



Postpartum Mental State of Mothers of Twins

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Abstract: *Twin birth is a relevant risk factor for postnatal depression (PND). The primary objective of our study is to reveal the prevalence of suspected cases of depression and to identify some background factors among mothers of twins. We applied convenience sampling method within a retrospective, quantitative study among mothers given birth to twins for six months, but, at least, three years. The participants completed the self-administered, modular questionnaire and the standard EPDS questionnaire anonymously. 35% of mothers of twins reached or exceeded the threshold value for depression following the first six months after delivery. No significant difference was found in the prevalence of the suspected cases among the primipara and multipara ($p=1.000$). At the same time, artificial conception proved to be a significant risk factor ($p= 0.019$). Distraught family life ($p=0.001$) and unfavorable changes in a domestic partnership ($p=0.009$) increased the prevalence of the suspected cases of depression significantly. The health visitor is the only person who knows the hierarchy of families with their weaknesses and strengths in the Hungarian primary health care; therefore, her role is unquestionable in the recognition of maternal mood disorders. The health visitor compares the scores of the EPDS questionnaire with the experiences during family visits, and with all of these facts, she refers the person in need to a specialist.*

Keywords: twin birth, EPDS, postpartum depression

Introduction

Pregnancy, delivery, and puerperal period, as a decisive stage of life for women, associated with increased load, stress, and hormonal changes may burden the mother and her family. Pregnancy and childbirth are dramatic life events that involve physical, mental, and social changes in mothers'

roles. Consequently, the risk for mental diseases in the perinatal period multiplies. The development of new coping mechanisms is required for the treatment of accidental crisis (Erős & Hajós, 2011).

Adverse affective reactions are difficult to cope with, thereby, mothers would need outside help. However, mothers' willingness to visit a specialist is weak. Their position is extremely difficult because they experience this envied period as suffering. All these factors may make the recognition of the problem difficult, thus, timely help may be delayed. Family life is often affected by the unrecognized maternal mood disorder that may influence the child's emotional and mental development or behavior, and may have a harmful effect on the mother's personality. The importance of infant's early experiences and mother-child interactions is prominent as the child learns the relationships, bonding patterns, trust, and coping strategies in the contact with the mother. Emotional disorders after birth may have an adverse effect on the infant's development and bonding (Gervai, 1997a, 1997b; Szádóczky & Rihmer, 2001).

Mental problems of the postpartum period involve three main groups. First, the prevalence of *postpartum depression*, also known as postpartum blues, may affect 50%-85% of the mothers. It develops on the fourth day after birth and can last for some days. It needs no care mostly but increased observation for nurses, because it calls attention on further depression.

The prevalence of *postpartum depression* is still rather high, as it can be found in 10%-20% of the mothers. The characteristic features of the symptoms of depression may occur in this period. Most commonly, it occurs within six months after birth, but can be manifested until the child reaches the age of two. Postpartum depression needs medical intervention mostly. There is a high risk of recurrence in further deliveries with 30%-50% prevalence. Its symptoms include insomnia, social isolation, eating disorders, behavioral changes towards the child, memory failures, concentration problems, distractedness, confusion, worry, and weakness. The first symptoms usually occur within 2-3 weeks after delivery. These may involve listlessness, in which the mother may feel that she is unable to take care of her child. At the same time, she may experience tension and nervousness (Belső, 2006).

The risk factors of the postpartum period may involve self-assessment disorder, depression during pregnancy, problems with the previous pregnancy, fetus, or infant, lack of support, discontent with the household or partner, family history of depression, family conflict, dissatisfaction with financial and social matters, remorse, convulsive desire to meet the demands, and unexpected pregnancy, etc.

The third and most severe form of a mental disorder after delivery is *postpartum psychosis* with 0.1%-0.2% prevalence. It may start within 2-3 weeks or months after childbirth and needs medical intervention. Delusions, hallucinations, bizarre emotions and behavior, severe insomnia or even suicide, and homicide ideas may occur (Belső, 2006).

Postnatal depression (PND) represents the greatest problem among postnatal mood disorders. Its recognition is difficult; the prevalence is high. On the one hand, it often remains untreated. On the contrary, it has several harmful effects on the short and long run.

Edinburgh Postnatal Depression Scale (EPDS) developed for identification of the mental disorders of pregnant and postpartum mothers

is used for screening the most widely. It is important to note that EPDS involves questions analyzing anxiety. The higher scores make PND probable. Thus, the scale cannot be applied as a diagnostic tool but can be appropriate for screening (Tammentie et al., 2002; Tammentie et al., 2004). 9/10 cutting value is accepted as a threshold value. Completing the questionnaire takes only a few minutes, and its evaluation is easy (Kovácsné, 2009).

It is the task of the health visitor service in Hungary to screen postnatal mood disorders with the help of EPDS surveys. The protocol determines 12 scores as the threshold value that enables the professional to refer the suspected cases exceeding this value to specialists (psychologist, psychiatrist). Thus, the present study determines the threshold value for depression in 12 scores. Our study focused on mothers of twins as they belonged to a group at high risk for postpartum mood disorders.

Sampling and Method

The aim of the study is to reveal the prevalence of the suspected cases of depression among mothers of twins and identify some background factors responsible for emergence. The retrospective research was carried out among mothers given birth to twins for six months, but, at least, three years. We tried to reduce the distorting effect of memory by this time limit. The exclusion criterion used in the research involved the mother's fostering only one member of the twins or none. Data collection came from three sources between 2013 and 2014. Firstly, mothers of twins from Ercsi town, during the National Twins Meeting; secondly, mothers through the internet; thirdly, mothers from Veszprém and Zirc towns were recruited with the help of the health visitor service. In the first phase, mothers filled in the self-administered questionnaire. In the second phase, they completed the EPDS survey following the first six months after delivery. During data collection, 72 questionnaires proved to be suitable for evaluation of 87 ones. We used SPSS program for Windows 13.0. for data evaluation. Chi-square test and Fisher's exact test were used for showing correlations (Pakai & Kívés, 2013; Karamánné-Pakai & Oláh, 2015a).

Results

72% of the respondents lived in towns, 28% of them were village dwellers. Regarding age distribution, mothers above the age of 35 comprised 10% of the sample in which the youngest mother was 21 and the oldest one was 39 at the delivery of the twins. Distribution of mothers regarding education was as follows. Individuals with eight grades or fewer at primary school had no participation in the sample. 19% of the persons had eight or more grades but without GCE. 32% of the persons had GCE or higher education but owned no college or university degree. 49% of the individuals had college/university diploma.

24% of the mothers lived in a domestic partnership, and 76% of them lived in marriage. We found no single mothers among them. It was

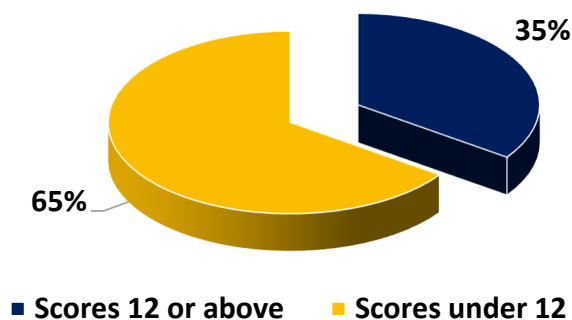
interesting to see the development of the relationship between the couples. Before pregnancy, 3%-3% of the respondents considered their relationship as poor or average, 94% of them regarded the relationship as excellent. Some improvement was observed among couples living in a poor relationship during pregnancy. Thus, their rate was modified to 1%-5%, in contrast to couples living in a good relationship where the rate showed no change. After birth, at the time of data collection, some deterioration could be found as 7% of the mothers considered their relationship as poor, 10% of them regarded it as average, and 83% of the respondents reported it as good.

In the case of the examined twin pregnancies, the rate for premature births was extremely high, as 62.5% of them terminated in premature birth following the 37th gestational week. 90% of the pregnancies were planned. Non-planned pregnancies had an even higher proportion of premature birth rate. More than two-third (79%) of the infants born from non-planned pregnancies were premature at birth while 21% of them were born after the 37th gestational week. In the case of non-planned pregnancies, premature births increased. The two variables showed significant marginal correlation ($p=0.052$). Regarding the number of twins, mothers of twins formed the significant part of the sample (90%), triple twins occurred in 10% in the sample, and no higher number of twins were identified.

Mental state of mothers in the first six months after delivery

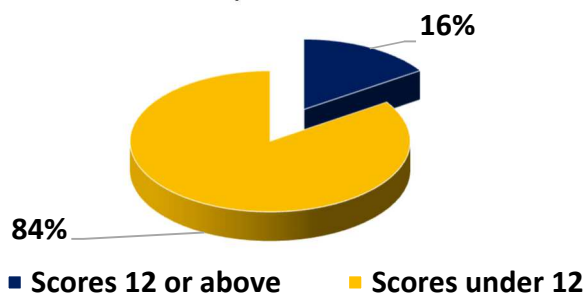
Mothers of twins are extremely affected by stress that may increase the risk for the development of mental disorders in the postpartum period. These disorders involve complicated pregnancy, shorter or longer hospitalizations, strict bed rest, Caesarean section, and an increase in the risk for premature birth. Worry about the condition of twins, fear from the new roles, and other factors may burden the mothers. The EPDS questionnaire contains ten questions as a total. Thus, the possible scores are between 0-3 scores according to the consents of the respondent for the statements. If the total ratings equal with 12 scores, the health visitor can ask for the advice of an expert. 35% of the mothers of twins scored 12 points or above in the first six months (Figure 1).

Figure 1. EPDS value for mothers of twins in the first six months after delivery (n=72)



The EPDS survey for the second sixth months after delivery showed a more favorable picture. A significant improvement could be observed in the mood disorder of mothers (Figure 2). Here, the number of cases is smaller due to the number of mothers who did not reach the period at the time of the examination.

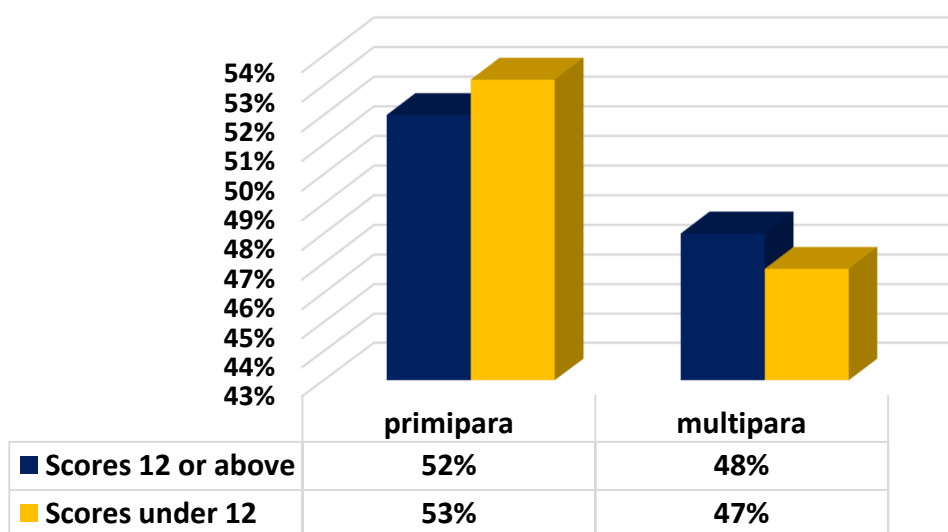
Figure 2. EPDS scores value for mothers of twins in the second six months after delivery (n=64)



The relationship between EPDS scores value and the number of births

According to literature, the primipara comprises the majority of mothers of twins with depression (Jakobovits & Jakobovits, 2004; Fráter, 2005). The present survey has shown no significant relationship between the two variables (p=1.000). It is clearly observed that similar findings were detected in the mood disorder between the primipara and multipara (Figure 3). It may result from the fact that stress from the number of births was overridden by the burden of twin pregnancy.

Figure 3. EPDS scores in the light of the number of births in the first six months after delivery



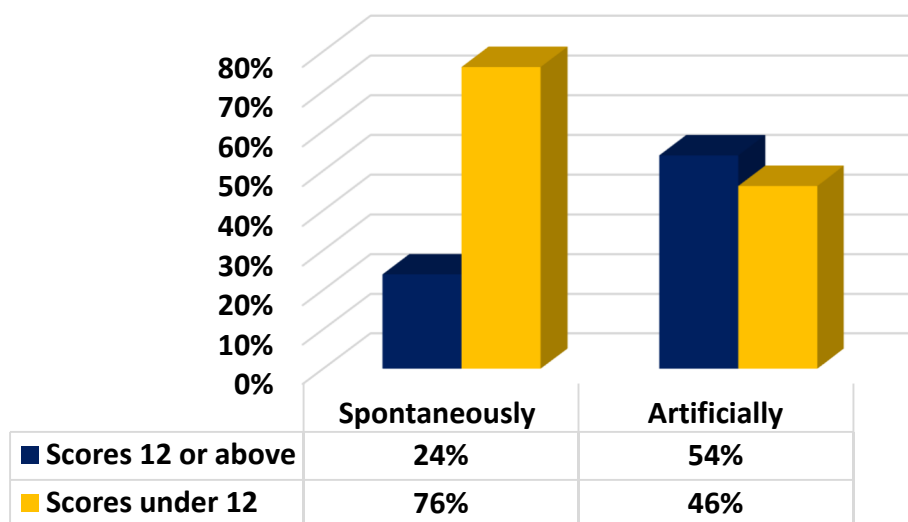
EPDS scores and the way of conception

Infertility and the following artificial insemination may burden mothers emotionally and physically. After unsuccessful interventions, the rate of mothers with depression increases significantly (Verhaak et al., 2005). Furthermore, the assisted reproduction techniques may threaten the fetus(es) and make the mothers worry. These dangers may involve spontaneous abortion, ectopic pregnancy, the health status of the fetus, and the greater number of developmental disorders.

Initially, only one fertilized egg was implanted in the uterus. Later, in order to increase the pregnancy ratio, multiple eggs were implanted at the same time increasing the chance for twin pregnancies (Urbancsek & Murber, 2005).

Two eggs can be implanted in younger women while 4-5 eggs can be implanted in older women with primary infertility. Thus, the number of twin pregnancies increases (Bódis, 2000). In our sample, more than one-third of the mothers (37%) were conceived by artificial insemination. Examining the relationship between the way of conception and mood disorders in the postpartum period a significant correlation was found between the variables ($p= 0.019$) (Figure 4). Mothers with twins conceived artificially were more likely to develop mood disorder after delivery.

Figure 4. Relationship between the way of conception and the number of EPDS scores in the first six months of the delivery (n=72)



Mothers of twins with spontaneous conception accounted for 24% reaching 12 scores in the first six months after delivery. Mothers of twins with artificial conception accounted for 54% reaching the same level of scores. The latter group doubled this value. Infertility, artificial conception can be considered as risk factors for stress on their own increasing the occurrence of mood disorder after delivery.

The family environment and the quality of the relationship

We examined if the family environment and the quality of the relationship had an effect on the development of the threshold value for depression. The findings in our analysis showed that both variables had a significant effect on the mood of mothers of twins. The respondents could analyze the two independent variables along three values, such as poor-distracted, average, and happy- balanced values.

The family environment after delivery ($p=0.001$) had a significant effect on the mood of the mother in the first six months after birth (Figure 5).

Figure 5. The effect of the family environment on the development of the mother's mood (n=72)

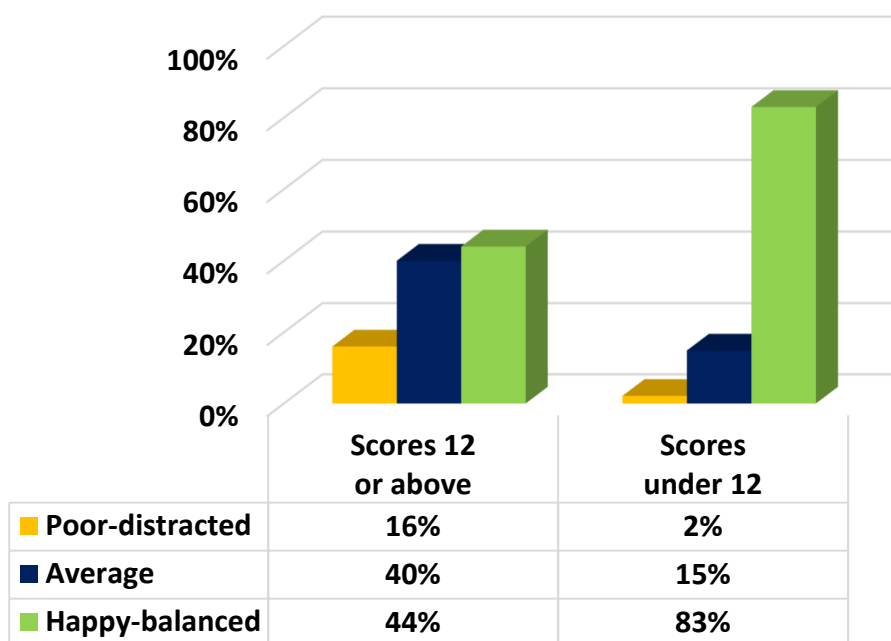
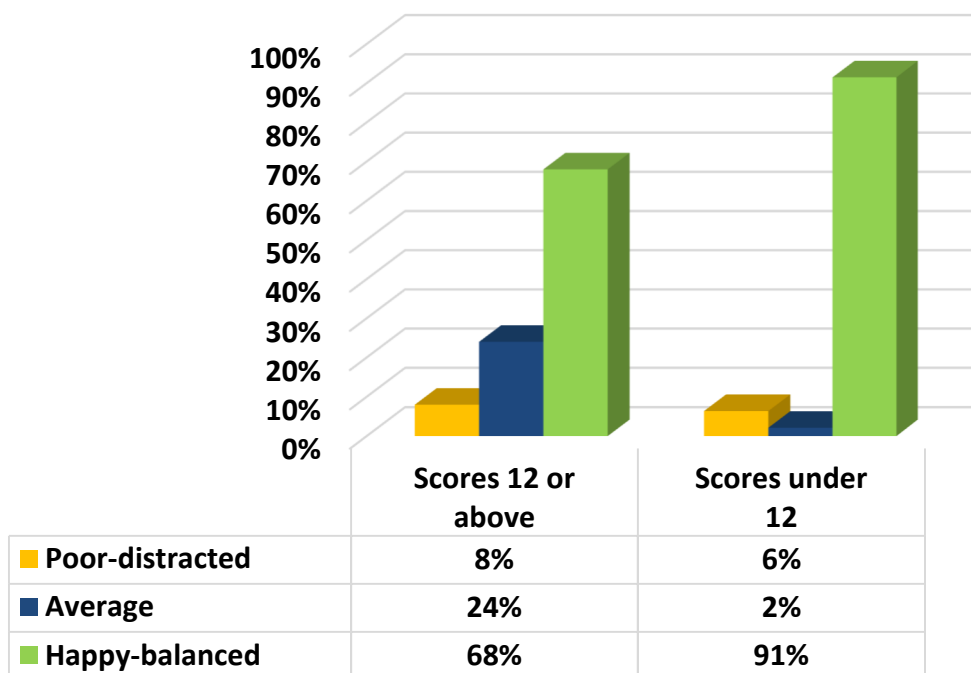


Figure 5 shows that 56% of the mothers who considered their family life as distracted or average reached the threshold value for suspected depression while 83% of them with values below 12 scores regarded their family life as happy and balanced.

At the same time, the quality of the relationship with the partner ($p=0.009$) also had a significant effect on the mother's mood (Figure 6).

Figure 6. Effect of the quality of the relationship on the development of the mother's mood (n=72)



91% of the postpartum mothers reporting their relationship happy and balanced showed values below 12 scores after completing the EPDS questionnaire.

Comparing EPDS scores with other causative factors, we found no significant relationship in these factors. These were the following: maternal age, school qualification, family status, pregnancy planning, the number of the gestational weeks, the way of delivery, the number of twins, support rate from the environment, and the sex of the twins.

Discussion and Conclusions

Due to the small number of cases, our findings cannot be generalized, but they may raise awareness. The causative factors of postpartum mood disorders are varied. Therefore, their full exploration was not in our main objectives. Showing the multifactorial character of the disorders several biological, mental, and social factors can be found in the background.

The Central Statistical Office in Hungary (STO - Központi Statisztikai Hivatal) investigated the duration of twin pregnancies between 1973 and 2012. The findings presented that 49.1% of the twin pregnancies terminated in premature births (Központi Statisztikai Hivatal, 2014). The present study showed much higher premature birth rate (62.5%). The premature birth rate from non-planned pregnancies exceeded this number accounting for 79%. Lack of appropriate infant-mother communication and negative behavior by the mother may contribute to premature births.

In the case of twin pregnancies, considerable attention should be paid to the state of the cervix, the signs of pre-eclampsia, the state of the placenta, and anemia (Kerényi & Csaba, 2001; Métneki, 2005). Crises of becoming a mother multiply. Therefore, mothers are more vulnerable to the development of mood disorders after delivery. Various examinations have come to the conclusion that the prevalence of mood disorders is more common among mothers of twins; thus, it can be considered as a risk factor in the development of depression. 35.5% of mothers of twins and 13.15% of mothers of single infant proved to be depressed (Ötvös et al., 2011). The present study had similar findings that 35% of mothers of twins reached or exceeded the threshold value for depression in the first six months after delivery. This rate was reduced to 16% in the second six months. In a controlled research in the US, between 2001 and 2002, the data of 7293 infants and 776 mothers of twins were analyzed and compared. Nine months after delivery, 43% of the mothers of twins had a greater chance of obtaining moderate or severe symptoms of depression than mothers of a single infant (Choi et al., 2009). Examining single deliveries, O'Hara et al. (1990) found that the rate for depression periods accounted for 10%-20% in the first six months after delivery. Examining pregnant women by EPDS test and screening of mothers were accomplished eight weeks after delivery in England. According to the findings, 13.5% of the mothers reached the threshold of depression in the 32th gestational week while 9.1% of them had the same experience in the 8th week after delivery. Researchers called attention in the early recognition and treatment of depression during pregnancy (Jonath et al., 2001). A US survey showed that 14%-23% of pregnant women suffered from depression, and 11%-32% of mothers were depressed three months after delivery (Shari et al., 2008). Screenings on various locations and with different techniques identified PND prevalence within wide limits. However, data of mothers of twins are beyond the highest values. It seems to be clear from previous studies that PND prevalence decreases with time.

Some literature data report that delivery affects PND prevalence, but other studies show findings to the contrary. Ötvös et al. (2011) have highlighted the fact that multiple deliveries can be a protective factor in the case of twin births regarding depression after delivery. Opposite to these findings, Csator dai et al. (2006) reported that the primary signs of sadness and depression were more common in those who had already had a baby. Anxiety, depression, their physical and mental symptoms are more common in mothers of multiple deliveries than in those of single births.

We found no relationship between the suspected cases of PND and delivery. The primipara and multipara of twins showed no significant difference.

However, we identified a *close correlation between the way of conception and the threshold value for suspected depression*. In our sample, more than one-third of the mothers were conceived artificially. The prevalence rate for mothers conceived artificially and reached 12 scores was more than double for those who were conceived naturally. It may be attributed to increased stress caused by infertility and IVF intervention. These women may have had worse physical and mental condition before pregnancy than those whose twins were conceived spontaneously. Several other publications reported the greater risk of depression in women after

having undergone artificial insemination (Urbancsek & Murber, 2005; Baorl & Solskolne, 2010; Olivennes et al., 2005; Glazebrook et al., 2004; Karamánné-Pakai & Oláh, 2015b). The studies realized in different locations and times are in line as they report that the risk factor of PND is artificial insemination.

A close correlation was found between the above factors and the threshold value for suspected depression after delivery when we analyzed the *family environment and the quality of the domestic partnership*. The favorable development of the family environment and that of the domestic partnership had a positive effect on the mother's mental state.

Anupam et al. (2011) analyzed the relationship between the parents' divorce and the second twin births in the US. The research focused on the rate of divorce in families where twins were the first-borns. The findings highlight the fact that twin births may increase the risk of divorce.

Caring twins require more work, attention, and sacrifice from parents than caring single children. Mothers' weariness increases due to intensified load, continuous heavy use; therefore, they have no time and energy to feel women. The care of partnership is in the background. Therefore, the family atmosphere develops unfavorably, which reacts mothers' mood in a negative way.

A Hungarian study in 2006 pointed out that symptoms associated with mood disorders, such as sadness, bad temper, occurred in more than half of the mothers with depression (Csatordai, 2006). Priority should be given to the recognition of mood disorders even during pregnancy. It is important to screen risk factors in time. It should also be noted that twin pregnancy and twin birth are relevant risk factors. Early diagnosis and treatment started on time may prevent aggravation of the symptoms or the widespread and later adverse effects.

The health visitor's role is necessary for the recognition of maternal mood disorders. This person is the only professional who enters families' intimate atmosphere learning their structure, weaknesses and strengths. She is aware of the history data, the process of pregnancy, and can establish contact with the family members. She takes care of the mother not only during pregnancy but in the postpartum period as well. Moreover, she looks after the infant and the later toddler as well. The health visitor has a real and ongoing relationship with the mother, therefore, owns a lot of information about the whole family. She compares her experiences during family visits with the EPDS scores and with the possession of these data she can refer the person to a specialist.

The health visitor never diagnoses but has a significant role in the early recognition of disorders and follow-up. She applies empathy, unconditional acceptance, and congruent behavior in facilitating talk.

Recognition of disorders on time may prevent long-term consequences and personal tragedies.

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