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# Psycho-emotional disorders in postpartum women after stillbirth

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**Abstract:** Objective: To identify psycho-emotional disorders diagnosed in women after stillbirth. Design: Cross-sectional study a face-to-face questionnaire. Setting: Postpartum area at a tertiary care referral hospital in León, Guanajuato, México. Participants: 210 women at immediate postpartum, divided into 105 women with stillbirth and 105 with healthy live newborn (controls). Data collection: Women answered face-to-face the questionnaire Minnesota Multiphase Personality Inventory-2. Findings: In 34.2% of women who had stillbirth, were diagnosed psycho-emotional disorders, compared with controls who were found in 19.0%,  $p = 0.019$ . In the logistic regression analysis the only significant risk factor associated to psycho-emotional disorder was the presence of fetal death,  $p = 0.002$ . The psycho-emotional disorders found in women with stillbirth were: depression ( $p = 0.026$ ), hysteria ( $p = 0.012$ ), psychotic deviation ( $p = 0.007$ ), paranoia ( $p = 0.013$ ), psychasthenia ( $p = 0.034$ ), schizophrenia ( $p = 0.017$ ), low self-esteem ( $p = 0.044$ ) and anxiety ( $p = 0.049$ ). Key conclusions: There is higher frequency of psycho-emotional disorders in women who suffer fetal death. Implications for practice: It is recommended to provide early care and psychological support to women who deliver a stillbirth.

**Keywords:** Fetal Death, Stillbirth, Minnesota Multiphase Personality Inventory-2 (Mmpi-2), Psycho-Emotional Disorders

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## 1. Introduction

Fetal death is a serious public health problem; it is a devastating obstetric outcome that creates a major impact on the health team involved as well as the family environment [1]. Worldwide, 2.64 million of fetal deaths occur each year. In our country it is estimated a rate of 4.5 deaths per 1,000 births [2], moreover 98% of fetal deaths occur in developing countries and a total of 1.19 million occurs intrapartum [3]. According to the American Colleague of Obstetrics and Gynecology (ACOG), the fetal death or stillbirth is defined as the cessation of fetal life from 20 weeks of gestation or fetal weight of 350 grams or more [4].

In most cases the etiology of fetal death is unknown, the risk factors associated with stillbirth are maternal age over 35 or under 20 years; obesity; hypertensive disease of pregnancy; diabetes mellitus; drug addiction; primiparity; poor access to medical care; low level of education; history of fetal loss and intrauterine growth restriction [5-7]. Some investigations have reported that 20 to 30% of women with fetal death present a long-term psychiatric disorder [8].

Similarly, it has been reported that the loss of an infant from stillbirth, abortion or neonatal death is recognized as a traumatic event. Stillbirth parents inevitably triggers a process of mourning and grief that may last a year or more. Couples and their families often experience feelings of anxiety, failure, frustration, guilt and apprehension, making necessary psychological support [9].

Some studies have established that women who suffered a stillbirth may be vulnerable to experiencing symptoms of depression, anxiety and posttraumatic stress in the next pregnancy and subsequent postpartum, particularly when pregnancy occurs early after the loss [10, 11]. In recent years there have been various researches regarding the psychological impact in patients who suffer fetal death. Despite, in our country, as well as in other developing countries, there are no studies that evaluate the psycho-emotional disorders that present women experiencing this devastating obstetric complication. Our aim was to identify the frequency of psycho-emotional disorders in postpartum women who suffered fetal death.

## 2. Methods

### 2.1. Design and Settings

A cross-sectional study was conducted at the Hospital of Obstetrics and Gynecology at the Mexican Institute of Social Security located in León, Guanajuato, México, from February 2011 to July 2013. During this period, the patient recruitment was through a non-probability sampling of consecutive cases. The study protocol was approved by the ethics and research committee of the local institutional review board; and women who agreed to participate in the study completed a written informed consent form. The recruited women answered face-to-face questions from the Minnesota Multiphasic Personality Inventory-2 (MMPI-2), [12] applied at immediate postpartum.

### 2.2. Study Participants

Two hundred and ten women were divided into two groups: One hundred and five women who had a stillbirth and one hundred and five women who had a healthy live newborn (controls). The women were recruited according to the following:

**Inclusion criteria:** All patients with fetal death according to criteria of the ACOG [4], regardless of age, number of gestations, previous abortions or previous fetal deaths and medical complications that occur in our hospital.

**Exclusion criteria:** Patients with pregnancies less than 20 weeks or newborns weighting less than 350 gr. and women who did not obtain informed consent.

**Elimination Criteria:** Patients whose answers showed inconsistencies and met the criteria for determining disability according to the psychological scale MMPI-2.

### 2.3. Instruments

The psychological assessment consisted in clinical interviews and administration of MMPI-2. The test is a recent version of the original MMPI that was designed to help identify personal, social, and behavioral problems in psychiatric patients. This MMPI-2 edition can be used in healthy individuals, and this questionnaire has been validated in a population of pregnant women [13].

It consists of 42 scales, a total of 567 reagents true or false response ordered so as to allow the qualification of the basic scales (clinical and validity) with the first 370 reagents. Content profile include scales of anxiety, fear, anger, low self-esteem and scale supplementary profile the scale of post-traumatic stress; a total of 14 scales. It calculates an estimated time of 60-90 minutes with each patient to their application. Conventionally, it was considered the presence of 3 or more alterations in one patient as having psycho-emotional disorder.

Because of possible participation of regional characteristics, we evaluated some socio-demographic

variables of our population, as well as clinical factors; the factors registered were: maternal age, which was defined as completed years at the time of delivery; marital status, which was registered as 0 if the women was currently married and as 1 if the women had never married or was divorced, separated, or widowed (single women); education level, which was registered as the number of completed years of school; women occupation, which was categorized as 0 if the woman had no formal occupation and as 1 if she had employment outside the home (working women); parity, which was defined as the number of previous births; weeks of gestation; previous pregnancies, including abortions and stillbirths; antenatal care, which was categorized as 0 when the woman received no antenatal care at the hospital and 1, when she attended at least one appointment in the antenatal care department; the number of antenatal visits for each woman, coded as the current number of prenatal appointments during the pregnancy; acceptance of a contraceptive method after the present pregnancy; and the following variables were registered conventionally as yes = 1 or not = 0, according to responses of women about: enough and accurate medical advice during antenatal care; family support during pregnancy; drug addictions; interfamilial violence and obstetric complications.

### 2.4. Data Analysis

Data were analyzed using descriptive statistical procedures which included arithmetic mean, standard error (SE) and percentages. The groups were compared using the Chi-square analysis or Fisher Exact' test for categorical variables; and Student t' test or Mann-Whitney U test for continuous variables as appropriate depending on their normal distribution, the Alpha value was set at 0.05. Logistic regression analysis was performed to find predictors of psycho-emotional disorders, considering as regressors the variables socio-demographic and clinical. Statistical analysis was performed with the Number Cruncher Statistical System computer program [14].

## 3. Results

The maternal mean age was  $27.9 \pm 0.6$  years in women with fetal death, with a range between 15 and 44 years, while age of the women with healthy newborn was  $24.9 \pm 0.4$ ,  $p = 0.001$ . The 74.3% of the cases occurred in patients between 20 and 34 years. The frequency of mothers over 35 years was higher in the case group (18 vs. 3,  $p = 0.001$ ). More women with stillbirths were married (99 vs. 89,  $p = 0.043$ ). Women with stillbirths had less education level (9.8 vs. 10.6 years,  $p = 0.017$ , (table 1). In the analysis of clinical variables, the gestational age in women with stillbirths ranged from 20-41 weeks, with an average of  $30.1 \pm 0.6$  weeks. The 40% of fetal death occurred early (20 to 27.6 weeks gestation) and 60% late ( $> 28$  weeks).

**Table 1.** Demographic variable analysis of the two groups. [Mean  $\pm$  SE; n (%)]

Variable	Cases (n = 105)	Controls (n = 105)	P
Maternal age (years)	27.9 $\pm$ 0.6	24.9 $\pm$ 0.4	0.001
< 20 years	9 (8.5)	12 (11.4)	0.646
20-34 years	78 (74.2)	90 (85.7)	0.056
> 35 years	18 (17.1)	3 (2.8)	0.001
Education level (years)	9.8 $\pm$ 0.2	10.6 $\pm$ 0.2	0.017
Marital status (married)	99 (94.2)	89 (84.7)	0.043
Family support	100 (95.2)	101 (96.1)	1.000
Working women	52 (49.5)	54 (51.4)	0.890
Nulliparity	33 (31.4)	43 (40.9)	0.196

Some clinical significant variables were: number of previous pregnancies, being higher in women with stillbirths,  $p = 0.033$ ; history of stillbirth,  $p = 0.012$ ; the number of antenatal visits was higher in the control group,  $p = 0.001$ ; number of death children was  $1.35 \pm 0.07$  in the group of cases against  $0.17 \pm 0.04$  in the control group,  $p = 0.001$ ; medical complications were observed more in those who had fetal death,  $p = 0.001$ ; the frequency of women with psycho-emotional disorders presenting stillbirth were 34.2%, compared with controls who obtained 19.0%,  $p = 0.019$ ; contraceptive acceptance was less frequent in women who had stillbirth (66.6 vs. 91.4%,  $p = 0.001$ ); and women with stillbirth had higher average of psycho-emotional disorders  $2.35 \pm 0.3$  vs.  $1.33 \pm 0.1$ ,  $p = 0.004$ , (table 2).

**Table 2.** Clinical variable analysis of both groups. [Mean  $\pm$  SE; n (%)]

Variable	Cases n = 105	Controls n = 105	P
Previous pregnancies	2.4 $\pm$ 0.1	2.05 $\pm$ 0.1	0.033
Total previous losses	25 (24.8)	15 (14.3)	0.082
Previous abortions	17 (16.1)	15 (14.3)	0.114
Previous stillbirths	8 (7.6)	0 (0)	0.012
Number of antenatal visits	6.9 $\pm$ 0.3	10.5 $\pm$ 0.4	0.001
Gestation weeks	30.1 $\pm$ 0.6	38.8 $\pm$ 0.1	0.001
Number death children	1.35 $\pm$ 0.07	0.17 $\pm$ 0.04	0.001
Medical complications	35 (33.3)	9 (8.5)	0.001
Addiction	5 (4.7)	4 (3.8)	1.000
Interfamilial violence	6 (5.7)	10 (9.5)	0.435
Medical advice	89 (84.7)	91 (86.6)	0.844
Contraceptives acceptance	70 (66.6)	96 (91.4)	0.001
Psycho-emotional disorders	36 (34.2)	20 (19.0)	0.019

In the logistic regression analysis, the only variable who remained statistically significant for the appearance of psycho-emotional disorders was the occurrence of stillbirth,  $p = 0.002$ . The whole model had a determination coefficient ( $R = 0.1071$ ), with degree freedom = 14,  $p = 0.043$ , (table 3).

**Table 3.** Logistic regression analysis to determine which socio - demographic and clinical variables are associated with psycho-emotional disorder (n = 210).

Variable	Regression coefficient	Standard error	Chi square beta = 0	P
Intercept	-14.52	2001.09	0.00	0.994
Age	-2.523	3.02052	0.70	0.403
Education level	-8.442	7.20143	1.37	0.241
Marital status	0.1787	0.60908	0.09	0.769
Previous abortion	0.3906	0.50670	0.59	0.440
Previous stillbirth	-0.244	0.96927	0.06	0.800
Number children dead	0.1666	0.75941	0.05	0.826
Prenatal care	14.063	2001.09	0.00	0.994
Number of antenatal visits	0.0555	4.69399	1.40	0.236
Medical complications	-0.685	0.44107	2.41	0.120
Pregnancy planned	-0.391	0.39695	0.97	0.323
Interfamilial violence	1.1304	0.65633	2.97	0.085
Family support	-0.598	0.86812	0.48	0.490
Medical advice	0.4213	0.52520	0.64	0.422
Current stillbirth	1.3164	0.43778	9.04	0.002

Determination coefficient (R) of the model = 0.1071, Degree freedom = 14, Chi square = 23.41,  $P = 0.043$

In the comparison of the frequency of the psycho-emotional disorders between women with stillbirths and controls, the significant psycho-emotional disorders were: depression,  $p = 0.026$ ; hysteria,  $p = 0.012$ ; psychotic deviation,  $p = 0.007$ ; paranoia,  $p = 0.013$ ; psychasthenia,  $p = 0.023$ ; schizophrenia,  $p = 0.017$ ; low self-esteem,  $p = 0.044$ ; and anxiety,  $p = 0.049$ , (table 4).

**Table 4.** Comparison of the psycho-emotional disorders between women with stillbirth and controls, n (%).

Psycho-emotional disorder	Cases n = 105	Controls n = 105	P
Hypochondriasis	9 (8.5)	4 (3.8)	0.252
Depression	20 (19.0)	8 (7.6)	0.026
Hysteria	8 (7.6)	0 (0)	0.012
Psychotic deviation	13 (12.3)	2 (1.9)	0.007
Feminity	5 (4.7)	8 (7.6)	0.567
Paranoia	20 (19.0)	7 (6.6)	0.013
Psychasthenia	23 (21.9)	10 (9.5)	0.023
Schizophrenia	25 (23.8)	11 (10.4)	0.017
Hypomania	19 (18.1)	27 (25.7)	0.243
Social introversión	21 (20.0)	11 (10.4)	0.084
Anger	19 (18.1)	17 (16.1)	0.855
Low self-esteem	24 (22.8)	12 (11.4)	0.044
Anxiety	25 (23.8)	13 (12.3)	0.049
Posttraumatic stress	20 (19.0)	10 (9.5)	0.076

## 4. Discussion

Pregnancy produces not only a series of physiological changes in women, but also includes psychological and social changes. Even when women are cheerful and satisfied with their pregnancy, some women experienced psychological morbidity, especially depression and anxiety in the postpartum period [15, 16]. Even some studies suggest that psychiatric disorders occurred in 14.1% of pregnant women.

It is recognized that fetal loss is perhaps the most difficult and heartbreaking tragedy ever imagined by a woman and her surroundings. Despite being so common, almost nobody talks about this; even at the moment of the confirmation of the diagnosis, the patient perceives a long silence among physicians, who are concentrated and focused on what they observed on the ultrasound screen; the prevalence of this silence during ultrasound examination may, in certain cases, cause further psychological trauma for the mother of a stillborn baby [17]. Despite the society tends to deny the impact, the psychological effects can be devastating [18]. As it has been reported in other studies, our data support that psycho-emotional disorders occur more frequently in patients who have lost their pregnancy by death.

Also our findings agree with other authors [19, 20], who reported that maternal age over 35 years remains as an independent risk factor for stillbirth, even taking into account the medical conditions that are more likely to occur in older women; so it is recommended encourage women get pregnant in early stages of life. Other risk factors associated with fetal death in our study were the stable union, poor prenatal care, the number of previous children dead, low grade of education, and complications of pregnancy, all of them according to other publications [21, 22].

Moreover, it has been reported that the history of miscarriages or previous stillbirths significantly predicted symptoms of depression and anxiety in a subsequent pregnancy [23]. In our study, univariate analysis results were similar, and the antecedent of having previous abortion was a significant variable; other important antecedent was the history of a previous stillbirth, this finding also has been reported by different authors [24, 25], they referred that women who have had stillbirth have poor obstetric prognosis and increases the risk of fetal loss in subsequent pregnancies.

In other study that included 1,339 women, it was found that the presence of posttraumatic stress disorder was associated with higher neuroticism, lower educational level and longer duration of gestation [26]; but our results differ because our women had the resolution on their pregnancies earlier in women with stillbirths. This fact could be explained because the decease of the babies occurred before term. In a prospective study [27], performed to assess the possible psychological disturbances that occurred in women with perinatal loss, the authors found that women with this complication had higher levels of anxiety and depression at immediate postpartum, compared with those women who had a living child. These all findings are similar to our results, because, we found that the fact of experiencing fetal death is a significant predictor for the occurrence of psycho-emotional disorders. But interestingly, we found other psychological disorders in women with stillbirths such as: depression, hysteria, deviation psychotic paranoia, psychasthenia, schizophrenia, low self-esteem

and anxiety. This is a new finding that has not been published elsewhere previously, and most publications refer association of anxiety and depression in women with stillbirth, even in the next pregnancy. So we recommend a more exhaustive psychological evaluation in women who have stillbirth in order to offer a more comprehensive support.

Other interesting finding in our women was that of the fourteen variables both socio-demographic and clinical included in the logistic regression analysis, only the presence of stillbirth was significant associated to psycho-emotional disorders; this fact, remarks the strong association between stillbirth as predictive variable and psycho-emotional disorder as outcome variable; so it is needed an active and early intervention giving psychological support to women with stillbirth in order to relief their suffering.

Our study has showed the vulnerability of women with fetal death, to experience negative psychological consequences, which leads to develop adequate psychological care with the intervention of a multidisciplinary team trained and psychological support programs to help solve the duel [28]. Even it has been reported that not only women, but both parents are affected and profoundly altered, so it is recommended psychological support to the couple [29].

In a previous investigation performed by our group in the same setting, we found that women who suffered spontaneous abortion had less frequency of psycho-emotional disorders [30] than women who had stillbirth in our present investigation; this is very interesting because according to the present results, the frequency of psycho-emotional disorders found is more than twice fold in women who had death of their babies with pregnancies in advances stages of gestation. This fact could be explained, in part, due to women who had more weeks of gestation had more favorable expectative about the of outcome of the pregnancy, inclusive many women buy accessories for the future newborn, also the parents talk about the name of the near newborn; and even some couples near to term of the pregnancy discuss about the professional career of the future newborn. But tragically when the baby dies, all that favorable expectative become a devastating experience. Therefore there are more types of psycho-emotional disorders that are found in those women. So could be needed a longer and more comprehensive psychological support in women who had loss of their newborns nearly at term of pregnancy.

## 5. Conclusion

There is higher frequency of psycho-emotional disorders in women, who suffer fetal death, so it is recommended to provide care and early psychological counseling in those women and in their partners.

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