Original Article

Level of Maternal Birth Satisfaction According to Type of Delivery in Turkey: A Meta-Analysis Study

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Abstract
Objective: This research aimed to determine the level of birth satisfaction in Turkiye and the affecting factors through a systematic review and meta-analysis.
Methodology: In the study, 12 studies published between January 2017 and September 2022 and meeting the inclusion criteria were examined. The Mother Satisfaction Rating Scale in Normal Birth (MSRSNB) and the Maternal Satisfaction Rating Scale at Caesarean Delivery (MSRSCD) have been used to determine the satisfaction levels in the studies. The random effect model was used for variances between studies whereas Egger's and Begg's tests were used for publication bias. Cochran Q and I^2 values were calculated to test heterogeneity.
Results: In Turkiye, the common estimation for the MSRSNB of women who had a normal delivery was 141.544 with a standard error of 5.128 (95% CI for I^2= 99.42 to 99.59). The common estimation for MSRSCD was 141.571 with a standard error of 5.422 (95% CI for I^2=98.51 to 99.22). According to the random effect model, the difference in the scores between the cesarean section group and the normal delivery group was -0.137 (SE: 0.0619) among all patients.
Conclusion: It was determined that the satisfaction levels of pregnant women living in Turkiye with cesarean section and normal delivery were not high.

Keywords: Birth Satisfaction, Cesarean Section, Meta-analysis, Normal Delivery, Turkiye.

Introduction

Birth is a miraculous life experience in which a woman transitions into motherhood (Serhatlioglu & Karahan, 2018). In order to remember this experience with maximum satisfaction, the World Health Organization (WHO) recommends providing all women and their babies with quality care during pregnancy, delivery, and the postpartum period (WHO, 2016). Indicators of the physical health and safety of the mother and baby are used in the evaluation of the provision of perinatal care. In the last 20 years, with the technological developments in the field, the subjective birth satisfaction of the mother, a psychosocial criterion, has gained importance in quality assessment (Chabbert, Panagiotou, & Wendland, 2021). WHO recommends monitoring and evaluating birth satisfaction in order to improve the quality and effectiveness of care provided at birth (Tuncalp et al., 2015).

Birth satisfaction is the retrospective evaluation of the mother regarding her birth

experience (Hollins Martin, Snowden & Martin, 2012). Birth satisfaction is a complex concept that is affected by social, environmental, and political events and women's individual life characteristics. The factors affecting birth satisfaction include type of delivery, place of delivery, social support provided at birth, instruction about types of delivery, interventions applied at birth, and communication with a health professional (Yanikkerem, Goker, & Piro, 2013; Ozcan & Aslan, 2015; Lazzerini, Mariani, Semenzato & Valente, 2020; Ozkan, Chiang, Aba & Celik, 2020; Bishaw et al., 2022). Regardless of the type of delivery, ensuring the woman's birth satisfaction is very important for the woman's and the newborn's health. With the increase in birth satisfaction rates, maternal-infant attachment problems, fear of birth, cesarean section rate at the next birth, postpartum depression, breastfeeding problems, and sexual dysfunction will decrease (Gungor & Beji, 2012; Goncu Serhatlioglu, Karahan, Hollins Martin & Martin, 2018).

The rate of cesarean sections has increased significantly in Turkiye in recent years. According to the 2019 Turkiye Health Statistics report, the rate was 51% in 2014 and increased to 54% in 2019, ranking at the top of the list among OECD (Organization for Economic Cooperation and Development) countries (SB, 2019). However, according to WHO, the acceptable rate for cesarean section is 15% (WHO, 2015). It is advised to evaluate women's birth satisfaction and carry out further studies to increase the level of birth satisfaction in order to improve birth satisfaction. Therefore, this systematic review and meta-analysis study aimed to provide current and national data on women's birth satisfaction in Turkiye.

Methods

Sources of Information and Scanning Methods in Research: This research conducted in accordance with the "Meta-analysis and Systematic Reviews of Observational Studies in Epidemiology Guidelines". A retrospective scanning was performed for the research. The study was conducted by scanning Pubmed, Science Direct, Google Scholar Turkiye Citation Index, and Ebsco CINAHL Plus databases. The MESH index was used for the keywords to be used in the scanning. The scanning was performed using Turkish and English combinations of the words "birth satisfaction", "postpartum", "normal delivery", "cesarean section", and "type of delivery". Studies published between January 2017 and September 2022 were independently scanned by all three researchers. Studies in the gray literature and repetitive studies were not included in the study. The studies included in the evaluation were reviewed by all three observers. As a result, 12 studies were included in the research. Six of these studies have also examined the satisfaction rate of cesarean section and vaginal delivery (***Figure 1***).

Inclusion Criteria: Studies conducted with a sample group of women aged 18-45 living in Turkiye, in which the level of birth satisfaction was determined using the Mother Satisfaction Rating Scale in Normal Birth (MSRSNB) and the Maternal Satisfaction Rating Scale at Caesarean Delivery (MSRSCD), in which the scales have covered the entire sample in both subscales and the overall scale, in which the values have been given with mean and standard deviation values, of which the full texts are available, and which were conducted between January 2017 and September 2022 were included in the research.

Mother Satisfaction Rating Scale in Normal Birth (MSRSNB): MSRSNB was developed by Gungor and Beji to evaluate the birth experiences of mothers in the hospital during the early postpartum period. On this scale, the total raw score for VD is between 43 and 215. The mother's satisfaction from the care given in hospital during VD increases as the total scale score increases. The cut-off point for MSRSNB is 150.5 (Gungor & Beji, 2012).

Maternal Satisfaction Rating Scale at Caesarean Delivery (MSRSCD): MSRSNB was developed by Gungor and Beji to evaluate the birth experiences of mothers at cesarean section in the hospital during the early postpartum period. On this scale, the total raw score for cesarean section is between 42 and 210. The mother's satisfaction from the care given increases as the total scale score increases. The cut-off point for MSRSCD is 146.5 (Gungor & Beji, 2012).

Exclusion Criteria: Studies using different measurement tools, those using the same

measurement tool but not making an evaluation over the total score in the values related to the scale, or giving different numerical values, studies in the gray literature, and those within the scope of reviews or book chapters were excluded from the study.

Research Process: After the scanning, studies should be evaluated independently by at least two researchers to ensure interrater reliability (Uman, 2011; Crocetti, 2016). The studies obtained in the scanning were evaluated separately by three authors according to the "Joanna Briggs Institute (JBI) Prevalence Studies Critical Appraisal Checklist" (Munn, Moola, Lisy, Riitano & Tufanaru, 2015). In the checklist consisting of 9 questions, the "yes" answer is scored 1 point, and the "no" answer is scored 0 points. The total score of the checklist is 9 and the minimum acceptable score is 5. The scores were compared by the researchers and all disagreements were eliminated before the calculation of a final assessment score. As a result of the evaluations made by the researchers, the lowest score was 5 and the highest score was 9. Kappa fit analysis was performed in IBM SPSS Statistics 22 program to test the reliability between the scores. The kappa score for all criteria was 0.768 and the reliability between the raters was significant (p=0.000).

Limitations and Strengths: This research is the first meta-analysis study that determines postpartum maternal satisfaction in Turkiye and this is the most important strength of the research. Another strength, of the study was that the studies were evaluated independently by all three researchers and that the study was sent to two more independent experts before publication to be evaluated. One of the limitations of this study was the necessity of selecting studies using the same measurement tool to measure the level of maternal satisfaction. For this reason, studies measuring the level of maternal satisfaction with different measurement tools could not be included in the study and the study was completed with 12 main studies. Although methodological differences, such as the sample size of the main studies and the time period in which the level of maternal satisfaction was questioned, were another limitation of the study, the publication bias was found to be at a negligible level.

Data Analysis: The meta-analysis was performed using the "Generic inverse variance method" by calculating the standard error for each study. The "Random Effect" model was used when heterogeneity was significant. The weights in the total score calculated with the random effect model for each study were demonstrated with a forest plot. The overall random effect was also indicated on the forest plot as a diamond. Publication bias was indicated with a funnel plot. To suggest that there is no publication bias, the point distributions are expected to be symmetrical on the plot. Analyses were performed using the MedCalc Statistical Software version 19.1 (MedCalc Software bv, Ostend, Belgium; https://www.medcalc.org; 2019). The random effect model measures each study with the inverse of its internal variance and explains the variance between studies. The random effect model is more appropriate for meta-analysis in the presence of heterogeneity. Cochran Q and I^2 values were calculated to test heterogeneity. A high value of I^2 indicates greater heterogeneity between statistics (For I^2, 25,50 and 75% correspond to low, medium and high heterogeneity, respectively) (Borenstein, Hedges, Higgins & Rothstein, 2021).

Ethical Dimension: Ethical consent was not required, since the studies included in this research were accessed through open-access electronic databases The study complied with the principles of the Declaration of Helsinki

Results

Twelve main studies were included in the study. In six of these studies, satisfaction with cesarean section has also been determined in addition to satisfaction with normal delivery. In this chapter, general features of the main studies, normal delivery and cesarean section findings are given under three separate headings.

General Features of Main Studies: Two of the studies were conducted in Istanbul (Orman & Demirci, 2019; Yilmaz, Dinc, Gunaydın, Celik, 2020), one in Manisa (Bolsoy, Sen, Gulsen & Topac, 2021), one in Kocaeli (Ozkan et al., 2020), one in Kars (Calik, Karabulutlu, & Yavuz, 2018), one in Adana (Karadag, Var, Gokce, Dede, & Gokyildiz, 2015), one in Erzurum (Oveysi & Apay, 2021), one in Denizli (Yaldir & Coban,

2018), one in Yozgat (Yılmaz & Baser, 2017). Two studies did not specify a city; one of these studies was conducted in eastern Turkiye (Can & Apay, 2020) and the other was conducted in a city in the Central Anatolia Region (Ozkan & Bal, 2019). One of the studies did not specify the city (Demirel, Kaya & Evcili, 2022). Four of the studies (Yılmaz & Baser, 2017; Can & Apay, 2020; Ozkan & Bal, 2019; Demirel et al., 2022) had a descriptive design; five (Orman & Demirci, 2019; Yilmaz et al., 2020; Karadag et al., 2015; Oveysi & Apay, 2021) had a descriptive-cross-sectional design; three (Ozkan et al., 2020;22 Calik et al., 2018; Yaldir & Coban, 2018) had a cross-sectional design. In the studies, MSRSNB was used to determine the level of satisfaction with normal delivery and MSRSCD was used to determine the level of satisfaction with cesarean delivery. All studies were conducted with primiparous and multiparous postpartum women.

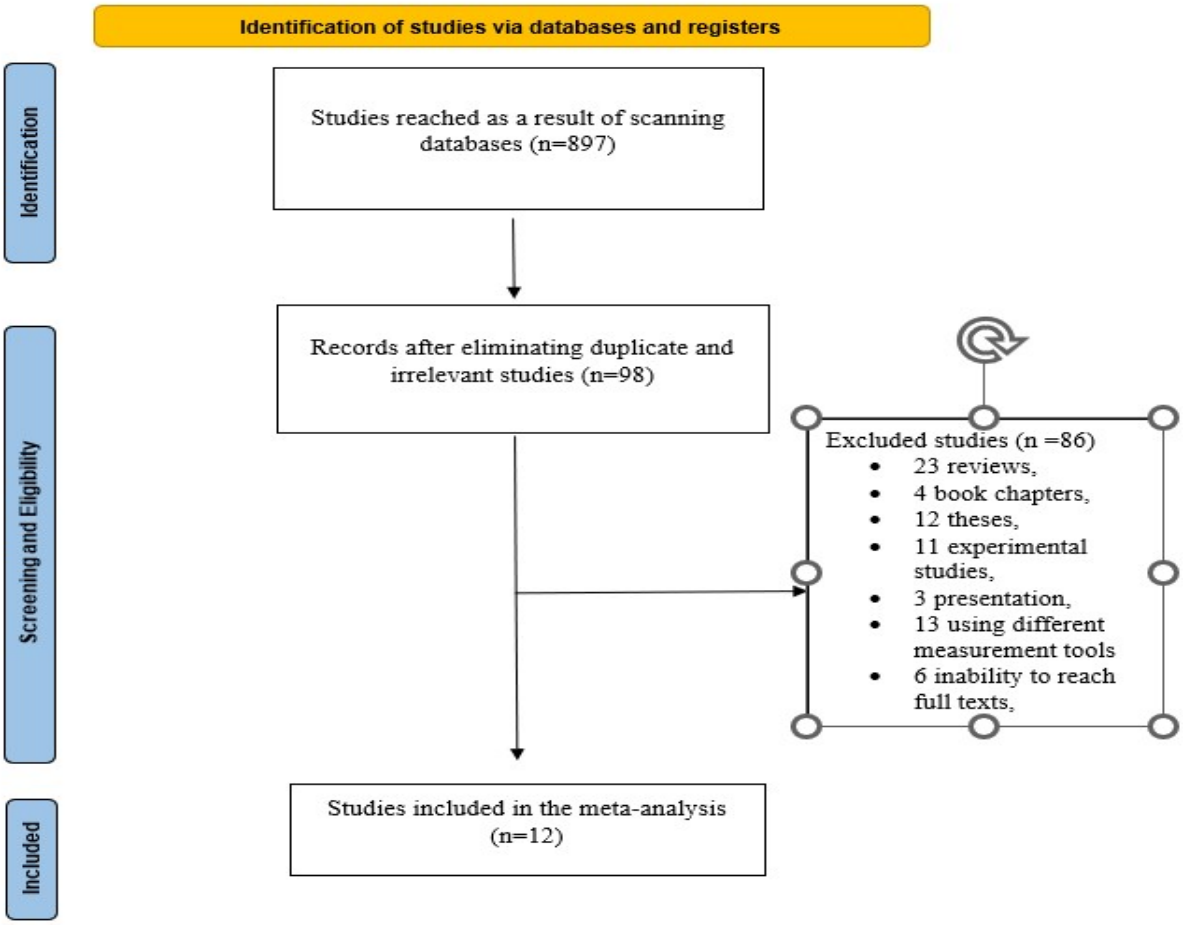


Figure 1 Flowchart to illustrate results of search strategy (http://www.prisma-statement.org/)

Findings Regarding Satisfaction with Normal Delivery: Satisfaction with normal delivery was questioned in all of the twelve main studies included in the study including 3,385 postpartum women. For satisfaction with normal delivery, the Q statistic was 2244.1447 (SD=11) ($P<0.001$) ($I^2=99.51$). Both statistical results showed that the studies were heterogeneous (95% Confidence Interval: 99.42-99.59%). The random effect model was used in the analyses and the level of satisfaction with normal delivery among all participants was 141.544 and the standard error was 5.128 according to the random effect model (***Table 1***). According to the result of Begg's test, there was no publication

bias (P=0.3476, ***Table 1***) and publication bias was as indicated in the funnel plot (***Figure 2***).

Findings Regarding Satisfaction with Cesarean Section: Six of the studies also questioned the level of satisfaction with cesarean section. The number of women whose level of satisfaction with cesarean section was questioned was 1187. For satisfaction with cesarean section, the Q statistic was 464.8751 (SD=5) (P<0.001) (I2=98.92). Both statistical results showed that the studies were heterogeneous (95% Confidence Interval: 98.51-99.22%). The random effect model was used in the analyses and the level of satisfaction with cesarean section among all participants was 141.571 and the standard error was 5.422 (***Table 1***). According to the result of Begg's test, there was no publication bias (P=0.1423, ***Table 2***) and publication bias was as indicated in the funnel plot (***Figure 3***).

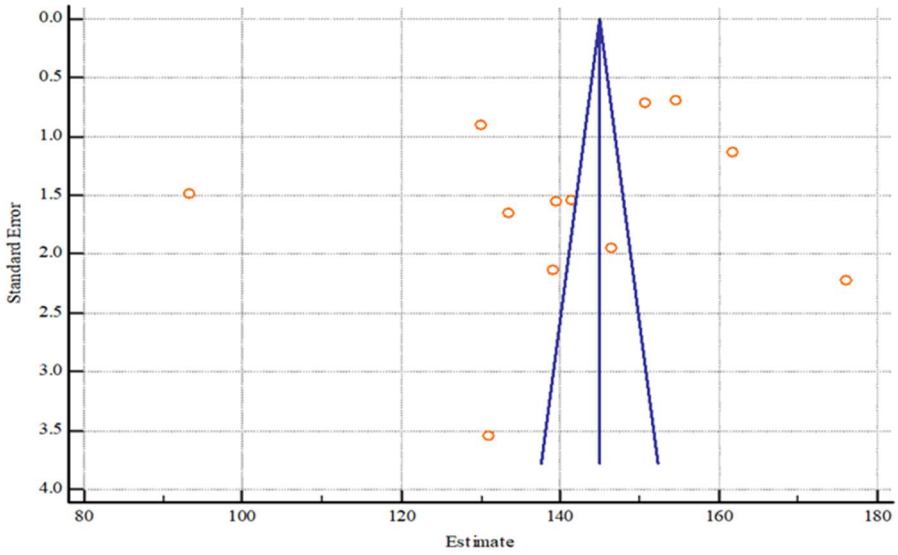


Figure 2. Publication bias level of satisfaction with vaginal birth in basic studies

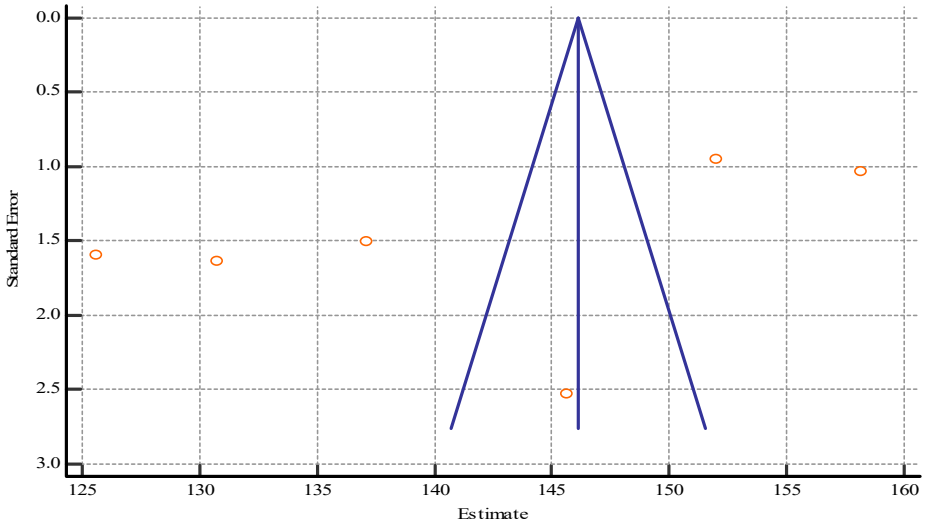


Figure 3. Publication bias level of satisfaction with cesarean delivery in basic studies

Table 1. Forest plot on normal birth satisfaction levels

Study	Sample size	Estimate	Standart Error	95 %CI	Weight	
					Fixed	Random
Bolsoy N, et al. (2021)	125	176.040	2.221	171.687 to 180.393	2.39	8.29
Can EK, Apay SE. (2020)	209	133.520	1.657	130.272 to 136.768	4.30	8.35
Ozkan Ş, et al. (2020)	580	154.690	0.689	153.340 to 156.040	24.87	8.41
Calik et al. (2018)	351	139.590	1.549	136.554 to 142.626	4.92	8.35
Yilmaz FA, Baser M. (2017)	38	131.100	3.553	124.137 to 138.063	0.94	8.09
Orman H, Demirci N. (2019)	131	139.160	2.141	134.964 to 143.356	2.58	8.30
Karadag AG, et al. (2017)	191	146.600	1.947	142.784 to 150.416	3.11	8.32
Oveysi M, Apay SE. (2021)	610	150.860	0.715	149.459 to 152.261	23.11	8.40
Yilmaz T, et al. (2020)	100	141.520	1.545	138.492 to 144.548	4.94	8.35
Ozkan SA, Bal MD. (2019)	199	161.890	1.134	159.668 to 164.112	9.19	8.38
Demirel G, et al. (2022)	551	130.130	0.907	128.352 to 131.908	14.35	8.40
Yaldir IA, Coban A. (2018)	300	93.250	1.491	90.327 to 96.173	5.31	8.36
Total (fixed effects)		145.017	0.344	144.343 to 145.690	100.00	100.00
Total (random effects)		141.544	5.128	131.494 to 151.595	100.00	100.00

Total (fixed effects): z=422.116, P<0.001/**Total (random effects):** z=27.604, P<0.001

Test for heterogeneity
Q=2244.1447, DF=11, P<0.001, I^2=99.51, 95% CI for I^2(inconsistency)=99.42 to 99.59

Egger's Test
Intercept=-8.4757, 95 %CI=-30.2043 TO 13.2528, P=0.4051

Begg's test
Kendall's Tau=-0.1515, P=0.4929

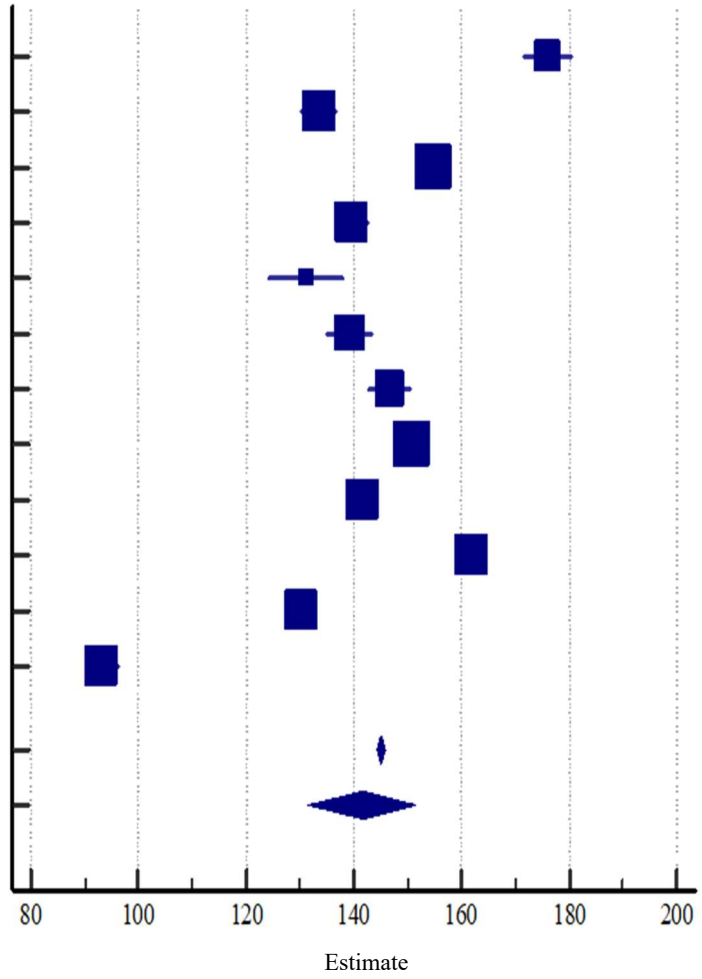
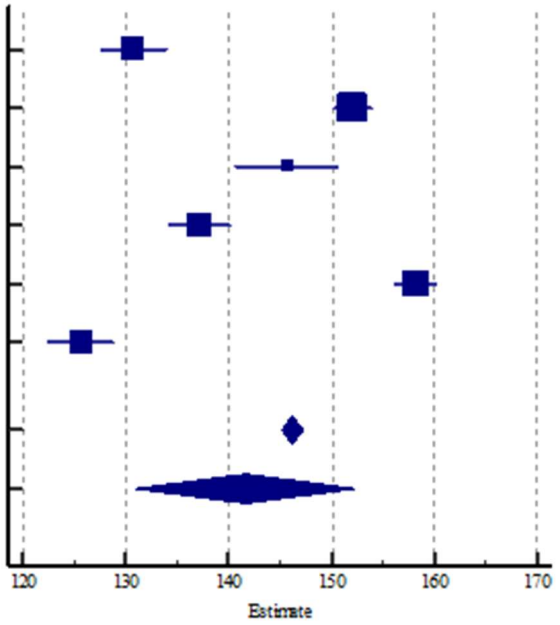


Table 2. Forest plot on cesarean delivery satisfaction

Study	Sample size	Estimate	Standart Error	95 %CI	Weigth	
					Fixed	Random
Can EK, Apay SE. (2020)	208	130.730	1.639	127.517 to 133.943	10.89	16.66
Ozkan et al. (2020)	392	152.010	0.948	150.152 to 153.868	32.54	16.83
Orman H, Demirci N. (2019)	94	145.650	2.527	140.697 to 150.603	4.58	16.32
Yilmaz T, et al. (2020)	100	137.120	1.502	134.176 to 140.064	12.97	16.70
Ozkan SA, Bal MD. (2019)	219	158.180	1.030	156.162 to 160.198	27.58	16.82
Demirel G, et al. (2022)	174	125.580	1.599	122.446 to 128.714	11.44	16.67
Total (fixed effects)		146.149	0.541	145.089 to 147.209	100.00	100.00
Total (random effects)		141.571	5.422	130.944 to 152.198	100.00	100.00
Total (fixed effects): z=270.230, P<0.001/ **Total (random effects):** z=26.111, P<0.001						
Test for heterogeneity Q=464.8751, DF=5, P<0.001, I^2(inconsistency)= 98.92%, 95% CI for I^2=98.51 to 99.22						
Egger's test Intercept=-19.8814, 95%CI=-50.1494 to 10.3866, P=0.1423						
Begg's test Kendall's Tau=-0.3333, P=0.3476						



Discussion

In this meta-analysis study, descriptive studies determining postpartum maternal satisfaction in Turkiye were examined. As a result of the common estimation in the studies, twelve studies evaluating satisfaction with normal delivery were examined and it has been determined that maternal satisfaction with normal delivery was not at a good level in Turkiye. Likewise, in the common estimations of six studies examining maternal satisfaction with cesarean section, it has been observed that the level of maternal satisfaction with cesarean section was also low. Although a limited number of national and international studies have examined the relationship between the type of delivery and postpartum maternal satisfaction, to the best of our knowledge, this study is the first meta-analysis study conducted in Turkiye on the subject.

On the other hand, the studies used in this paper have also examined various factors other than the type of delivery that may affect postpartum maternal satisfaction. In studies conducted in Turkiye, a limited number of studies have examined the relationship between the type of delivery and birth satisfaction. In the studies used, it has been observed that satisfaction with normal delivery was at a good level. In another study conducted with 124 women who had a normal delivery, it has been reported that women who had a normal delivery had higher birth satisfaction (Amanak, Demirkol & Unay, 2020). In another study conducted with 387 women, it has been determined that women who had a normal delivery had higher levels of satisfaction than women who had a cesarean section (Bilgin, Bedriye, Potur & Ayhan, 2018). Similarly, in a study conducted with 127 postpartum women, it has been observed that the level of satisfaction of women who had a normal delivery was higher than those who had a cesarean section. Almost half of those who gave birth by cesarean section stated that they would “have a vaginal delivery” if they had the chance to give birth again (Capik, Sakar, Yildirim, Karabacak & Korkut, 2016).

When the relevant studies were examined, it was seen that study results regarding the high level of satisfaction with normal delivery were not similar to the results of our study whereas the results regarding the level of satisfaction with cesarean section were similar to our study results. However, in another study, it has been reported that more than half of the women who gave birth by cesarean section had a low level of satisfaction (Yanikkerem et al., 2013).

In the international literature, the number of studies on the subject is limited as in Turkiye. In a study examining the levels of satisfaction of women who gave birth by vaginal delivery and cesarean section, it has been determined that the level of satisfaction of women who gave birth by cesarean section was higher (Blomquist, Quiroz, Macmillan, McCullough & Handa, 2011). Similarly, in a systematic and interactive study including 26 studies, it has been observed that the level of satisfaction with cesarean section was high and that the level of satisfaction was low in women, who were scheduled to have a cesarean section, due to situations such as feeling ignored, loss of control, and feeling weak (Coates, Thirukumar & Henry, 2020). Although the results of the study differ from the results of the current research, increasing the number of studies on the type of delivery may provide more accurate evidence by excluding conflicting factors such as being planned at birth.

There were also studies reporting that normal delivery created more maternal satisfaction than cesarean delivery or that the level of satisfaction with cesarean section was low. In a study, it has been found that women who had a normal delivery had higher levels of satisfaction than women who had a cesarean section because they thought that they were exposed to less intervention at birth (Chalmers & Dzakpasu, 2015). In a study conducted with 220 women who gave birth by cesarean section in Nigeria, it has been reported that most of the women had low rates of postpartum satisfaction (Enabudoso & Isara, 2011). Studies reporting low levels of satisfaction with cesarean section are similar to the current study.

Some studies have examined the effects of the type of delivery on satisfaction after a cesarean section. In a study conducted with women who had a previous cesarean section, it has been shown that women who had a

spontaneous vaginal delivery and repeated elective cesarean sections had a higher level of satisfaction than women who had an interventional delivery and emergency cesarean section (Shorten & Shorten, 2012). This suggests that maternal satisfaction may decrease in interventional procedures, regardless of the type of delivery.

It has been observed that other factors affecting birth satisfaction also affect the level of satisfaction according to the type of delivery. Since women who had a cesarean section were more satisfied with the information support and hospital facilities, their levels of birth satisfaction were found to be higher than those who had a normal delivery. On the other hand, women who had a normal delivery were found to have higher levels of satisfaction in terms of meeting the baby faster and the quality of care received after delivery compared to puerperal women who had a cesarean section (Shorten & Shorten, 2012). Moreover, in a study, it has been found that the type of delivery did not directly affect the level of birth satisfaction and it has been suggested that participation in the decision-making process, levels of support at birth, and effectiveness of interventions might affect postpartum maternal satisfaction (Spaich et al., 2013). The fact that postpartum women are similar in terms of other conditions in determining maternal satisfaction according to the type of delivery may give more accurate results in terms of the relationship between the type of delivery and maternal satisfaction.

Conclusion: In the study, it was determined that the postpartum levels of satisfaction were low as a result of the common estimations of women who had a cesarean section or normal delivery. However, considering the limited number of relevant studies, it was thought that the number of studies should be increased in order to reach clearer evidence. Our study provides evidence for future studies.

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