴⁹ the Marmara Region (5 studies),⁵⁰⁻⁵⁴ and the Mediterranean Region (5 studies).^{17,55-57} Of the study data, 19 were collected in family health centers (FHCs),^{8,9,11,21,27,28,33-36,42,43,48-53,55} 15 in hospitals,^{17,18,22,23,25,29-32,37,40,46,54,57} 7 in home visits,^{24,26,38,41,44,45,47} 1 on the Platform for the Disabled,⁵⁶ and 1 in a course.³⁹ The sample size of the studies ranged between 108 and 4.464.^{43,56} The mean age was between 15 and 55^{29,42} in females and 18 and 64^{11,41} in males (Table 1).

Quality Assessment Results of the Studies

The quality assessment scores of the studies were found as “Yes: 8/8” in seven studies, “Yes: 6/8” in 22 studies, “Yes: 5/8” in 8 studies, “Yes: 4/8” in 7 studies, and “Yes: 3/8” in 1 study (Table 1). Of the studies reviewed, 29 (67.4%) met most of the assessment criteria (6-8/8) and had a low risk of bias.

The Rates of Family Planning Method Use

According to the synthesized results of 43 studies included in this systematic review and meta-analysis, the estimated rate of family planning method use was 71% (95% CI: 0.66-0.77) for any method, 50% (95% CI: 0.44-0.55) for modern methods, and 17% (95% CI: 0.14-0.20) for traditional methods (Table 2; Figure 2).

Most of the studies reviewed included data on the use of IUDs, condoms, oral contraceptives, and the withdrawal method. The meta-analysis results based on these data showed that the estimated rates of the use of the most common modern methods were 17% (95% CI: 0.14-0.20) for IUDs, 17% (95% CI: 0.14-0.20) for condoms, 6% (95% CI: 0.05-0.08) for oral contraceptives, 5% (95% CI: 0.04-0.06) for tubal ligation, and 2% (95% CI: 0.01-0.03) for injection. The rate of withdrawal method use was 15% (95% CI: 0.13-0.18) (Table 2).

The Distribution of Modern and Traditional Methods by Year and Region

The distribution of the use of modern and traditional methods according to years when the studies had been conducted showed that 22 studies included data collected between 2008 and 2014^{9,17,20-25,30-32,36,37,42,45-47,51,55-57} and that 23 studies included the data of the years between 2015 and 2019^{8,11,18,26-29,33-35,38-41,43,44,48-50,52-54} (Tables 3 and 4). The synthesized results showed that the estimated rate of modern method use increased from 47% (95% CI: 0.38-0.55) in 2008-2014 to 52% (95% CI: 0.46-0.59) in 2015-2019 (Table 3). It was determined that the difference between these percentages was statistically significant ($t: -8.90; P < .05$). The synthesized results of traditional

method use indicated that the estimated rate decreased from 19% (95% CI: 0.15-0.25) in 2008-2014 to 15% (95% CI: 0.12-0.18) in 2015-2019 (Table 4). The difference between these percentages was also statistically significant ($t: -8.90; P < .05$).

The examination of the synthesized results of the studies by region indicated that the estimated rate of modern method use in descending order was as follows: the South East Anatolia Region (58%; 95% CI: 0.38-0.76); the Mediterranean Region (54%; 95% CI: 0.40-0.68); the Marmara Region (51%; 95% CI: 0.42-0.59); the Black Sea Region (49%; 95% CI: 0.40-0.59); the Aegean Region (49%; 95% CI: 0.39-0.59); the Eastern Anatolia Region (46%; 95% CI: 0.28-0.65); and the Central Anatolia Region (45%; 95% CI: 0.34-0.57) (Table 3). According to the percentage calculations done in terms of the estimated rates of modern method use by region, there were statistically significant differences between the following regions: the Aegean Region and the Central Anatolia, Eastern Anatolia, and Southeastern Anatolia Regions ($t=3.21, 2.10, \text{ and } -6.63$, respectively; $P < .05$); the Marmara Region and the Central Anatolia, Eastern Anatolia, and Southeastern Anatolia Regions ($t=4.59, 3.32, \text{ and } -4.85$, respectively; $P < .05$); the Central Anatolia and the Mediterranean, Black Sea, and Southeastern Anatolia Regions ($t=-6.98, -4.91, \text{ and } -13.59$, respectively; $P < .05$); the Mediterranean Region and the Black Sea, Aegean, Eastern Anatolia, and Southeastern Anatolia Regions ($t = 3.79, 3.09, 5.39, \text{ and } -2.81$, respectively; $P < .05$); the Black Sea and the Eastern Anatolia and Southeastern Anatolia Regions ($t=2.76 \text{ and } -9.11$, respectively; $P < .05$); and the Eastern Anatolia Region and the Southeastern Anatolia Region ($t=-9.99; P < .05$).

The examination of the synthesized results of the studies by region indicated that the estimated rate of traditional method use in ascending order was as follows: the South East Anatolia Region (12%; 95% CI: 0.09-0.16); the Mediterranean Region (15%; 95% CI: 0.07-0.29); the Central Anatolia Region (15%; 95% CI: 0.09-0.23); the Marmara Region (15%; 95% CI: 0.10-0.23); the Eastern Anatolia Region (19%; 95% CI: 0.11-0.36); the Black Sea Region (20%; 95% CI: 0.14-0.29); and the Aegean Region (27%; 95% CI: 0.24-0.30) (Table 4).

Of the studies included in the meta-analysis, 7 had data about unintended pregnancies^{11,27,39,40,50,51,57} and 19 had data about curettage.^{17,18,21,24,25,27,28,32,33,35,39,41,44,47,48,50,55,57} The synthesized results of these studies showed that the estimated rate was 20% for unintended pregnancies and 10% for curettage (Table 2).

Discussion

In this systematic review and meta-analysis, the use of family planning methods in Turkey and the synthesized results of 43 studies examining the methods used were presented. The data obtained from these studies are important in terms of showing comprehensive findings on the rates of family planning method use in Turkey, which have also been presented by the TDHS.

In our study, the estimated rate of any family planning method use was found to be 71%. It is seen that this rate is quite similar to that of the TDHS 2018 (70%).¹ On the other hand, it is stated that the rate of any family planning method use is 62% in the world, 68% in developed countries, 60% in developing countries, and 38% in underdeveloped countries.² According to these results, it can be said that the rate of family planning method use in our country is better than the world average and similar to that of developed countries.

Table 2. Meta-Analysis Findings Related to Family Planning Method Use

Variables	Number of Studies	Those Who Use a Method/Total Sample Size	Estimated Ratio (95% CI)	Heterogeneity		General Effect	
				Tau ²	Q-Value/df/P	I ²	Z/P
Use of a Method							
Use of any method	45*	16 243/26 766	0.71 (0.66-0.77)	0.746	3502.09/44/<.001	98.74	6.780/<.001
Use of modern methods	45*	11 737/26 766	0.50 (0.44-0.55)	0.503	2763.97/44/<.001	98.41	-0.145/885
Use of traditional methods	45*	4506/26 766	0.17 (0.14-0.20)	0.426	1458.62/44/<.001	96.98	-15.608/<.001
Modern Family Planning Methods Used							
IUD	44*	4303/26.468	0.17 (0.14-0.20)	0.518	1665.64/43/<.001	97.42	-14.197/<.001
Condom	45*	4069/26.766	0.17 (0.14-0.20)	0.420	1354.29/44/<.001	96.75	-16.104/<.001
Oral contraceptives	40*	1261/23.090	0.06 (0.06-0.08)	0.471	559.30/39/<.001	93.03	-23.653/<.001
Tubal ligation	37*	1408/23.072	0.05 (0.04-0.06)	0.317	387.51/36/<.001	90.71	-28.309/<.001
Injection	28*	306/14.853	0.02 (0.01-0.03)	0.705	215.59/27/<.001	87.48	-21.836/<.001
Implant	4	21/4.945	0.00 (0.00-0.01)	0.000	1.06/3/788	0.00	-24.855/<.001
Vasectomy	2	7/800	0.01 (0.00-0.01)	0.000	0.14/1/705	0.00	-12.431/<.001
Traditional Family Planning Methods Used							
Withdrawal	44*	4082/26.507	0.15 (0.13-0.18)	0.378	1209.20/43/<.001	96.44	-17.521/<.001
Lactational amenorrhea	15*	189/69.66	0.02 (0.01-0.03)	0.874	147.51/14/<.001	90.51	-14.385/<.001
Calendar method	15	110/6004	0.01 (0.01-0.02)	1.761	156.35/14/<.001	91.05	-11.869/<.001
Spermicide	4	15/2519	0.01 (0.00-0.01)	0.072	3.38/3/337	11.11	-19.137/<.001
Status of Having a Curettage and the Rates of Unintended Pregnancy							
Curettage	19	788/7791	0.09 (0.06-0.12)	0.633	398.78/18/<.001	95.49	-12.539/<.001
Unintended pregnancy	7	667/3346	0.19 (0.12-0.30)	0.525	204.61/6/<.001	97.07	-5.120/<.001

*The number of studies appears high since two different data sets obtained in the pregnancy and postpartum periods in two studies were analyzed.

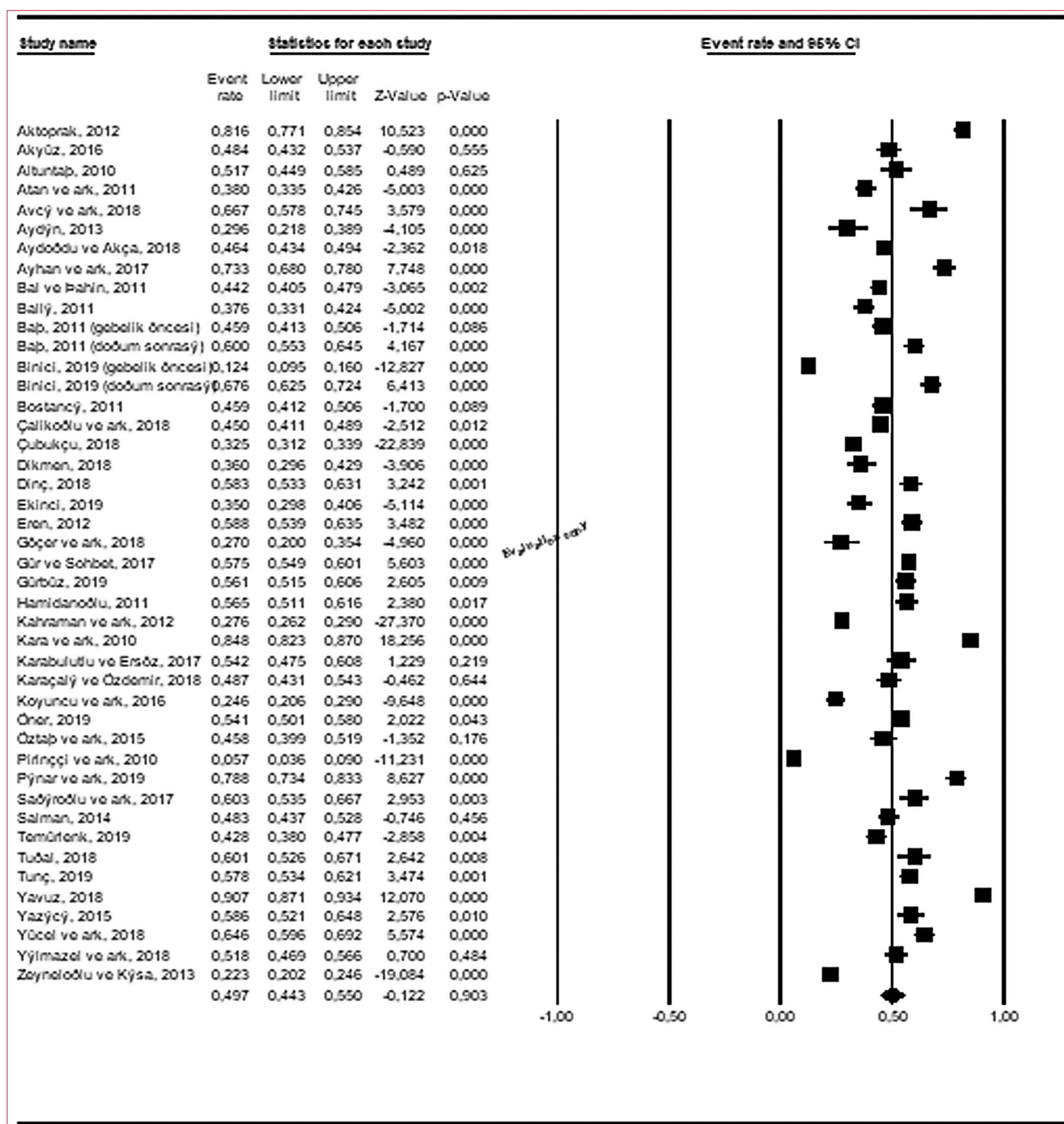


Figure 2. Meta-analysis graph about the use of modern methods.

In this study, the estimated rate of modern family planning method use was 50%. This rate is quite similar to that of the TDHS 2018 (49%) too.¹ However, this rate is much lower than the rate reported by the WHO for the world (56%), the United States (73%), Brazil (78%), Northern Europe (71%), and Western Europe (70%).² These results are important in that they show that the rates of using modern family

planning methods in our country are still far behind those of the world and developed countries.

In our study, the estimated rate of traditional method use was found to be approximately 17%. It is seen that this rate is below the TDHS 2018 results (21%).¹ However, these results are considerably higher

Variables	Number of Studies	Those Who Use a Method/Total Sample Size	Estimated Ratio (95% CI)	Heterogeneity			General Effect
				Tau ²	Q-Value/df/P	I ²	Z/P
Year of Data Collection							
2008-2014	22*	5336/12 970	0.47 (0.38-0.55)	0.660	1573.88/21/<.001	98.67	-0.772/.440
2015-2019	23*	6401/13 796	0.52(0.46-0.59)	0.410	1124.83/22/<.001	98.04	-0.711/.477
Regions							
The Aegean Region	5	993/2040	0.49 (0.39-0.59)	0.213	86.84/4/<.001	95.40	-0.209/.835
The Marmara Region	5	888/1708	0.51 (0.42-0.59)	0.143	49.80/4/<.001	91.97	0.182/.856
The Central Anatolia Region	12	2778/7622	0.45 (0.34- 0.57)	0.648	734.84/11/<.001	98.50	-0.821/.411
The Mediterranean region	5	991/1780	0.54 (0.40-0.68)	0.433	135.64/4/<.001	97.05	0.561/.575
The Black Sea Region	6	2483/6550	0.49 (0.40-0.59)	0.228	186.49/5/<.001	97.32	-0.171/.864
The Eastern Anatolia Region	6	1681/3047	0.46 (0.28-0.65)	0.936	443.94/5/<.001	98.87	-0.410/.682
The Southeast Anatolia Region	6	1923/4019	0.59 (0.38-0.76)	1.060	624.05/5/<.001	99.20	0.761/.447

*The number of studies appears high since two different data sets obtained in the prepregnancy and postpartum periods in two studies were analyzed.

Variables	Number of Studies	Those Who Use a Method/Total Sample Size	Estimated Ratio (95% CI)	Heterogeneity		General Effect	
				Tau ²	Q-Value/df/P		
Year of Data Collection							
2008-2014	22*	2183/12 970	0.19 (0.15-0.25)	0.592	936.16/21/<.001	97.76	-8.428/<.001
2015-2019	23*	2323/13 796	0.15 (0.12-0.18)	0.307	513.27/22/<.001	95.71	-14.138/<.001
Regions							
The Aegean Region	5	545/2040	0.27 (0.24-0.30)	0.023	11.38/4/0.023	64.86	-11.882/<.001
The Marmara Region	5	305/1708	0.15 (0.10-0.23)	0.311	58.97/4/<.001	97.88	-6.401/<.001
The Central Anatolia Region	12	894/7622	0.15 (0.09-0.23)	0.822	518.35/11/<.001	97.88	-6.414/<.001
The Mediterranean region	5	390/1780	0.15 (0.07-0.29)	0.746	145.82/4/<.001	97.26	-4.150/<.001
The Black Sea Region	6	1206/6550	0.20 (0.14-0.29)	0.340	191.29/5/<.001	97.39	-5.607/<.001
The Eastern Anatolia Region	6	621/3047	0.19(0.11-0.36)	0.601	219.89/5/<.001	97.73	-4.485/<.001
The Southeast Anatolia Region	6	545/4019	0.12 (0.09-0.16)	0.130	47.32/5/<.001	89.43	-12.190/<.001

*The number of studies appears high since two different data sets obtained in the prepregnancy and postpartum periods in two studies were analyzed.

than the rates reported by the WHO for the world (6%), the United States (10%), Europe (7%), and Asia (5%).² The high rate of traditional method use in our country may be related to the negative attitudes of spouses toward modern methods and their confidence in the withdrawal method.

In the studies in this systematic review and meta-analysis, the most commonly used modern methods were found to be the use of condoms (17%), IUDs (17%), oral contraceptives (6%), tubal ligation (5%),

and injection (2%), respectively. Although there was a similar ranking in the 2018 data of the TDHS, the rates for condom use (19%) and tubal ligation (10%) were higher, but that the rates for the use of IUDs (14%), oral contraceptives (5%), and injection (1%) were lower.¹ The most frequently used modern methods in the European Region were listed as oral contraceptives (19%), condom use (16%), and IUDs (8%). These rates were reported in Asia as tubal ligation (15%), condom use (11%), and IUDs (11%). It was reported that the most frequently used modern methods in Africa were injection (8%),

oral contraceptives (6%), and condom use (4%), respectively.⁵⁸ These results show that the rates for modern method use and preferences vary by society and region.

In our study, the estimated rate of withdrawal method use was 15%. While the most frequently used traditional family planning method in Asia and Europe is withdrawal, it is the calendar method in America and Africa.⁵⁸ Likewise, withdrawal is the first preferred method among traditional methods in our national data.¹ It is thought that this method is one of the most used methods because it is not costly, it does not require follow-up, and it is quickly reversible when pregnancy is desired.

In this meta-analysis, the change in the use of modern and traditional family planning methods in 5-year periods was examined. Accordingly, it was determined that while the use of modern family planning methods was 47% in 2008-2014, it increased to 52% in 2015-2019 and that there was a decrease in the use of traditional methods (from 19% to 15%). Similar results were reported in the TDHS, which is conducted every 5 years.¹ According to the WHO, the rate of modern method use among women of reproductive age (15-49) increased in Asia between 2008 and 2015, while it remained stable in Latin America and the Caribbean.² The United Nations (2019) reported that the rate of modern method use in the West Asian Region, which also includes our country, increased between 1994 and 2019 and that the rate of traditional method use decreased.² These results show that the rate of modern method use has increased in our country and other countries. These positive results are thought to be related to the provision of comprehensive health services that include qualified consultancy services.

In our study, the region with the highest estimated rate of modern method use was South East Anatolia, which was followed by the Mediterranean Region, the Marmara Region, the Black Sea Region, the Aegean Region, the Eastern Anatolia Region, and the Central Anatolia Region. In our national data, it was reported that the highest rates of modern method use were observed in the central (54%), west (50%), south (47%), north (47%), and east (43%) regions, respectively.¹ Also, it was determined in this study that the estimated rate of traditional method use was the lowest in the Southeastern Anatolia Region, which was followed by the Mediterranean Region, the Central Anatolia Region, the Marmara Region, the Eastern Anatolia Region, the Black Sea Region, and the Aegean Region. According to TDHS 2018 data, the rates of traditional method use in ascending order were listed as the south (18%), west (20%), central (21%), east (23%), and north (25%) regions.¹ The findings of our study were different from the national data, which can be explained by the number of studies examined from each region and the difference in sample sizes in our study.

In this meta-analysis, the estimated rates of unintended pregnancies and curettage were 20% and 10%, respectively. In a systematic review, it was reported that approximately 44% of the pregnancies between 2010 and 2014 were unintended.⁵⁹ In another systematic review, the rate of unintended pregnancy in 2012 was 53% worldwide, 80% in Africa, 46% in Asia, 43% in Europe, 68% in Latin America and the Caribbean, 51% in North America, and 43% in the Oceania Continent.⁶⁰ According to the TDHS 2018 data, 26% of the childbirths by women of reproductive age in the 5 years before the study were unplanned, and 6% of all pregnancies ended in abortion.¹ In some studies conducted in our country in recent years, it was observed

that the rate of unintended pregnancy varied between 17% and 70%.⁶¹⁻⁶⁴ It was observed that the rate of unintended pregnancy was high in underdeveloped and developing countries. These results show that the rates of unintended pregnancy and curettage as a result of this situation are still very high and that the use of modern family planning methods should be improved.

Strengths and Limitations of the Study

The current and quality evaluation scores of the studies examined in this systematic review and meta-analysis were high, and there was a wide range of search resources. These features make up the strengths of the study. In addition, the large sample size examined in this systematic review was another strength of the study, and it strengthens the results the study put forward. The results examined in the study were determined by reliable methods, different aspects of the topic were examined, and the results obtained were supported by the TDHS findings. These are also among the strengths of the study. However, the low homogeneity between studies in most meta-analyses may weaken the strength of the evidence obtained. To control this situation, the Random Effect model was chosen in analyses with high heterogeneity between studies.

Conclusion and Recommendations

In this systematic review and meta-analysis, the estimated rates of the use of family planning methods were found as 71% for any method, 50% for modern methods, and 17% for traditional methods. It was revealed that the most frequently used modern methods were condom use (17%), IUDs (17%), oral contraceptives, (6%), tubal ligation (5%), and injection (2%), respectively, and that the most used traditional method was withdrawal (15%). It was also found that while the use of modern methods increased over the years, the use of traditional methods decreased, the rate of method use varied by region, and a significant part of women experienced unintended pregnancy (20%) and curettage (10%). According to the results of our study, it was found that while the rate of family planning method use was parallel to that of developed countries, the rate of modern method use was lower. In line with these results, it is necessary for health professionals to develop and maintain effective counseling services that can increase the use of modern family planning methods, and to provide special counseling services for high-risk groups during service delivery. In particular, it can be recommended that pre-pregnancy counseling, routine follow-up of women aged 15-49, family planning counseling needs of women during pregnancy, curettage, and postpartum periods should be evaluated and that individualized counseling services should be offered. It may be beneficial to develop a policy to update and develop family planning counseling services in line with changing needs and to increase service quality. It may be recommended to carry out quantitative and qualitative studies which can increase the use of modern family planning methods and in which situations specific to individuals are determined and experimental studies in which methods that can improve the quality of service delivery are tested.

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – Y.S., R.K.O.; Design – Y.S., R.K.O., Z.K.; Supervision – Z.K.; Resources – Y.S., R.K.O.; Data Collection and/or Processing

– Y.S., R.K.O., Z.K.; Analysis and/or Interpretation – Y.S., R.K.O., Z.K.; Literature Search – Y.S., R.K.O.; Writing Manuscript – Y.S., R.K.O., Z.K.; Critical Review – Z.K.

Declaration of Interests: The authors have no conflict of interest to declare.

Funding: The authors declared that this study has received no financial support.

References

1. Hacettepe Üniversitesi Nüfus Enstitüsü. *Türkiye Nüfus ve Sağlık Araştırması-2018*. Ankara; 2019. Available at: http://www.hips.hacettepe.edu.tr/tnsa2013/rapor/TNSA_2018_ana_rapor.pdf
2. World Health Organization. Family Planning Data Sheet. Luxembourg; 2019. Available at: <https://www.prb.org/wp-content/uploads/2019/03/fp-data-sheet-2019.pdf>.
3. Eskioçak M, Akbaşak D. Edirne'de Romanların sağlığı: Sağlığın sosyal belirleyicileri ve sağlık durumlarına yönelik bulgular. *Türk J Public Health*. 2017;15(2):136-150. Available at: <http://docplayer.biz.tr/136316334-Edirne-de-romanların-sağlığı-sağlığın-sosyal-belirleyicileri-ve-sağlık-durumların-a-yönelik-bulgular.html>.
4. Özmen D, Çetinkaya ÇA, Ulaş CS, Bolsoy N. Attitudes of married women towards induced abortion in Manisa. *Istanb Med J*. 2019;20(4):330-337. [CrossRef]
5. Boulay M, Valente TW. The selection of family planning discussion partners in Nepal. *J Health Commun*. 2005;10(6):519-536. [CrossRef]
6. Kindi RM, Sumri HH. Prevalance and sociodemographic determinants women in Oman. *EMHJ*. 2019;25(7):495-502. [CrossRef]
7. Westgard CM, Rogers A, Bello G, Rivadeneyra N. Health service utilization, perspectives, and health-seeking behavior maternal and child health services in the Amazon of Peru, a mixed-methods study. *Int J Equity Health*. 2019;18(1):155. [CrossRef]
8. Mavi Aydoğdu SG, Akça E. Amasya il merkezindeki aile sağlığı merkezlerine başvuran kadınların aile planlaması yöntem kullanımı ve etkileyen faktörler. *STED*. 2018;27(6):384-391. Available at: <http://static.dergipark.org.tr/8080/article-download/c15a/b6ae/0352/5c41d37eb12ae.pdf>?
9. Avcı IA, Cavuşoğlu F, Aydın M, Altay B. Attitude and practice of family planning methods among roman women living in northern Turkey. *Int J Nurs Sci*. 2018;5(1):33-38. [CrossRef]
10. Aşkın M, Koç EM, Sözmen MK, Şahin EM, Aydoğmuş S. Kadınların Cinsel Fonksiyonlarını Etkileyen Faktörlerin ve Kontraseptif Yöntem Tercihlerinin Değerlendirilmesi. *Düzce Tıp Fakültesi Dergisi*. 2019;21(3):172-176. [CrossRef]
11. Yılmaz G, Çetinkaya F, Naçar M, Baykan Z. Which men have better attitudes and participation to family planning services? A study in primary care settings from Northern Turkey. *Niger J Clin Pract*. 2020;88:1055-1062. [CrossRef]
12. Nüfus Planlaması Hakkında Kanun. Resmi Gazete. Available at: <https://www.resmigazete.gov.tr/arsiv/18059.pdf>. (Tarihi E: 27.04.2020).
13. Sağlık Meslek Mensupları ile Sağlık Hizmetlerinde Çalışan Diğer Meslek Mensuplarının İş ve Görev Tanımlarına Dair Yönetmelik. Resmi Gazete. Available at: <https://www.resmigazete.gov.tr/eskiler/2014/05/20140522-14.htm>. (Tarihi E: 27.04.2020).
14. Moher D, Liberati A, Tetzlaff J, Altman DG, Reprint-preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Phys Ther*. 2009;89(9):873-880. [CrossRef]
15. Karaçam Z. Systematic review methodology: guidelines for preparing a systematic review *DEUHYO*, ed. 2013;6(1):26-33. Available at: <http://static.dergipark.org.tr/8080/article/download/c9be/efa1/a6d9/JA66HT62DH/5c3c3fa4efc1e1d08b17c0ffa6318990d815842cbf34b.pdf>
16. Moola S, Munn Z, Tufanaru C, et al. Check list for analytical cross-sectional studies. *Joanna Briggs Inst*. 2017:1-7. [CrossRef]
17. Yıldırım BF. *Emzirme dönemindeki kadınlarda kontraseptif yöntem seçimini etkileyen demografik ve sosyokültürel faktörler* [Master's thesis]. Isparta: Süleyman Demirel Üniversitesi, Tıp Fakültesi; 2011.
18. Kadınların BF. *Karacalar doğumdan sonra kontraseptif yöntem kullanma durumları ve etkileyen faktörler* [Master's thesis]. Sivas: Sivas Cumhuriyet Üniversitesi, Sağlık Bilimleri Enstitüsü; 2019.
19. Sümbüloğlu K, Sümbüloğlu V. *Bioistatistik*. 8rd ed. Ankara: Hatipoğlu Yayınevi; 1998:63-111.
20. Bal MD, Sahin NH. The usage and discontinuation of contraceptive methods. *Arch Gynecol Obstet*. 2011;284(1):151-155. [CrossRef]
21. Eren D. *Park sağlık ocağı bölgesinde 15-49 yaş evli kadınlarda gebeliği önleyici yöntem kullanımı ve ilgili etmenler* [Master's thesis]. Ankara: Ankara Üniversitesi, Sağlık Bilimleri Enstitüsü; 2012.
22. Kahraman K, Göç G, Taşkın S, et al. Factors influencing the contraceptive method choice: a university hospital experience. *J Turk Ger Gynecol Assoc*. 2012;13(2):102-105. [CrossRef]
23. Öztaş Ö, Baydar Artantaş A, Kayhan Tetik B, Yalçıntaş A, Üstü Y, Uğurlu M. 18-49 yaş grubu kadınların üreme sağlığı ve kontrasepsiyon hakkındaki bilgi, tutum ve davranışları. *Ank Med J*. 2015;15(2):67-76. [CrossRef]
24. Koyuncu T, Metintaş S, Ayhan E, Oz F, Bugrul N, Gokler ME. Evaluation of reproductive health criteria in seasonal agricultural workers: a sample from Eskişehir, Turkey. *Rural Remote Health*. 2016;16(4):3489. [CrossRef]
25. Çeliker Sağiroğlu P, Karataş Eray İ, Yurdakul FE, Yavuz AF. Kadınların kontraseptif yöntem tercihlerini ve yöntem kullanırken gebelikle kalma durumlarının değerlendirilmesi. *Ank Med J*. 2017;1:21-28. [CrossRef]
26. Mazıcıoğlu MM, Ulutabanca RÖ, Ünalın D, Karaduman M, Göçer Ş. Mevsimlik tarım işçisi kadınlarda doğurganlık ve aile planlaması yöntemi kullanım durumlarının belirlenmesi. *J Health Serv Educ*. 2018;2(1):40-46. [CrossRef]
27. Yılmaz Tuğal Z. *Eğitim aile sağlığı merkezine kayıtlı kadınların aile planlaması hakkında farkındalıklarının incelenmesi* [Master's thesis]. Ankara: Sağlık Bilimleri Üniversitesi, Ankara Sağlık Uygulama ve Araştırma Merkezi; 2018.
28. Demirtaş Alpsalaz S. *yaş grubu evli kadınların eş şiddetine maruz kalmaları ile aile planlaması tutum ve davranışları arasındaki ilişki* [Master's thesis]. Sivas: Sivas Cumhuriyet Üniversitesi, Sağlık Bilimleri Enstitüsü; 2019:18-49.
29. Ertekin Pınar S, Demirel G, Yıldırım G, Dağlar G. Sexual experiences and quality of life in Turkish women using methods of contraception. *J Obstet Gynaecol*. 2019;39(6):782-787. [CrossRef]
30. Kara M, Yılmaz E, Töz E, Avcı İ. Ağrı ilinde kullanılan kontraseptif yöntemler. Türkiye Klinikleri. *J Gynecol Obst*. 2010;20(1):10-13. Available at: [https://do.wnloads/jinekoloji20-1-2%20\(5\).pdf](https://do.wnloads/jinekoloji20-1-2%20(5).pdf).
31. Piriñçi E, Polat A, Kumru S, Köroğlu A. Fertility characteristic and family planning methods used by women delivering at a university hospital in eastern Turkey. *J Obstet Gynaecol*. 2010;30(7):707-711. [CrossRef]
32. Bostancı MS. Doğu Anadolu Bölgesindeki bir ilçede kadınların kullandıkları kontraseptif yöntemleri için bilgi kaynakları ve istenmeyen gebeliklerle ilişkisi. *Dicle Med J*. 2011;38(2):202-207. [CrossRef]
33. Karabulutlu Ö, Ersöz B. Kars İli, Susuz İlçe Merkezine bağlı aile planlaması yöntemi kullanan 15-49 yaş grubu evli kadınlarda kullanılan yöntem ve yöntem seçimini etkileyen faktörler. *Caucasian. J Sci*. 2017;4(1):26-44.
34. Çalikoğlu EO, Bilge Yerli E, Kavuncuoğlu D, Yılmaz S, Koşan Z, Aras A. Use of family planning methods and influencing factors among women in Erzurum. *Med Sci Monit*. 2018;24:5027-5034. [CrossRef]
35. Öner O. *Evlü kadınların doğurganlığa ve aile planlamasına yönelik tutumları ile kontraseptif yöntem kullanma niyetleri arasındaki ilişkinin ve etkileyen faktörlerin belirlenmesi* [Master's thesis]. Erzurum: Atatürk Üniversitesi, Sağlık Bilimleri Enstitüsü; 2019.
36. Hamidanoğlu M. *Şanlıurfa'da Aile Planlaması Hizmetlerinin Değerlendirilmesi* [Master's thesis]. Şanlıurfa: Harran Üniversitesi, Sağlık Bilimleri Enstitüsü; 2011.
37. Zeyneloğlu S, Kısa SK, Delibaş L. Determinants of family planning use among Turkish married men who live in South East Turkey. *Am J Mens Health*. 2013;7(3):255-264. [CrossRef]
38. Ayhan S, Gözükkara F, Koruk I. Does working in the agricultural sector affect the selection of a family planning method? *Health Care Women Int*. 2017;38(3):300-311. [CrossRef]
39. Gür F, Sohbet R. Gaziantep ilinde el beceri kurslarına gelen kadınların aile planlamasına yönelik bilgi, tutum ve davranışları. *Med Sci*. 2017;12(1):10-21. [CrossRef]
40. Yavuz D. *Sağlık Bilimleri Üniversitesi Diyarbakır Gazi Yaşargil Eğitim ve Araştırma Hastanesi aile planlaması polikliniğine başvuran 15-49 yaş arası kadınların aile planlaması hakkındaki bilgi düzeyleri ve tutumları* [Master's thesis]. Diyarbakır: Dicle Üniversitesi, Tıp Fakültesi; 2018.
41. İkinci İ. *Şanlıurfa'da evli erkeklerin aile planlaması yöntemlerine ilişkin bilgi, görüş ve davranışları* [Master's thesis]. Şanlıurfa: Harran Üniversitesi, Sağlık Bilimleri Enstitüsü; 2019.
42. Altuntaş F. *Bolu Dörtdivan İlçesi'nde Aile Planlaması Hizmetlerinin Değerlendirilmesi* [Master's thesis]. Düzce: Düzce Üniversitesi, Sağlık Bilimleri Enstitüsü; 2010.

43. Çubukçu M, ili Samsun. 15-49 yaş grubu kadınların aile planlaması yöntemlerini kullanım dağılımı. *Ank Med J.* 2018;2:207-214. [CrossRef]
44. Karaçalı M, Özdemir R. Karabük ilinde 15-49 yaş grubu evli kadınların aile planlaması hizmetlerine erişimini etkileyen faktörler. *Türk J Public Health.* 2018;16(2):131-145. [CrossRef]
45. Akyüz MD. *Doğum sonu dönemde kadınların modern aile planlaması gereksinimleri ve ilişkili faktörlerin değerlendirilmesi* [doktoral thesis]. İzmir: Ege Üniversitesi, Sağlık Bilimleri Enstitüsü; 2016.
46. Atan SÜ, Kavlak O, Kulak E, Bozkaya M. Attitudes to wards family planning among women seeking induced abortion in İzmir, Turkey. *Eur J Contracept Reprod Health Care.* 2011;16(3):194-200. [CrossRef]
47. Ballı FÖ, Mahallesi BİC. *yaş kadınlarda aile planlaması yöntem kullanımı ve ilişkili erişim faktörlerinin değerlendirilmesi* [Master's thesis]. İzmir: Ege Üniversitesi, Tıp Fakültesi; 2011:18-49.
48. Küçük Gürbüz T. *no'lu Gaziemir Eğitim ASM'de kayıtlı 15-49 yaş arası evli kadınların aile planlaması konusundaki tutumlarının doğurganlık düzeyleri ile ilişkisi* [Master's thesis]. İzmir: Dokuz Eylül Üniversitesi, Tıp Fakültesi; 2019:10.
49. Yücel U, Güner S, Seren F. 15-49 yaş arası iki yaşından küçük çocuğu olan kadınlarda aile planlaması hizmet kullanımının değerlendirilmesi. *Med Sci.* 2018;13(4):120-128. [CrossRef]
50. Dikmen H. *Bursa İli İznik İlçesi 5 no'lu aile sağlık merkezine başvuran 15-49 yaş aralığındaki kadınların aile planlaması bilgilerini etkileyen etmenlerin belirlenmesi* [Master's thesis]. Kırklareli: Kırklareli Üniversitesi, Sağlık Bilimleri Enstitüsü; 2018.
51. Dinç A. 40 yaş üzeri evli kadınların kontraseptif tercihlerinin incelenmesi. *Zeynep Kamil Tıp Bul.* 2018;49(3):251-255. [CrossRef]
52. Temürlenk S. *Edirne merkez ilçede yaşayan 15-49 yaş kadınların üreme sağlığı durumu* [Master's thesis]. Edirne: Trakya Üniversitesi, Sağlık Bilimleri Enstitüsü; 2019.
53. Tunç A. *Edirne il merkezindeki aile sağlığı merkezlerine kayıtlı 15-49 yaş arası kadınların aile planlaması ile ilgili bilgi, tutum ve davranışları* [Master's thesis]. Edirne: Trakya Üniversitesi, Tıp Fakültesi; 2019.
54. Yazıcı M. *Kadın hastalıkları ve doğum polikliniğine başvuran kadınların demografik özellikleri ile kullandıkları aile planlaması yöntemi arasındaki ilişki* [Master's thesis]. İstanbul: Beykent Üniversitesi, Sosyal Bilimleri Enstitüsü; 2015.
55. Aktoprak M. *Evli kadınlar ve eşlerin aile planlamasına yönelik tutumları ve ilişkili faktörler* [Master's thesis]. Konya: Selçuk Üniversitesi, Sağlık Bilimleri Enstitüsü; 2012.
56. Aydın R. *Engelli kadınların aile planlamasına ilişkin tutumlarının belirlenmesi* [Master's thesis]. Mersin: Mersin Üniversitesi, Sağlık Bilimleri Enstitüsü; 2013.
57. Salman Z. *Süleyman Demirel Üniversitesi kadın hastalıkları ve doğum polikliniğine başvuran kadınların aile planlaması hakkındaki bilgi düzeyleri ve tutumları* [Master's thesis]. Isparta: Süleyman Demirel Üniversitesi, Tıp Fakültesi; 2014.
58. United Nations. Department of Economic and Social Affairs. Contraceptive use by method 2019. Available at: https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_2019_contraceptiveusebymethod_databooklet.pdf.
59. Bearak J, Popinchalk A, Alkema L, Sedgh G. Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. *Lancet Glob Health.* 2018;6(4):e380-e389. [CrossRef]
60. Sedgh G, Singh S, Hussain R. Intended and unintended pregnancies worldwide in 2012 and recent trends. *Stud Fam Plann.* 2014;45(3):301-314. [CrossRef]
61. Özkan Z, Açıkgöz B, Ayoğlu N. Gebe polikliniğine başvuran gebelerde istenmeyen gebelik sıklığı ve etkileyen faktörler. International 21. National Public Health Congress, 17 Eylül 2019. Available at: <https://2019.uhsk.org/ocs236/index.php/UHsk21/UHsk/paper/view/244>.
62. Dönmez A, Er M, Karaçam Z. Gebe okuluna başvuran gebelerin yaşadığı gebeliğe bağlı fiziksel sağlık sorunlarının incelenmesi. *Life Sci.* 2018;13(1):1-10. [CrossRef]
63. Öz İŞ, Çakır AT, Ün B, Bacanakgil BH. Zonguldak kadın doğum ve çocuk hastalıkları hastanesine isteğe bağlı kürtaj nedeniyle başvuran gebelerin aile planlaması pratikleri açısından değerlendirilmesi. *MJWBS.* 2019;3(1):9-16. [CrossRef]
64. Bucak FK, Kahraman S, Kartal M. Mevsimlik tarım işçisi evli kadınların bebek yapma hakkında düşünceleri ve aile planlaması kullanma durumları. *Sağ Aka Derg.* 2018;5(3):178-183. [CrossRef]