

Antepartum and postpartum depression in a primary health care center area

Bir sağlık ocağı bölgesinde doğum öncesi ve doğum sonrası depresyonun değerlendirilmesi

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Aim: The aim of this community based study was to follow depression scores of pregnant women after delivery and to determine factors associated with depressive mood in a primary health care center area.

Material and Method: In this study, all pregnant women (n=66) living in Park Health Center Region in Ankara, completed a questionnaire and Edinburgh Postnatal Depression Scale (EPDS) once in pregnancy and twice in postpartum period at 2nd week and 6th month. EPDS scores above cut off point (≥ 13) indicated possible depressive mood.

Results: Mean EPDS score in pregnancy was higher than both postpartum measurements (p=0.054, p=0.003 respectively). Number of women with EPDS scores above cut-off declined in time as follows: 31.8% during pregnancy, 22.7% at postpartum 2nd week, 19.7% at postpartum 6th month. Associated factors with postpartum depressive mood were type of delivery and working status (p<0.05).

Discussion: This study points out that women are at risk for depressive disorders not only in postpartum period but also in pregnancy. Healthcare providers should consider possibility of depression in pregnant women.

Key words: **Antepartum depression, postpartum depression, depression prevalence, EPDS**

Amaç: Topluma dayalı bu çalışmada, Park Sağlık Ocağı bölgesinde yaşayan gebe kadınların gebelikte ve doğum sonrası depresyon skorlarını izlemek ve depresif duygu durum ile ilişkili faktörleri değerlendirmek amaçlanmıştır.

Gereç ve Yöntem: Park Sağlık Ocağı bölgesinde araştırma sırasında tespit edilen tüm gebeler (n=66) Edinburgh Doğum Sonrası Depresyon Ölçeğini (EPDS) ve bir anket formunu gebelik sırasında bir kez, doğum sonrası iki kez (2. haftada ve 6. ayda) olmak üzere, toplam üç kez doldurmuşlardır. Depresif duygu durum tanısı için, EPDS kesme noktasına göre 13 ve üzeri puan olası depresif duygu duruma işaret etmiştir.

Bulgular: Tüm grubun ortalama EPDS puanı gebelikte, postpartum her iki ölçümden de yüksektir (ardışık olarak p=0.054, p=0.003). EPDS skoru kesme noktası üzerinde olan kadın oranı gebelik döneminde %31.8 iken, doğum sonrası 2. hafta %22.7'ye, doğum sonrası 6. ayda %19.7'ye azalmıştır. Doğum sonrası depresif duygu durum varlığı ile doğumun şekli ve annenin çalışma durumu ilişkili bulunmuştur.

Tartışma: Bu çalışma ile, depresif bozukluk riskinin kadınlarda sadece doğum sonrası dönemde değil, gebelikte de ortaya çıkabileceğini ve sağlık personelinin doğum sonrası olduğu kadar gebelik döneminde ruhsal durum değişikliklerini gözden kaçırmaması gerektiği sonucuna varılmıştır.

Anahtar sözcükler: **Doğum öncesi depresyon, doğum sonrası depresyon, depresyon prevalansı, EPDS**

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Depression is among the important reasons for disease related disabilities and more prevalent in women. Higher rates of depression in women is related to reproductive period (puberty, pregnancy, postpartum period and menopause) and the joint effects of biological and environmental provoking experiences (1,2).

Most studies on women had focused on postpartum period and pointed out that in this period women are highly vulnerable to depression. Depression rates increase in the first year after delivery (3,4). Prevalence of postpartum depres-

sion varies between 13 %-35 % in different studies. This is due to the use of different depression scales and diagnostic criteria, and also to differences in geographic and cultural regions where the studies are conducted (4-12). Usually initial depressive symptoms are seen between 2nd-8th weeks of postpartum period, and continues two weeks to one year (3,12,13). Other psychiatric illnesses may also begin in this period but they are rare (obsessive compulsive disorder, psychos) or transient and less severe (baby blues) than postpartum depression (3,13).

Like postpartum period, physiological, hormonal and psychological changes occur at pregnancy (7). Several studies reported that depressive symptoms in pregnancy were more frequent than postpartum period and antenatal depression was thought to be more common (14-16). Factors associated with depression were similar in pregnancy and after delivery. Although obstetric, biological, psychological and social factors are important for aetiology of postpartum depression, antepartum personal and social factors are more relevant (6,12,17,18) and postpartum depression morbidity as well as perinatal outcomes are associated with depressed mood (19).

Maternal depression has a negative impact on the quality of the mother-infant relationship, cognitive and emotional development of child and their relationship with family (12,20,21). Children of depressed mothers are under increased risk for a variety of psychiatric problems, behavioral disturbances and social and achievement problems (22).

On the other hand several studies have yielded data to indicate that maternal stress and depression may have adverse physical effects on the newborn. It is found that increased risks of low birth weight, preterm delivery and small for gestational age infants were associated with maternal depressive symptoms (19).

In postpartum period and pregnancy vulnerability to mental illnesses are common and these cause important disturbances on infant, mother and family. Early identification and intervention should be provided (5). Investigation of pregnant women's mental social and psychological status are as important as the assessment of their physical well being (15).

As rapid physiological and psychological changes are experienced in pregnancy and postpartum period, cross sectional studies give limited information. Women should be evaluated longitudinally to determine the changes in their mood.

For these reasons, the purpose of this study was to determine depression scores of women during pregnancy and follow it after childbirth, and to determine the prevalence and associated factors for antepartum and postpartum depressive mood in a primary health care center region in Ankara.

Materials and Methods

Subjects: In this prospective cohort study, all pregnant women living in a primary health care center region, in Ankara were included in the study. This is a semi-urban region with partly low or middle socioeconomic level. Total population of the region is 17.838, number of women between 15-49 years of age living in the region is 5225. Women between 15-49 years old are visited at their homes once in three months by nurses or midwives who work in the health care center. During these visits all pregnant are visited at their homes at least 6 times during pregnancy and 3 times after delivery by nurses and midwives. In January 2003, 66 pregnant women in different trimesters of their pregnancies were exist all 15-49 years old women. All pregnant women were informed about the study and were taken verbal consent. Then all of the women accepted to participate to the study.

Materials: An anonymous questionnaire which included questions such as age, educational level, presence of social security, working out of house, educational level of husband, age at marriage, reproductive features, presence of important disease during pregnancy, antenatal care, health conditions of mother and baby after delivery, worries about taking care of the baby, history of mental disorders in mother herself, recent negative life events, breastfeeding and several factors related to delivery and baby.

Edinburgh Postnatal Depression Scale (EPDS) was used to assess depression scores. EPDS is a validated 10 item self-report questionnaire which is simple and practical to use in the primary care setting for detecting the cases with probable depressive disorder in pregnancy and postpartum period. It focuses on the cognitive and affective features of depression rather than somatic symptoms in the past 7 days. A large community study has revealed a specificity of 92.5% and a sensitivity of 88%. Usually, scores over 13 and more has been shown to indicate a probable case of postpartum depression (12,13,16). EPDS is validated in Turkish population and its sensitivity and spesificity was reported to be 84% and 88% respectively (23).

Procedure: Pregnant women who completed the questionnaire and EPDS were reevaluated 2 weeks and six months after delivery during the routine home visits of nurses and midwives. Women who had EPDS scores indicating possible depression were provided psychiatric consultations.

Data analysis: Descriptive analyses, chi-square, one-way anova, repeated measurement of one-way and two way ANOVA were used where appropriate. P value that were considered significant was less than 0.05.

Results

The mean age of the pregnant women was 25.21 years (range 17-40; SD 5.51 years). Eighteen percent (n=12) were in first, 36.4% (n=24) were in second and 45.4% (n=30) were in third trimester of their pregnancies. 39.4% (n=26) of the participants had one, 28.8% (n=19) had two, and 31.8% (n=21) had three or more pregnancies. Mean EPDS score of all pregnant women included in the study was 9.61 ± 5.87 . EPDS scores of women in different trimesters were as follows: 7.45 ± 5.21 at first trimester, 10.85 ± 5.50 at second trimester, 9.70 ± 6.13 at third trimester ($F=1.175$, $p=0.315$). Percentage of women with EPDS scores above cut off point were 16.7 % for first trimester, 41.7% for second trimester, 30.7 % for third trimester ($\chi^2=2.38$ $p=0.302$).

Mean EPDS scores at postpartum second week and sixth months were 8.06 ± 6.54 and 7.26 ± 6.62 respectively. The difference between mean EPDS scores of first and sec-

ond ($t=1.963$ $p=0.054$) and first and third ($t=3.13$ $p=0.003$) measurements were statistically significant. Second and third measurements were similar ($t=1.594$ $p=0.116$). Women with depression scores above EPDS cut-off point was 31.8% (n=22) in pregnancy, 22.7% (n=15) at postpartum 2nd week, and, 19.7% (n=13) at postpartum 6th month ($\chi^2=2.82$ $p=0.244$).

Depression scores of women with different sociodemographic and reproductive characteristics are shown in Table 1. Women working out of house has lower depression scores compared to housewives ($p=0.015$). Interestingly while depression scores of housewives tend to remain similar in all 3 measurements, there is a striking decrease for working women especially for the last measurement. For other factors depression scores were similar.

Depression scores of women with some selected risk factors are given in Table 2. Presence of physical illness in pregnancy, recent negative life events, history of mental

Table 1. Mean EPDS scores of women in pregnancy, 2 weeks and 6 months after delivery according to sociodemographic and reproductive characteristics.

| Variable | EPDS score (mean±SD) | | | F value P value |
|-----------------------------------|----------------------|-------------------|---------------------|--------------------|
| | During Pregnancy | Postpartum 2.week | Postpartum 6.months | |
| Age | | | | |
| ≤19 (n=10) | 9,10±5,67 | 7,0±9,27 | 6,90±8,97 | F=0,925 |
| 20-29 (n=43) | 9,51±5,60 | 8,51±6,13 | 7,74±6,33 | P=0,402 |
| ≥30 (n=13) | 10,31±7,24 | 7,38±5,84 | 5,92±5,87 | |
| Education level | | | | |
| Primary school (n=29) | 10,17±6,40 | 8,03±7,06 | 8,24±7,38 | F=0,241 |
| Secondary school and more (n=37) | 9,16±5,48 | 8,08±6,22 | 6,49±5,97 | P=0,625 |
| Age at marriage | | | | |
| ≤18 (n=22) | 11,00±6,33 | 7,27±7,56 | 7,73±7,39 | F=0,759 |
| ≥19 (n=44) | 8,91±5,58 | 8,45±6,04 | 7,02±6,29 | P=0,387 |
| Working status | | | | |
| Housewife (n=57) | 9,42±6,01 | 8,21±6,52 | 7,79±6,88 | F=6,278 |
| Working out of house (n=9) | 10,78±5,04 | 7,11±7,04 | 3,89±3,22 | P=0,015 |
| Education level of husband | | | | |
| Primaryschool (n=22) | 10,14±6,52 | 8,91±8,55 | 8,59±8,59 | F=0,571 |
| Secondary school and above (n=44) | 9,34±5,59 | 7,64±5,35 | 6,59±5,38 | P=0,452 |
| Social Security | | | | |
| Present (n=48) | 9,08±5,73 | 7,42±6,05 | 6,52±6,22 | F=0,215 |
| Absent (n=18) | 11,0±6,19 | 9,78±7,65 | 9,22±7,45 | P=0,644 |
| Total pregnancy | | | | |
| ≤1 (n=26) | 9,0±5,28 | 7,31±6,97 | 6,62±6,77 | F=0,197 |
| 2 (n=19) | 9,89±5,27 | 8,74±6,97 | 8,21±6,87 | P=0,822 |
| ≥3 (n=21) | 10,10±7,18 | 8,38±5,80 | 7,19±6,45 | |
| Abortus history | | | | |
| Absent (n=54) | 9,15±5,64 | 7,44±6,56 | 7,19±6,66 | F=1,197 |
| Present (n=12) | 11,67±6,72 | 10,83±5,97 | 7,59±6,78 | P=0,278 |

Table 2. Mean EPDS scores of women according to some selected risk factors.

| Variable | EPDS score (mean±SD) | | | F value P value |
|--------------------------------|----------------------|-------------------|---------------------|--------------------|
| | During Pregnancy | Postpartum 2.week | Postpartum 6.months | |
| Important disease in pregnancy | | | | |
| No (n=62) | 9,31±5,90 | 7,98±6,66 | 7,10±6,65 | F=0,311 |
| Yes (n=4) | 13,75±4,03 | 9,25±4,92 | 9,75±6,65 | P=0,579 |
| Planning of pregnancy | | | | |
| No (n=23) | 9,52±6,87 | 7,30±4,86 | 6,17±5,83 | F=0,952 |
| Yes (n=43) | 9,65±5,35 | 8,47±7,32 | 7,84±7,01 | P=0,333 |
| History of mental disorders | | | | |
| No (n=57) | 9,26±5,68 | 7,84±6,02 | 6,79±6,06 | F=0,175 |
| Yes (n=9) | 11,78±6,98 | 9,44±9,61 | 10,22±9,40 | P=0,677 |
| Idea of suicide | | | | |
| No (n=58) | 8,95±5,69 | 7,97±6,78 | 6,84±6,79 | F=2,161 |
| Yes (n=8) | 14,38±5,26 | 8,75±4,83 | 10,25±4,50 | P=0,146 |
| Stressful life events | | | | |
| No (n=55) | 8,51±5,60 | 6,82±5,56 | 6,09±5,42 | F=0,043 |
| Yes(n=11) | 15,09±3,91 | 14,27±7,79 | 13,09±9,05 | P=0,837 |

disorders, presence of suicidal ideation had a tendency to effect mothers' mood negatively in pregnancy but these effects were not statistically significant ($p>0.05$)

EPDS scores were also examined according to some selected factors related to delivery and baby. EPDS scores in pregnancy were taken as base-line value. The only factor associated with depression score was type of delivery (Table 3). Women who had caesarean sectio had lower depression scores after delivery ($p=0.036$). Women who experienced problems during delivery, who were given antenatal care less than 6 times, whose babies had health problems, who herself had health problems after delivery, and who perceived their babies as difficult to look after had a tendency to have higher scores in EPDS, however this difference was not statistically significant. Women who have breastfeeding have less score means than never breastfeeding.

Discussion

This study suggests that pregnant women moved above the threshold for depression in later trimesters of pregnancy similar to another study result (16). Percentage of pregnant women who had experienced depression reported that 12%-14% in previous studies (7,19,24). Depression scores declined in postpartum period. This finding is similar to other studies in which depression scores were higher in pregnancy than in postpartum period and depressive symptoms were more frequent in pregnancy (14, 19, 25).

Few studies have examined the predictors of depression, however they all report that the most important predictor of postpartum depression is depressed mood in

pregnancy consistently (19,25). In general childbirth may be a nonspecific stressor for depression, on the other hand it may also be considered as a preventive event against depression.

Follow up of depression scores revealed that depressive mood declined in time. Hung et al, in a longitudinal study reported that postpartum stress was higher in third and fifth postpartum weeks than in first weeks after delivery (26). As we only have the depression scores for 2nd week and 6th month, we might have missed this increase. In a cross-sectional study in Turkey, depression prevalence increased in time, however that study group also included women in postpartum one year and more (27). This finding might be explained by the decrease of social and physical support in time which was provided to mother few weeks after delivery. This support may have a positive effect on womens' mood. With the decline in the support provided to the new mother, she might return to her mood before delivery.

In this study, women with depression scores above cut off point were 22.7% for 2nd week and 19.7% for 6th month. Postpartum depressive disorder rates in Turkey are similar to other countries' data and varies between 14% - 36% (6,21,28,29). Prevalence of postpartum depression is reported to be between 13%- 34.7% (5,10,13,30-33). This wide range of prevalence may be a result of socioeconomic and cultural differences of the samples, different scales used for measurement of depression and to use of different cut-off points. In our study percentage of women with possible depressive disorder was also between this range.

Table 3. Mean EPDS scores of women according to some selected risk factors related to delivery and baby

| Variable | EPDS score (mean±SD) | | | F value P value |
|--------------------------------|----------------------|-------------------|---------------------|--------------------|
| | During Pregnancy | Postpartum 2.week | Postpartum 6.months | |
| Type of delivery | | | | |
| Vaginal delivery (n=48) | 9,60±5,39 | 8,50±7,28 | 8,10±7,07 | F=4,573 |
| Caeserean (n=16) | 10,25±7,28 | 6,28±4,15 | 5,06±5,01 | P=0,036 |
| Problem in during delivery | | | | |
| No (n=54) | 9,09±5,78 | 7,57±6,35 | 6,56±6,43 | F=0,940 |
| Yes (n=10) | 11,30±5,50 | 11,50±7,21 | 10,80±7,35 | P=0,336 |
| Total antenatal care | | | | |
| ≤6 (n=29) | 10,03±5,54 | 9,76±7,75 | 8,24±7,40 | F=0,912 |
| ≥7 (n=27) | 9,89±6,37 | 6,78±5,56 | 6,44±6,08 | P=0,34 |
| Gender of baby | | | | |
| Girl (n=36) | 9,89±5,62 | 8,28±6,23 | 6,47±6,25 | F=2,557 |
| Boy (n=29) | 9,31±6,35 | 7,83±7,14 | 8,31±7,14 | P=0,115 |
| Health Problem of baby | | | | |
| No (n=47) | 9,22±6,10 | 7,39±6,69 | 6,90±6,80 | F=0,004 |
| Yes (n=18) | 11,14±5,11 | 10,57±5,81 | 8,71±6,21 | P=0,951 |
| Health problem of woman | | | | |
| No (n=47) | 9,30±6,14 | 7,13±6,54 | 6,70±6,46 | F=0,296 |
| Yes (n=18) | 10,50±5,37 | 10,56±6,25 | 8,83±7,15 | P=0,588 |
| Feeding type | | | | |
| Breastfeeding (n=40) | 9,57±5,77 | 7,45±5,88 | 7,18±5,62 | |
| Breastfeeding-other (n=19) | 10,11±6,67 | 9,37±7,7 | 7,11±8,22 | F=0,606 |
| Other (n=6) | 8,50±5,05 | 8,17±7,96 | 8,67±8,85 | P=0,549 |
| Supported person for baby care | | | | |
| No (n=28) | 9,21±6,11 | 7,75±6,25 | 7,18±6,63 | F=0,118 |
| Yes (n=37) | 9,95±5,84 | 8,32±6,93 | 7,38±6,79 | P=0,73 |
| Problem in babycare | | | | |
| No (n=55) | 9,73±6,03 | 7,91±6,74 | 7,18±6,83 | F=0,343 |
| Yes (n=11) | 9,00±5,27 | 8,82±5,69 | 7,64±5,80 | P=0,560 |
| Support of husband in babycare | | | | |
| No (n=20) | 8,55±4,97 | 8,45±4,15 | 5,80±4,86 | F=0,118 |
| Yes (n=46) | 10,07±6,22 | 7,89±7,39 | 7,89±7,22 | P=0,732 |

Type of delivery and working out of house were associated factors to depression scores in postpartum period. According to Chaaya et al. Caeserean sectio decreases the risk of postpartum depression (30). This relation is explained by the difficulties experienced during vaginal delivery. However there are other studies reporting no association between type of delivery and postpartum depressive symptoms (34).

Working out of house is an important indicator about social status of women. Unemployment is frequently reported to have a significant relationship with postpartum depression (5,6,12).

Low educational level (6,19,28,31), marriage at an early age (5,6,28,30) were frequently reported to have an im-

portant effect on postpartum depressed mood. Also socio-economic characteristics are usually reported as important predictors of postpartum depression (35). Various studies reported a negative but not significant effect of recent negative life events (12,30,31,35,36), history of mental disorders (4,6,12,30,31), important diseases in pregnancy (30), and stressful life events (12,30,31) on mother's mood.

Problems encountered during delivery (36), health problem of mother or baby after birth (3), perception of babycare as difficult (35,37), and status of antenatal care (6) were mostly associated with postpartum depression in various studies.

Although it is not a significant factor in this study, breastfeeding may be a preventive factor for depressive dis-

order, mother's who are breastfeeding have less mean scores than mothers who never breastfed their babies. Study of Abu Saleh et al supported that women who breastfed had significantly lower EPDS scores (18).

To summarize, working out of house and type of delivery were mainly predictive factors for depressive mood in postpartum period. Housewives and women with a history of difficult normal vaginal delivery should be candidates for depression screening. Unfortunately the majority of these women are probably undiagnosed and untreated despite the fact that simple reliable detection method for pregnancy and postpartum period have been developed. Undetected depression may be prolonged and affects the mother, her infant and her family and affects society through illness, social dysfunction, death and the cost of medical treatment and services. So, there is great responsibility of physician to identify the women at risk for psychological disturbances during pregnancy and early postpartum period. Early remission from depression, was

related to improved both maternal mood and the quality of the mother-infant relationship (12,15,24,30).

EPDS is a valid measurement for postpartum depression. However depression is a clinical diagnosis and the absence of a standardized clinical interview is a limitation for the study. Other limitation was small number of women included in the study. Communication problems with some participants, reaching the participants for every measurement were experienced as difficulties in conducting the study.

In conclusion, this study points out that depressive symptoms reached to important levels for all measurements, but they are higher in pregnancy than postpartum period.

Investigation of antepartum period provides an opportunity for intervention to healthy development of mother, infant and family. So, women who are at risk for depressive disorders have to be identified not just only in postpartum period, but also during pregnancy and preferably during all reproductive period in women.

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