



## Relation between mothers' types of labor, birth interventions, birth experiences and postpartum depression: A multicentre follow-up study

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### ARTICLE INFO

#### Keywords:

Type of labor  
Birth interventions  
Birth experience  
Postpartum depression

### ABSTRACT

**Aim:** This definitive and cross-sectional study was conducted to determine the relation between mothers' types of labor, birth interventions, birth experiences and postpartum depression.

**Methods:** A total of 1010 mothers who gave birth in four different provinces of Turkey were chosen to participate in the study via purposive sampling method Results: The Edinburgh Postpartum Depression Scale score was determined to be 13 and over in 36.4% of the women. In this study, it was determined that the Edinburgh Postpartum Depression Scale scores for women in the 18–24 age group who had a vaginal birth, did not have health insurance, experienced health problems during pregnancy and were not trained about type of labor during pregnancy were statistically higher. There was no significant correlation between the birth experiences and postpartum depression. The linear regression model showed that there was a statistically significant correlation between enema and amniotomy interventions practised during the birth and the Edinburgh Postpartum Depression Scale scores.

**Conclusion:** In conclusion, it is thought that preparing the mothers for birth with birth preparation training in the antenatal period and imposing the necessary regulations in the delivery room for the mothers to have a positive birth experience are important in reducing postpartum depression risk.

### Introduction

Although a baby's birth is a pleasing and exciting event, postpartum depression (PPD) can be the beginning of a nightmare for the women who experience it [1]. PPD is an important health problem that has a significant impact on the mother, the family, her partner, mother–baby interactions and the long-term emotional and cognitive development of the baby [2]. Depending upon how PPD is defined, the assessment criteria used and the geographical and cultural dimension of the study conducted, PPD has a wide range of prevalence. In the study conducted by Gorman et al. (2004) in eight countries (Bordeaux and Paris-France, Dublin-Ireland, Florence-Italy, Iowa City-USA, Keele and London-United Kingdom, Porto-Portugal, Vienna-Austria and Zurich-Switzerland) with 296 women, the PPD rate was found to range between 2.1 and 31.6%, and important rate differences were found among countries

[3]. The results of 143 studies were evaluated in the study conducted by Halbreich and Karkun (2006), and the PPD prevalence was found to be 0–60% [4]. The PPD averages of the countries were reported as 16.1% in Hong Kong, 12.8% in the United Kingdom, 8.5% in France, 38.1% in Italy, 34.5% in Taiwan, 32.4% in India, 17.4% in Spain, 17.1% in Germany, 12.4% in Sweden and 29.8% in Turkey [4]. The PPD rates ranged between 12.5 and 31% in the studies conducted in Turkey [5–8].

PPD occurs as a result of more than one factor, such as biological and psychosocial factors, genetic susceptibility and important life experiences [9]. It has been suggested that there are many factors associated with PPD, such as biological (thyroid disorders, folate deficiency, and medical problems during pregnancy), psychological (prenatal anxiety, prenatal depression, history of psychological problems in the mother and her family, history of previous depression, experiencing

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**Table 1**  
Hospital distribution of the sample population.

	Calculated with Formula, n	Participated in the Research, n	Rate of Reaching the Sample, %
Manisa Children's Nursery and Hospital	235	238	101.0
Trakya University Medical Faculty Hospital	290	264	91.0
Adnan Menderes University Medical Faculty Hospital	302	356	117.9
Ege University Medical Faculty Hospital	299	152	50.8
Total	1126	1010	89.7

stress in the family, domestic violence, baby care stress and feeling inadequate as a mother), and social factors (marital status, problematic marriage relationship, the spouse's low education level, low socio-economic level, not having social security, unwanted pregnancy, adolescent pregnancy, smoking and drinking alcohol during pregnancy, and insufficiency of social support) [8,10,11]. However, there has been limited research on the impact of the type of labor, interventions during birth and the experience of birth on PPD [12–14].

The experience of birth is one of the most important events in a woman's life [15]. Many women want a secure birth and, at the same time, they want to have a beautiful experience during the birthing process [16]. However, in reality, birth may not always be an experience that can be predicted or controlled or that is seen as beautiful [17]. A woman's satisfaction with her birthing experience is quite important for the health of the woman and the newborn. A negative perception of birth can lead to many problems such as deliberate infertility, tendency of miscarriage, complications in subsequent pregnancies, increased use of analgesia in subsequent births, increased birth interventions (oxytocin induction, amniotomy and episiotomy), urgent and voluntary caesarean section, PPD, post-traumatic stress disorder, negative feelings for the baby, delay in mother and baby attachment, problems in her relationship with her spouse, difficulty in adaptation to the role of the mother and short- or long-term lactation problems [18–20]. The type of labor and the interventions during the birth can affect a woman's birth experience. It was determined that there was a negative correlation between the common use of interventions such as electronic foetal monitoring, episiotomy, perineal laceration, induction, enema and the mother's satisfaction with the birth [21,22]. Moreover, urgent caesarean sections can have a negative effect on the mother's emotional situation [23]. Labour pain and routine interventions during birth contribute to an increase in anxiety and disappointment in the expectant mother and it is indicated as one of the important causes of PPD [24,25].

Many factors that can affect PPD in Turkish women have been analysed; however, it has not been studied using a sufficient sample size and analysing the impact of the type of labor, interventions during the birth and the experience of the birthing process. In this regard, this research was carried out to determine the impact of the type of labor, the routine interventions during birth, and birthing experiences in Turkey on PPD and to make contributions to planning the intrapartum and postpartum services provided for women.

The period when the PPD symptoms begin is the period when the mother is at home and far from healthcare personnel. Women who newly become mothers may not recognize the psycho-social change in a period when they believe they should be happy or they may not express their concerns. For this reason, it is important to inform not only the woman but the family members about PPD. Moreover, nurses and midwives should evaluate the psycho-social situation of the mothers when they visit them in their houses during the postpartum period. Mothers in the risk group who were not trained about birth methods during pregnancy, who had a vaginal delivery, who received intervention during birth, who had a negative birthing experience or who had early depression should be provided with the necessary consultation and they should be directed to health institutions suitable for the early diagnosis and treatment of PPD [26,27].

## Methods

### Study design

The purpose of this study was to determine the relation between the mothers' type of labor, birth interventions, birthing experiences and PPD. This descriptive and cross-sectional study was conducted at the hospitals of the medical faculties of Trakya, Ege and Adnan Menderes Universities and the Manisa Nursing Home and Children's Hospital between March 2012 and December 2013. A total of 12,873 women gave birth in the four hospitals between January and December 2011.

### Participants

A sample size calculation was performed that yielded a necessary sample size of 1126 women for four hospital [28,29]. The formula used is given below. Purposive sampling method was used for the selection of women who met the criteria in order to the research conducted in four provinces located in the west of Turkey. In total, 1010 women participated in the study and the sampling access rate was 89.7%. The sample number determined with the formula could not be achieved because of the alterations in Ege University Hospital Obstetrics Service and the decrease in the number of the births (Table 1). The number of the mothers who could be contacted by telephone six weeks after birth was 956.

$$n' = \frac{NZ^2P(1-P)}{d^2(N-1) + Z^2P(1-P)}$$

$n'$  = Sample size with finite population correction,

$N$  = Population size,

$Z$  = 1.96 (Statistic for a level of confidence),

$P$  = 0.30 \* (Expected proportion, in proportion of one),

\*The rate of postpartum depression in Turkey was taken as 0.30.

$d$  = 0.05 (Precision, in proportion of one).

In addition, we conducted a post hoc power analysis to confirm the sample size. Power was expressed as the 1- $\beta$  error probability and 80% power was considered sufficient [30]. Using the Gpower 3.1.3 program, the minimum sample size was estimated to be 956 subjects with 80% power at a 95% confidence interval.

Mothers were included who underwent a vaginal birth and emergency caesarean delivery, who did not have any postpartum complications, were literate and volunteered to participate in the study. Mothers under 18 who were illiterate (the researchers asked the participant whether they were literate or not), who had planned caesarean sections, who had psychological treatment, who had multiple pregnancies and who did not have healthy babies were excluded from the research.

### Measurement

The data were collected using the Mother Self-Description Form, Perception of Birth Scale (POBS) and Edinburgh Postnatal Depression Scale (EPDS).

Mother Self-Description Form: The mother's age, education level,

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