



ORIGINAL PAPER

## Behaviors of pregnant women regarding travel – the case of Türkiye

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### ABSTRACT

**Introduction and aim.** With the development of transportation facilities and options, people can now travel easily. With women having a greater presence in the workforce, pregnant women can work until the eighth week before childbirth. This study was conducted to examine the behaviors of pregnant women regarding travel.

**Material and methods.** The data for this cross-sectional and descriptive study were collected from 519 pregnant women who voluntarily participated in the research and met the research criteria. The data were analyzed using the SPSS 24 software package.

**Results.** The average age of the participating pregnant women was  $27.49 \pm 0.17$ , with 63.8% residing in urban areas, 74.8% being primiparous, and 47.6% being in the third trimester of pregnancy. A decrease in travel and car usage during pregnancy. The use of bus, train/tram/metro, taxi, bicycle/scooter, and motorcycle decreased during pregnancy, while use of car, plane, and ship/ferry increased. 81.9% of women always wore a seat belt during pregnancy. There was a statistically significant difference between the educational level of women and their car usage ( $p < 0.005$ ). It was found that women wore seat belts more frequently in the third trimester. As the number of pregnancies increased, the frequency of seat belt usage decreased.

**Conclusion.** A decrease in the frequency of travel was observed among women during pregnancy. The levels of seat belt usage and correct seat belt fastening were unsatisfactory.

**Keywords.** car usage, pregnancy, travel, seat belt

### Introduction

With the development of transportation facilities and options, people can now travel easily. With women having a greater presence in the workforce, pregnant women can work until the eighth week before childbirth. In fact, if there is no problem until the 37th week of pregnancy with the medical report that she can work, the expectant mother can continue to work. Pregnancy is a natural process that causes significant anatomical, physiological, and psychological changes in a woman's body.<sup>1,2</sup> The consequences of these physical changes that occur

as pregnancy progresses include the seat belt not fully encompassing the mother, and a decrease in the distance between the abdomen and the steering wheel during car usage and travel. Due to the potential for trauma during motor vehicle usage and travel in pregnancy, extra caution should be exercised during this period.<sup>3</sup>

Traumas experienced during pregnancy pose a threat to the lives of both the mother and the fetus. It is reported that women experience trauma at a rate of 5-8% throughout their pregnancies, resulting in fetal loss.<sup>4</sup> Particularly, motor vehicle accidents or collisions

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can increase the risk of preterm labor, early membrane rupture, hypertension, phlebitis, uterine and placental injuries; therefore, travel distances longer than 180 km after the 28th week of pregnancy are not recommended for pregnant women.<sup>3</sup> The total number of crash induced injuries during pregnancy led to 3.6 more deaths (fetal/neonatal) than deaths among newborns and infants.<sup>5</sup> The most important factor that contributes to mild effects on the mother and fetus is the use of seat belts. However, when seat belts are incorrectly fastened, they can cause uterine rupture and fetal deaths due to the compressive effect of sudden flexion.<sup>8</sup> The use of seat belts alone can reduce fetal and maternal injuries by 50%.<sup>6</sup>

Pregnant women are increasingly active in their work lives and travel for work or leisure purposes. The most suitable period recommended for travel is the second trimester (14-26 weeks). During pregnancy, the incidence of superficial and deep venous thrombophlebitis increases due to the elevation of coagulation factors and the venous dilation caused by progesterone.<sup>7</sup> For short-distance travel, it is recommended to prefer private vehicles, and for long distances, air travel should be the first choice.<sup>8</sup> When traveling by car, taking a break every two hours and walking for at least 10 minutes during breaks should be ensured to exercise the thigh muscles.<sup>7</sup> Until the 28th week of pregnancy, women can travel without any documents, and between the 28th and 36th weeks, they can travel with a “fit to fly” report. However, boarding an aircraft is prohibited after the 36th week.<sup>8</sup> It is recommended to choose seats on the aisle side to allow movement.<sup>9</sup> Additionally, flights are not recommended for high-risk pregnancies such as presence of anemia, cervical insufficiency, or bleeding.<sup>7</sup> Bus travel is not the preferred option during pregnancy as it causes the legs to remain inactive for prolonged periods.<sup>10</sup> If necessary, pregnant women should sit on the aisle side, move at regular intervals, and perform leg exercises.<sup>8,11</sup>

## Aim

This study was conducted to examine the behaviors of pregnant women regarding travel and car usage.

## Material and methods

### *Ethical approval*

Permission was obtained from the Institutional Review Board of the researcher’s affiliated university (Date: 27.11.2020, No: 2014/08-13) for the implementation of the study. Informed voluntary consent was obtained from the participating pregnant women.

### *Study design and participants*

This study is a cross-sectional and descriptive research. The population of the study consisted of pregnant wom-

en. The minimum sample size required for the study was calculated as 385 using the unknown population sample formula ( $n=t^2 \cdot p \cdot q / d^2$ ) with a 95% confidence interval ( $d=0.05$ ),  $t=1.96$ ,  $p=0.5$ , and  $q=0.5$ . Accordingly, 519 pregnant women were included in the study.

### *Collection of data*

To collect data on the behaviors of pregnant women regarding travel and car usage, a questionnaire was prepared by the researchers through a literature review.<sup>12,13</sup> Participants completed the questionnaire online through self-reporting. The survey form was shared online through various social platforms (Twitter, Facebook, Instagram, WhatsApp, email, etc.) between December 2020 and June 2021. Participants were allowed to log in once from the same computer ID number via the survey.com website. The study included all pregnant women living within the borders of Türkiye, aged 18 years and above, and without high-risk pregnancies. And also, the data was collected during the COVID-19 pandemic period, but the travel habits of pregnant women, independent of the pandemic, were questioned.

### *Data collection tools*

The questionnaire consisted of two sections: the first section included five questions on demographic characteristics (age, place of residence, educational status, gestational age, and number of pregnancies), and the second section consisted of 37 questions on pregnant women’s behaviors related to travel and car usage (pre-pregnancy and post-pregnancy travel frequency, car usage frequency, discomfort experienced during travel, most common sitting position in the vehicle, seat belt usage, use of additional safety systems or restrictions, resting and break durations during travel, etc.), making a total of 42 questions.

### *Data analysis*

The dependent variable of the study was pregnant women’s car usage and travel behaviors, and the independent variables consisted of their sociodemographic characteristics (age, educational status, place of residence, number of pregnancies, gestational age). The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 24 (IBM, Armonk, NY, USA). Descriptive statistics such as frequencies, percentages, means, and standard deviations were used, and the chi-square test was employed for comparing dependent and independent variables. The significance level was set at  $p < 0.05$ .

## Results

The mean age of the participating pregnant women was  $27.49 \pm 0.17$  (minimum:18, maximum:42). Among them, 63.8% lived in urban areas, and 69.4% had a bachelor’s

degree. In our study, 74.8% of the women were primiparous, and 47.6% were in the third trimester (Table 1).

The comparison of women’s travel frequency before pregnancy and during pregnancy is presented in Table 2. It shows a decrease in travel frequency during pregnancy.

**Table 1.** Demographic and obstetric characteristics of pregnant women

Variables	n (%)
<b>Place of residence</b>	
City	331 (63.8)
Town	165 (31.8)
Village/Small town	23 (4.4)
<b>Educational status</b>	
Primary/Secondary School	20 (3.9)
High school	93 (17.9)
Bachelor’s degree	360 (69.4)
Postgraduate degree	46 (8.9)
<b>Gestational week</b>	
First trimester (1-13 weeks)	106 (20.4)
Second trimester (14-26 weeks)	166 (32)
Third trimester (27-42 weeks)	472 (47.6)
<b>Number of pregnancies</b>	
1	388 (74.8)
2	106 (20.4)
3	22 (4.2)
4 or more	3 (0.6)
<b>Total</b>	<b>519 (100)</b>

**Table 2.** Comparison of women’s travel frequency before pregnancy and during pregnancy

Variables	Travel frequency before pregnancy	Travel frequency during pregnancy
	n (%)	n (%)
Everything	47 (9.1)	21 (4)
Every 2-3 days	58 (11.2)	21 (4)
Once a week	74 (14.3)	65 (12.5)
Once a month	198 (38.2)	126 (24.3)
Once every 2 months	13 (2.5)	25 (4.8)
Once every 3 months	5 (1)	2 (0.4)
Once a year	9 (1.7)	8 (1.5)
Twice a year	14 (2.6)	3 (0.7)
Three to four times a year	7 (1.3)	4 (0.8)
I don’t travel	94 (18.1)	244 (47)
<b>Total</b>	<b>519 (100)</b>	<b>519 (100)</b>

When the means of transportation used by women before and during pregnancy are analyzed, the use of buses (20.6%), trains/trams/metro (7.3%), taxis (9.2%), bicycles/scooters (1.3%) and motorcycles (1.7%) with pregnancy decreased. On the other hand, the use of car (66.1%), airplane (12.2%), and ship/ferry (4.0%) is higher during pregnancy (Table 3). In addition, women stated that the safest means of transportation were cars (51.1%) and airplanes (9.4%) during pregnancy.

The problems experienced by women while using different transportation methods are shown in Table 4.

The most common issues reported while driving a car were back pain (12.5%), nausea/vomiting (10.8%), and fear for the safety of their babies (8.9%).

**Table 3.** Transportation methods used by women before and during pregnancy

Variables	Travel frequency before pregnancy	Travel frequency during pregnancy
	n (%)	n (%)
Car	237 (50.9)	265 (66.1)
Bus	96 (20.6)	11 (2.8)
Taxi	43 (9.2)	33 (8.2)
Train/Tram/Metro	34 (7.3)	23 (5.7)
Airplane	33 (7.1)	49 (12.2)
Ship/Ferry	9 (1.9)	16 (4)
Motorcycle	8 (1.7)	–
Bicycle/Scooter	6 (1.3)	4 (1)
<b>Total</b>	<b>466 (100)</b>	<b>401 (100)</b>

**Table 4.** Problems experienced by women while using transportation methods

Variables	Car	Bus	Ship/ Ferry	Train/ Tram/Metro	Airplane	Taxi
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Back pain	65 (12.5)	5 (1)	–	–	–	3 (0.6)
Nausea/vomiting	56 (10.8)	5 (1)	–	–	–	3 (0.6)
Fear for the safety of the baby	46 (8.9)	6 (1.2)	–	1 (0.2)	3 (0.6)	5 (1)
Fatigue	38 (7.3)	3 (0.6)	–	–	1 (0.2)	3 (0.6)
Increased stress	31 (6.0)	4 (0.8)	–	–	–	3 (0.6)
Hot flashes	29 (5.6)	5 (1)	–	–	–	5 (1)
Feeling of bloating	28 (5.4)	3 (0.6)	–	–	–	–
Headache	24 (4.6)	3 (0.6)	–	–	1 (0.2)	–
Fear for personal safety	16 (3.1)	2 (0.4)	–	–	–	2 (0.4)
Fear of losing control	14 (2.7)	2 (0.4)	1 (0.2)	–	–	1 (0.2)
Palpitations	9 (1.7)	2 (0.4)	–	–	–	2 (0.4)

It was seen that women who used cars as a means of transportation during pregnancy changed their seating positions from the driver’s seat to the passenger seat or the back seat. The preferred seat for women who used cars for transportation was the passenger seat both before pregnancy (29.9%) and during pregnancy (38.7%). It was also found that women preferred to sit in the back seat after becoming pregnant when using taxis. Among women who traveled by plane during pregnancy, the majority chose window seats and seats in the aisle (Table 5).

The frequency of car and seat belt usage by women before and during pregnancy is presented in Table 6. According to the results, there was a decrease in the frequency of car usage during pregnancy. Additionally, an increase in seat belt usage was observed during pregnancy. 81.9% of women stated that they always wear a seat belt during pregnancy (Table 6).

**Table 5.** Seat preference by women before and during pregnancy

Variables	Before pregnancy	During pregnancy
	n (%)	n (%)
<b>Car</b>		
Passenger seat	155 (29.9)	201 (38.7)
Driver's seat	76 (14.6)	41 (7.9)
Back seat	6 (1.2)	23 (4.4)
<b>Bus</b>		
Front seat by the window	17 (3.3)	5 (1)
Front seat by the aisle	11 (2.1)	1 (0.2)
Middle seat by the window	27 (5.2)	2 (0.4)
Middle seat by the aisle	13 (2.5)	2 (0.4)
Back seat by the window	18 (3.5)	1 (0.2)
Back seat by the aisle	10 (1.9)	–
<b>Train/Tram/Metro</b>		
Seat by the window	29 (5.6)	19 (3.7)
Seat in the aisle	5 (1.0)	4 (0.8)
<b>Ship/Ferryboat</b>		
Upper deck/open area	8 (1.5)	2 (0.4)
Lower deck/enclosed area	1 (0.2)	14 (2.7)
<b>Airplane</b>		
Seat by the window	26 (5)	32 (6.2)
Middle seat	4 (0.8)	6 (1.2)
Seat by the aisle	3 (0.6)	11 (2.1)
<b>Taxi</b>		
Back seat	37 (7.1)	31 (6)
Front passenger seat	6 (1.2)	2 (0.4)

**Table 6.** Frequency of car and seat belt usage before and during pregnancy

Variables	Before pregnancy	During pregnancy
	n (%)	n (%)
<b>Car usage</b>		
Never	184 (35.5)	255 (49.1)
Rarely	96 (18.5)	82 (15.8)
Occasionally	103 (19.8)	99 (19.1)
Frequently	39 (7.5)	26 (5.0)
Always	97 (18.7)	57 (11.0)
<b>Seat belt usage</b>		
Never	23 (4.4)	17 (3.3)
Rarely	31 (6.0)	29 (5.6)
Occasionally	42 (8.1)	36 (6.9)
Frequently	411 (79.2)	425 (81.9)
<b>Total</b>	519 (100)	519 (100)

When examining how pregnant women fasten seat belts, the majority (65.3%) place the belt under their abdomen, with support on their shoulders and hips. The rate of women using a seat belt adjuster, which helps position the seat belt, is 5.4%. Only 19.3% of pregnant women are aware of the existence of this device (Table 7).

37.2% of women always take a break on their journey every 2-3 hours during their pregnancy, and 27.8% of them stroll for 10 minutes (min). 33% of the pregnant women were informed about travel during pregnancy (Table 8). 49.9% of women received this information

about travel from an obstetrician, 27.6% from the internet, 10% from a nurse, 9.4% from magazines/books, and 2.1% from newspapers.

**Table 7.** Seat belt fastening position and seat belt adjuster usage during pregnancy

Variables	n (%)
<b>Seat belt fastening position</b>	
Using only the diagonal part of the seat belt	99 (19.1)
Positioning the seat belt over the shoulders and hips, above the abdomen	69 (13.3)
Positioning the seat belt under the abdomen with support on the shoulders and hips	339 (65.3)
Not using a seat belt	12 (2.3)
<b>Seat belt adjuster usage</b>	
Yes	28 (5.4)
No	491 (94.6)
<b>Awareness of Seat belt Adjuster</b>	
Yes	100 (19.3)
No	419 (80.7)
<b>Total</b>	519 (100)

**Table 8.** Behaviors of pregnant women during travel

Variables	n (%)
<b>Taking a break every 2-3 hours</b>	
Never	33 (6.4)
Rarely	49 (9.4)
Occasionally	97 (18.7)
Often	147 (28.3)
Always	193 (37.2)
<b>Walking for 10 minutes during each break</b>	
Never	51 (9.8)
Rarely	77 (14.8)
Occasionally	129 (24.9)
Often	118 (22.7)
Always	144 (27.8)
<b>Received information about travel during pregnancy</b>	
Yes	174 (33.5)
No	345 (66.5)
<b>Total</b>	519 (100)

There was no statistical difference between car usage of women according to gestational week, place of residence, and number of pregnancies ( $p>0.05$ ). The proportion of women who always drive a car during pregnancy was 10.4% in the first trimester, 10.8% in the second trimester, and 11.3% in the third trimester. A statistically significant difference was found between driving status according to education level ( $p<0.05$ ). Accordingly, women with postgraduate education had a higher car usage rate (32.6%), which constituted a statistical difference compared to primary school/middle school (0%), high school (6.5%), and undergraduate (10%) education levels.

There was no statistically significant difference in seat belt usage among women based on gestational week, place of residence, and number of pregnancies ( $p>0.05$ ).

The proportion of women who always used a seat belt during pregnancy was 82.1%, 79.5%, and 83.4% in respective trimesters. It was found that women wore seat belts more frequently in the third trimester ( $p>0.05$ ). When examining seat belt usage based on educational level, women with undergraduate (84.7%) and postgraduate education (89.1%) had the highest rates, while women with primary school/middle school (50.0%) and high school (74.2%) education levels had lower rates ( $p>0.05$ ). The frequency of seat belt usage decreases as the number of pregnancies increases (84.5%, 74.5%, 72.7%, and 66.7% respectively).

## Discussion

The findings of this study, which aimed to examine the behaviors of pregnant women regarding travel and car usage in Türkiye, indicate a decrease in travel and car usage frequency during pregnancy. In our study, it was found that nearly one-fifth (19.1%) of women occasionally drove a car during pregnancy. In contrast to our study, Auriault et al. reported a decrease in daily car usage frequency after the 6th month of pregnancy.<sup>12</sup> The level of car usage among pregnant women may vary depending on their educational levels, employment status, and lifestyle.

In the literature, it has been emphasized that women should make an appropriate choice among the types of transportation during pregnancy, depending on the place and duration of travel. It has been highlighted that the most common types of travel during pregnancy are automobiles and planes, however, ship travel can also be preferred.<sup>14</sup> In this study, the use of buses, trains/tramways/metro, taxis, bicycles/scooters, and motorcycles decreased during pregnancy, while the use of cars, planes, and ships/ferries increased. Consistent with our findings, a study conducted in the United States also indicated that pregnant women mainly walked to their workplaces (11.4–12.5%) or used buses, subways, or trains (6.8–14.3%).<sup>15</sup>

It was determined that pregnant women experienced the most, low back pain, nausea/vomiting, and fear that something would happen to their baby while driving. Low back pain and nausea/vomiting are common physical problems during pregnancy while driving and traveling.<sup>16</sup> Furthermore, women have concerns about avoiding things that could harm their babies during pregnancy. Because of this extreme attention to safety, it is reasonable to assume expectant mothers to use seat belts more widely to protect their babies. However, some pregnant women may believe that in the event of a possible traffic accident during pregnancy, seat belts would exert excessive pressure on their bellies, causing harm to their babies and even leading to miscarriages/deaths.<sup>17–19</sup> Therefore, pregnant women should be provided with information to ensure comfortable

and safe car usage and travel during pregnancy, as well as to reduce/eliminate misconceptions.

In our study, it was observed that women who used cars as a means of transportation during pregnancy would switch from the driver's seat to the front passenger seat or the rear seat. The most preferred seat for women using cars for transportation was the front passenger seat, both before and during pregnancy. In the literature, sitting in the front seat or driver's seat after the second trimester while traveling by car is not recommended for pregnant women because it reduces the distance between the abdomen and the steering wheel. Therefore, it may be a good option for pregnant women to prefer the back seat.<sup>7</sup> In this study, similar to the literature, we found that pregnant women preferred to sit in the back seat more when using a taxi. Air travel is a rarely preferred mode of transportation without obstetric or medical complications. During air travel, it is recommended that pregnant women prefer the seats in the aisle to stand up and stretch their legs during the flight.<sup>3</sup> However, contrary to the literature, it was observed in this study that pregnant women who used airplanes mostly chose seats by the window (6.2%). Therefore, it is considered beneficial to provide pregnant women with more detailed information about travel during pregnancy in prenatal education sessions.

The use of seat belts during pregnancy is important for the safety of both the mother and the fetus.<sup>20</sup> The American Academy of Family Physicians stated that four out of five unborn babies who died in a car accident would have survived if their mothers had worn a seat belt.<sup>21</sup> In our study, it was determined that there was a decrease in the frequency of driving and an increase in the frequency of using seat belts with pregnancy. It was observed that the majority of pregnant women (81.9%) in the study always wore seat belts during pregnancy. Consistent with our findings, several other studies have reported that nearly all pregnant women in France (90–100%), the United Kingdom (98%), the United States (96%), Malaysia (90%), and Ireland (74.6%) wore seat belts while traveling.<sup>12,17,18,22,23</sup> To ensure that all pregnant women wear seat belts during pregnancy, women should be informed about the importance of wearing seat belts during pregnancy. Considering the evidence highlighting the benefits of seat belt usage during pregnancy in reducing maternal and neonatal mortality and morbidity rates, it is essential for all pregnant women to correctly wear seat belts in motor vehicles.<sup>19</sup> American College of Obstetricians and Gynecologists recommends that pregnant women fasten the lap belt snugly below the abdomen over the hips and pelvis, position the shoulder belt across the chest (between the breasts) and over the middle of the collarbone (away from the neck), and never place the shoulder belt under the arm or behind the back. It is recommended to wear both the lap belt and the shoulder

strap during pregnancy.<sup>20,21</sup> In our study, the majority of pregnant women (65.3%) placed the seat belt under the abdomen, supporting the shoulders and hips. Similarly, in another study, more than 80% of pregnant women reported that they placed their seat belts under the abdomen.<sup>12</sup> In a study conducted with pregnant women who received care from health centers in the USA, it was found that the majority (72%) used their seat belts correctly.<sup>18</sup> In Ireland, 47.4% of pregnant women placed their seat belts correctly.<sup>23</sup> It was reported that 29% of pregnant women in Malaysia positioned their seat belts correctly.<sup>17</sup> In the United Kingdom, only 12.8% of pregnant women correctly positioned both the shoulder and lap belt at the same time.<sup>22</sup> In line with these findings, it is seen that not all pregnant women wear their seat belts correctly. Furthermore, it was seen that the number of pregnant women who used the seat belt apparatus for positioning the seat belt was very low (5.4%). Only one-fifth of women were aware of the existence of this apparatus. Contrary to our finding, in the study of Auriault et al. in France, half of the women are aware of an additional safety device that helps position the seat belt.<sup>12</sup> The literature suggests that pregnant women often fail to correctly position seat belts and may not be sufficiently familiar with the use of seat belt adjusters, emphasizing the need to provide pregnant women with information and counseling in this regard.<sup>24</sup>

When traveling in cars, pregnant women are advised to avoid prolonged sitting due to venous stasis and the potential risk of thromboembolism. They are recommended to limit car travel to a maximum of six hours per day and take a break of at least 10 minutes every two hours during car journeys.<sup>14</sup> In accordance with the literature, it was found that one-third (37.2%) of the pregnant women included in our study regularly took a break every 2-3 hours during their journey, and about one-third (27.8%) took a 10-minute stroll during the breaks. A study conducted with 543 pregnant women and 521 postpartum women in Los Angeles found that women spent two hours on average in car travel.<sup>25</sup> In our study, one-third of the pregnant women (33%) received information on travel during pregnancy. Half of the women (49.9%) received it from an obstetrician, 27.6% from the internet, 10% from a nurse, and 9.4% from a magazine/book. In Ireland, only 22% of pregnant women reported that they received advice about travel during pregnancy.<sup>23</sup> It has been found that those who receive information mostly get this information from radio/television/internet. In this regard, it is clearly evident that health-care professionals should provide information on travel during pregnancy, and public awareness campaigns through mass media platforms are needed.

When the proportion of women who always wear seat belts during pregnancy (82.1%; 79.5%; 83.4%) is examined, it is seen that seat belts are used the most in the third trimester. In parallel with our research, Auriault

et al. reported that the rate of using seat belts increases with the month of pregnancy (91.7% in six-month and 96.9% in nine-month).<sup>12</sup> In the study conducted by Faradila et al., it was found that pregnant women wear seat belts most frequently during the first trimester, and they do not prefer to use it due to the difficulties brought by the seat belt as the pregnancy progresses.<sup>17</sup> Seat belt wearing status according to pregnancy trimesters may vary depending on the socio-cultural characteristics of pregnant women.

In this study, the level of use of car was higher in pregnant women with postgraduate education (32.6%). In addition, the rate of women who always use seat belts during pregnancy was found mostly in the third trimester and in pregnant women with a high level of education. Acar and Weekes similarly found that pregnant women with a university degree used seat belts more.<sup>22</sup> In a study by Faradila et al., it was reported that there was no correlation between the education level of pregnant women and their seat belt-wearing status.<sup>17</sup> It is thought that this finding is due to the higher awareness of traffic accidents with the increase in their education level.

In this study, it was found that the frequency of wearing seat belts diminished as the number of pregnancies increased. In a different study, no relationship was found between the number of pregnancies and the use of seat belts.<sup>17</sup> It was believed that the main reason underlying this finding might be due to different variables such as mother-infant attachment.

#### *Study limitations*

The strong aspect of the study is that it covers pregnant women throughout Türkiye. However, the findings are only valid for the group in which the research was conducted and cannot be generalized to the whole population. In the study, the self-report method was used in order for pregnant women to respond easily. However, the inclusion of illiterate pregnant women with the self-report method is a limitation of the study. One of the limitations is that only women with access to the internet and social media participated in the research. Furthermore, the scarce number of studies on this subject in the literature limited the discussion.

#### **Conclusion**

There has been a decrease in the frequency of use of cars and travel by women with pregnancy. It has been found that the pregnant women's level of using seat belts and wearing seat belts correctly is not sufficient. Preventive efforts are needed to make women more aware of the importance of wearing seat belts correctly during pregnancy. To achieve this, health professionals, especially nurses and midwives, should definitely organize training sessions about travel during pregnancy in prenatal training. Furthermore, in order to inform society about

travel during pregnancy, public service announcements about this topic should be broadcast from the mass media. It is also recommended to enhance the literature by conducting different studies related to the usage of car and travel during pregnancy.

## Declarations

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### Author contributions

Conceptualization, Ş.K.E., R.D. and G.A.; Methodology, Ş.K.E., E.C.E., R.D. and G.A.; Software, Ş.K.E. and E.C.E., Validation, Ş.K.E. and E.C.E., Formal Analysis Ş.K.E.; Investigation, Ş.K.E., R.D. and G.A.; Resources, Ş.K.E., E.C.E., R.D. and G.A.; Data Curation, Ş.K.E., R.D. and G.A.; Writing – Original Draft Preparation, Ş.K.E. and E.C.E., Writing – Review & Editing, Ş.K.E. and E.C.E., Visualization, Ş.K.E. and E.C.E., Supervision, Ş.K.E. and E.C.E., Administration, Ş.K.E. and E.C.E., Funding Acquisition, Ş.K.E., E.C.E., R.D. and G.A.

### Conflicts of interest

The authors declare that no conflicts exist.

### Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

### Ethics approval

Permission was obtained from the Institutional Review Board of the researcher's affiliated university (Date: 27.11.2020, No: 2014/08-13) for the implementation of the study. Informed voluntary consent was obtained from the participating pregnant women.

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