

# Comparison of Depression and Anxiety Scores in Multi/Nulliparous Women who have Undergone Dilatation and Curettage

Pınar Yalçın Babat<sup>1</sup>, Gökçe Turan<sup>2</sup>, Nura Fitnat Topbaş Selçuki<sup>3</sup>, Kübra Çakmak<sup>4</sup>, Cihan Kaya<sup>5</sup>

<sup>1</sup>Health Sciences University, Istanbul Kanuni Sultan Suleyman Training and Research Hospital, Department of Obstetrics and Gynecology, Istanbul/ Turkey; <sup>2</sup>Gazi University, Department of Obstetrics and Gynecology, Ankara/ Turkey; <sup>3</sup>Health Sciences University, Istanbul Sisli Hamidiye Etfal Training and Research Hospital, Department of Obstetrics and Gynecology, Istanbul/ Turkey; <sup>4</sup>Esenler Maternity and Children's Hospital, Obstetrics and Gynecology, Istanbul/ Turkey; <sup>5</sup>Health Sciences University, Istanbul Sadi Konuk Training and Research Hospital, Department of Obstetrics and Gynecology, Istanbul/Turkey

**Abstract.** *Aim:* To demonstrate the duration of negative psychological effects of elective curettage on both nulliparous and multiparous women and to determine the association between parity and post-abortion depression and anxiety. *Materials and Methods:* A total of 168 women who applied to our reproductive health clinic for elective abortion were included in this prospective study. 84 nulliparous and 84 multiparous women were asked to fill out Beck Depression Inventory (BDI-II) and Beck Anxiety Inventory (BAI-II) forms by a psychiatrist at their pre-abortion consultation and at 3 months follow-up. A thorough anamnesis with demographic data of each patient was recorded at initial consultation. *Results:* Depression and anxiety measurements in both groups significantly decreased at the end of the 3 months follow-up. The mean depression value in nullipara group decreased from  $24.2 \pm 5.8$  to  $9.4 \pm 3.3$  and anxiety from  $23.5 \pm 3.7$  to  $8.8 \pm 2.5$ . In the multipara group, the mean depression score decreased from  $15.7 \pm 4.0$  to  $7.3 \pm 2.3$ , and anxiety from  $15.9 \pm 4.0$  to  $7.9 \pm 2.3$ . A significant decrease in both depression and anxiety scores could be observed in both groups. *Conclusion:* Although the severity of depression and anxiety varies between multiparous and nulliparous individuals, this study showed that both depression and anxiety scores return to normal values by the end a 3 months follow-up period. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** Beck Depression Inventory, Beck Anxiety Inventory, parity, elective curettage, psychological impact

## Introduction

Abortion is the termination of a pregnancy by removal or expulsion of an embryo or fetus before it reaches viability (1). An unplanned pregnancy results from unprotected sexual intercourse or from contraceptive failure in women who do not wish to become pregnant. Unplanned pregnancies usually lead to the decision of termination. Worldwide 56 million abortions are performed each year (2). About 45% are categorized as unsafe and the rest are considered safe abortions (3). <sup>Unsafe abortions</sup> are categorized as such, because they are performed by unskilled individuals, with

hazardous equipment, or in unsanitary facilities. They cause 47,000 deaths and 5 million hospital admissions each year (4,5).

On the other hand, safe abortions are performed under controlled environments and specific steps are involved in these procedures. When deliberate steps, such as dilatation and curettage, are taken to end a pregnancy, it is called an induced abortion. Induced abortions do not increase the risk of long-term mental or physical problems, when performed legally and safely on patients who agree with the procedures (4). However, the data on the short-term effects of induced abortions are limited.

According to one survey conducted on women seeking post-abortion counseling, only 24% claimed that they had always been aware of the negative feelings associated with abortions. Less than half of the remainder reported “doubts or negative feelings” within the first 3 years, while 100% were experiencing negative feelings by the time they sought post-abortion counseling (6).

A literature research revealed several studies showing the relationship between dilatation curettage and mental health problems. Physical complications resulting from both safe and unsafe abortions have long been reported, but there is a lack of data on mental health outcomes of women who had undergone safe and elective abortions with dilatation and curettage.

According to Turkish law, termination of pregnancy medically or surgically for non-medical reasons is allowed up to 10 weeks of gestation. There is no sufficient national Turkish data available that could establish an association between psychological morbidity and safe and elective abortions.

In this study, we aimed to evaluate the adverse emotional effects of elective termination of pregnancy by evaluating the mental health status of women before and after dilatation and curettage using Beck Depression Inventory (BDI-II) and Beck Anxiety Inventory (BAI-II).

## Material and Methods

This study was conducted at a tertiary referral center between January 2019 and April 2019. 190 women who visited the reproductive health clinic for elective abortion were enrolled in the study. In 22 patients, the 3<sup>rd</sup>-month post-abortion control could not be performed. Therefore they were excluded from the study. A total of 168 women were included in the study.

The study protocol was approved by the institution's local Ethics Committee (KAEEK/2018.7.17) and a written informed consent was obtained from all subjects.

Patients who were under the age of 18, previously diagnosed with a psychiatric disease, using psychiatric medication, who experienced a major trauma or a disease or became pregnant during the 3-months follow-

up period, who experienced complications during the procedure, and pregnancies greater than 10 weeks of gestation were excluded from the study. In addition, women who received abortions due to maternal health or fetal abnormalities were excluded from the study. A post-curettage hemoglobin level of 9 ml/dl was set as a cut-off value. Women with lower hemoglobin levels were also excluded, since low hemoglobin levels could trigger depression, anxiety and cause complications (7).

Patients were divided into two groups according to their parity; nullipara and multipara. Pregnancy weeks were calculated according to the beginning of the last menstruation and confirmed by transvaginal ultrasonography (TVUS). Socio-demographic data and anamnesis were taken at initial consultation. All examinations were done by a single gynecologist and all data were collected by the same research assistant. TVUS was performed with an 8.5 MHz transvaginal transducer (ATL 5000 HDI, Philips, Netherlands). Following gynecological examination, BDI-II and BAI-II forms were filled out by a psychiatrist at the psychiatry clinic of the same center. All patients went through dilatation and curettage under general anesthesia for the termination of their pregnancies.

## Beck Depression Inventory (BDI-II)

BDI-II determines the risk of depression and measures the level and severity of depressive symptoms. It consists of 21 questions in total. Each question receives a score between 0 to 3 and the total score is calculated by the sum of the scores of all items. The higher the score, the greater the severity of depression. The Turkish validity and reliability study of the scale was done by Hisli (8). The BDI-II scoring system has a maximum of 63 and a minimum of 0. The interpretation of scores are as follows: 0–10, normal ups and downs; 11–16, mild mood disturbance; 17–20, borderline clinical depression; 21–30, moderate depression; 31–40, severe depression; > 40, extreme depression. A persistent score of 17, requires psychiatric treatment.

## Beck Anxiety Inventory (BAI-II)

BAI-II measures the frequency of anxiety symptoms. It consists of 21 questions in total. Each item gets a score between 0 and 3. The total score ranges from 0 to 63. The following guidelines are recommended for the interpretation of the scores: 0–9, normal or no anxiety; 10–18, mild to moderate anxiety; 19–29, moderate to severe anxiety; and 30–63, severe anxiety (9). The Turkish validity and reliability study were performed by Ulusoy et al. (10).

## Statistical analysis

All patients were followed up for 3 months after the procedure. At the 3<sup>rd</sup>- month follow-up visit the psychological assessment was repeated. Sample size was calculated on the basis of post-abortion depression rate (10–21%) as reported in previous studies (11). When a post-abortion depression rate of 15% with a confidence interval of 5% to 95%, a sample size of 168 subjects was calculated to be adequate for this study. A paired sample t-test was used to compare pre-and post-abortion psychological morbidity status and chi square test was used to evaluate categorical data. Statistical analysis was done using Statistical Package for Social Sciences 23.0 (SPSS Inc., Chicago, IL, USA).

## Results

When the patients' demographic data was analyzed, mean ages in both of the study groups, nullipara group and the multipara group, were calculated to be  $25.52 \pm 3.95$ . Mean duration of marriage in the nullipara group was  $17.03 \pm 7.00$ , whereas as expected it was significantly higher in the multipara group ( $43.28 \pm 26.42$ ) ( $p < 0.0001$ ). Mean weeks of gestation in the nullipara group was  $8.16 \pm 1.42$  and in the multipara group was  $7.92 \pm 1.03$  ( $p = 0.098$ ) All the demographic data including education level, pregnancy wish, cigarette consumption and employment status can be seen in Table 1.

According to our analysis parity had a significant effect on both depression and anxiety ( $p < 0.001$ ) (Table 2). While the mean value at pre-abortion consultation for depression was  $24.2 \pm 5.8$  in nulliparous women, it was  $15.7 \pm 4.0$  in the multipara group (Table 2). When the mean values of anxiety were assessed, the mean value at the pre-abortion consultation in the nullipara group was  $23.5 \pm 3.7$  whereas the mean value of the multiparous women was  $15.9 \pm 4.0$  (Table 2).

Depression and anxiety measurements in both groups decreased significantly at the end of the 3-months follow-up period ( $p < 0.001$ ). The mean depression score in nullipara group decreased from  $24.2 \pm 5.8$  to  $9.4 \pm 3.3$  and anxiety decreased from  $23.5 \pm$

**Table 1.** Comparison of patients' demographic parameters (n = 168)

Demographic parameters	Nullipara Group (n = 84)	Multipara Group (n = 84)	p value
Age (years)	$25.52 \pm 3.95$	$25.52 \pm 3.95$	0.50
Duration of marriage (years)	$17.03 \pm 7.00$	$43.58 \pm 26.42$	<00001
Weeks of gestation	$8.16 \pm 1.42$	$7.92 \pm 1.03$	0.098
Employment status	Employed	47	0.826
	Unemployed	37	
Pregnancy wish	Wanted	33	0.822
	Unwanted	51	
Education level	Primary school	14	0.150
	Middle school	32	
	High school	29	
	University	9	
Cigarette consumption	Smoker	28	0.334
	Non-smoker	56	

**Table 2.** Comparison of depression and anxiety scores at pre-abortion consultation and at 3-months follow-up

Study Group		Pre-abortion consultation	3-months follow-up	p value
Nullipara	Depression	24.2 ± 5.8	9.4 ± 3.3	<0.001
	Anxiety	23.5 ± 3.7	8.8 ± 2.5	<0.001
Multipara	Depression	15.7 ± 4.0	7.3 ± 2.3	<0.001
	Anxiety	15.9 ± 4.0	7.9 ± 2.3	<0.001
Total (Nullipara + Multipara)	Depression	19.9 ± 6.5	8.4 ± 3.0	<0.001
	Anxiety	19.7 ± 5.4	8.3 ± 2.4	<0.001

3.7 to 8.8 ± 2.5 (Table 2). In multiparous women, the mean depression score decreased from 15.7 ± 4.0 to 7.3 ± 2.3 and anxiety from 15.9 ± 4.0 to 7.9 ± 2.3 ( $p < 0.001$ ) (Table 2).

When the comparison of the depression scores at pre-abortion consultation and at 3-months follow-up were divided according to the different BDI-II categories, a statistically significant difference was observed ( $p < 0.001$ ) (Table 3). Depression scores for each category calculated at the 3-months follow-up were lower than the scores obtained at the pre-abortion consultation.

## Discussion

Although some older reviews concluded that abortion was associated with an increased risk of psychological problems, current evidence indicates that there isn't any relationship between induced abortions and mental-health problems except those associated with any unwanted pregnancy (12,13). In our study, a short-term increase in depression and anxiety scores following abortion in all patients was observed. The increase in the scores returned to normal in a 3-month follow-up period. However, a recovery in such a short

period of time has not been reported in every case especially in the presence of other comorbidities. A study conducted by Lagana et al. has shown that long term adverse mental changes can be seen in endometriosis patients leading to lower quality of life, depression and anxiety (14,15). We attribute the quick change observed in our study to the fact that anxiety and depression scores did not increase to serious levels, where a clinical intervention was needed. Therefore, the scores returned to normal in a short period of time.

Scientific and medical experts have repeatedly concluded that abortion poses no greater mental health risks than carrying an unintended pregnancy to term (16,17). In 2008, the American Psychological Association concluded after a review of available evidence that induced abortion did not increase the risk of mental-health problems. In 2011, the U.K. National Collaborating Centre for Mental Health similarly concluded that first-time abortion in the first trimester does not increase the risk of mental-health problems compared with bringing the pregnancy to term (18). In 2018, The National Academies of Sciences, Engineering, and Medicine concluded that abortion does not lead to depression, anxiety, or post-traumatic stress disorder (19). The U.K. Royal College of Obstetricians and Gynecologists likewise summarized the

**Table 3.** Comparison between BDI-II categories

BDI-II categories	Are considered normal ups and downs	Mild mood disturbance	Borderline clinical depression
Normal ups and downs	11 (100 %)	---	---
Mild mood disturbance	45 (95.7 %)	2 (4.35 %)	---
Borderline clinical depression	32 (86.5 %)	5 (13.5 %)	---
Moderate depression	41 (62.1 %)	23 (34.8 %)	2 (3 %)
Severe depression	---	5 (83.3)	1 (16.7)
Extreme depression	---	1 (100)	---

evidence by finding that abortion did not increase the risk of mental-health problems compared to women carrying an unwanted pregnancy to term (20). On the other hand, Coleman et al. conducted a meta-analysis that combined the results of 22 studies published between 1995 and 2009, which included data on 877,181 women from six countries. All 22 studies revealed higher rates of mental health problems associated with abortion for at least one symptom, and many for more than one symptom (21). In another study higher rates of anxiety were reported among pregnant women who conceived through assisted reproductive techniques compared to women who became pregnant spontaneously (22). Furthermore, some studies report negative mental-health outcomes in women who receive abortions after the first trimester due to fetal abnormalities (23). Although our long-term results did not find an association between abortion and mental health problems, the short-term adverse effects of abortion on the patient's mental status was significant.

Negative psychological effects of abortion have been referred to by anti-abortion advocates as a separate condition called "post-abortion syndrome (PAS)". Benedict et al. defined PAS as a group of conditions and feelings consisting of guilt, remorse, worry, depression, regret, rage, anxiety, suicidal ideation, social and sexual dysfunction, drowsiness and interpersonal relationship disturbances leading to marital disharmony (24). Maternal violent behavior and decreased bonding with the existing children has also been reported. PAS has not been validated as a discrete psychiatric condition and is not recognized by the American Psychological Association, the American Psychiatric Association, the American Medical Association, the American College of Obstetricians and Gynecologists, nor the American Public Health Association (25,26). A long term-study among US women found that approximately 99% felt that they made the right decision five years after they had an abortion. Relief was the primary emotion with few women feeling sadness or guilt. Social stigma was the main factor causing negative emotions and regret years later (27). In our study, the multipara group experienced less depression and anxiety compared to nulliparous women who had curettage for the first time, because the former group knew that they made the right decision.

In conclusion, our results showed that dilatation and curettage is a procedure which can have a short-term psychological burden on women. In addition, we also showed that parity has a significant effect on abortion related depression and anxiety, which means that a multiparous woman is affected less than a nulliparous one. Therefore, psychological counseling should be planned close to the procedure in order to guide these women during the period when they are affected the most and further attention should be given to women who are going through abortion for the first time.

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Correspondence:

Pınar Yalçın Bahat

Address: Atakent mah. Health Science University, Kanuni Sultan Suleyman Research and Training Hospital, Department of Obstetrics and Gynecology, 34000 İstanbul/TURKEY

Mobile: +905052634955

E-mail: [dr\\_pinaryalcin@hotmail.com](mailto:dr_pinaryalcin@hotmail.com)

ORCID: 0000-0003-2558-1924