

## Frequency of depressive illness in patients after a miscarriage at a private hospital

Lubna Razzak <sup>1</sup>, Sana Tariq <sup>1</sup>, Ramna Devi <sup>2</sup>, Rabiya Shabbir <sup>3</sup>, Mahrukh Tariq <sup>4</sup>

1. Tabba Kidney institute, Karachi
2. Hamdard university hospital, Karachi
3. Kharadar General Hospital, Karachi
4. Kutayana Memon Hospital, Karachi

Abstract:

Background:

Physiologically miscarriage simply means early loss of pregnancy while psychologically it may raise self-doubt about parental competencies, decrease self-esteem and may result in doubting one's capability of being a parent. This study aims to assess the frequency of depressive illness in the post-miscarriage woman of Karachi, Pakistan and the associated determinants contributing the issue prevalence in a Pakistani woman

Methodology:

This is a cross-sectional study conducted in Zainab Panjwani memorial hospital, Karachi Pakistan. Demographic details including age, educational status, planning of pregnancy, awareness of pregnancy, parity, previous pregnancy outcomes, history of miscarriages, mode of conception, social help and Edinburg postnatal depression scale (EPDS) was used as questionnaire.

Results:

The widely reported gestational age was 8 to 12 weeks, marking 97 (53.9%) of all study subjects.

Overall screening of Edinburg postnatal depression scale was categorized within four sections, Negative screening was reported from 109 (60.6%) of subjects, while 67 (37.2%) subjects showed positive results after evaluation. Borderline category represented subjects required social support to overcome their issues presented in 03 (1.7%) and only 1 (0.6%) subject was evaluated as fourth and last category of "need immediate help" and mentioned suicidal ideation.

Conclusion:

More focused studies with larger sample size and multiple centers are required to understand the socio-cultural problems helping neglect an important factor of psychological health.

Keywords: miscarriage, Depression, pregnancy loss

## Introduction:

According to World Health Organization, a spontaneous loss of conception before 20 weeks of gestation or foetal weight less than 500 grams is known as "miscarriage", after 20 weeks of gestation pregnancy loss called a stillbirth.<sup>1</sup> The estimated rate of miscarriages is one in every four confirm pregnancies.<sup>2-4</sup> Although, frequency determination in Pakistan is highly difficult to measure, as most losses occur before woman are aware of the pregnancy, commonly assumed as heavy menstrual bleeding with late periods.<sup>5</sup> Clinically recognized incidences of miscarriages are known to be 12 – 15% approximately thirty years ago.<sup>7</sup> Experiencing miscarriages can cause the ailment to not only physical health but psychological well-being of a female too. The loss of pregnancy is a sudden and unpredicted incident and cannot be controlled or avoid, therefore one cannot prepare for the trauma. As per physiology, miscarriage simply means early loss of pregnancy while psychologically it may raise self-doubt about parental competencies, decrease self-esteem and may result in doubting one's capability of being a parent.<sup>10</sup> The miscarriage not only means loss of a much-desired child but leads to an individual's sense of control over life events, resulting in prolonged insecurity. In some studies, women stated that loss of pregnancy is the most traumatic incident of their lives.<sup>11</sup> In response to this traumatic event, negative reactions are common including sadness, frustration, anger, guilt and grief. However, there is evidence of severe psychological issues resulting in recognized disorders required treatment such as stress, anxiety, post-traumatic stress disorder and depression.<sup>12-13</sup> For some parents, miscarriage is equal to the death of a child, and grief is comparable to the sudden death of a close family member. The course of mourning and time of acceptance is influenced by time of loss, the significance of pregnancy or precious pregnancy, assisted pregnancy, loss at the end of reproductive age, desired and planned pregnancy.<sup>15</sup> Over the time, most women accept

the loss and try to see a better picture; however, some of them may show convoluted mourning. A few risk factors associated with prolonged mourning are diagnosed with mental health problems, lack of social support, lack of partner's support, null parity and early planned pregnancy loss.<sup>16</sup> The mourning and dealing with depressive symptoms have a significant impact on the quality of life<sup>17</sup> and sexual partnership<sup>18</sup> of parents. Literature review has a substantial description of the adverse effects of pregnancy loss on woman and families. The trauma of losing a child in the early stages of conception is to be least understood, usually difficult to understand for the family members<sup>20</sup> and unrecognized by health care providers. Miscarriages are regarded as an inconsequential incident with no psychological effects. Pakistan reproductive health and family planning survey conducted in 2001 reported 23% of miscarriages in Pakistani population; although reliable data of miscarriage frequency is scarce, primary health care providers do not identify the psychiatric issues after miscarriages.<sup>21</sup> A research study indicated a positive association between social support and depressive illness in post-miscarriage woman, the quality of social support includes partner support, family understanding and social gatherings.<sup>22</sup> Other factors enhancing the chances of depression after miscarriages are infertility, history of stress or depressive illness, young age < 20 years or advance age < 30 years are vulnerable to depression<sup>23</sup> this factor varies according to the sample population, factors associated with depression post-miscarriage may be different in different population and need identification. Only one study of the given rationale is available on Pakistani woman,<sup>24</sup> Therefore, this study aims to assess the frequency of depressive illness in the post-miscarriage woman of Karachi, Pakistan and the associated determinants contributing the issue prevalence in a Pakistani woman. The results will be shared with health care providers and gynecology and obstetrics consultant to get an emphasis on detection of any psychological underline problem after a miscarriage in women

and to build a strong referral system for mental health care providers. The rationale of this study is to enable proper proceedings for patient, partner and family member to provide emotional and social assistance after miscarriages and counsel partners and family members to understand the situation and reduce the chances of adverse effects.

#### Methodology:

##### Study design & setting:

This is a cross-sectional study conducted in Zainab Panjwani memorial hospital, Karachi Pakistan. The study duration was 01 year started from March 2020 to February 2021 Patients were recruited after reported miscarriage and visited out-patient clinics of gynecology and obstetrics department.

##### Study participants:

The females who had a history of miscarriage in the past month, the clinic review scheduled after 2 weeks of miscarriage, a patient who had any kind of treatment including expectant, medical or surgical management. The miscarriage was defined as a spontaneous pregnancy loss occurring before 23 weeks of gestation or loss of fetus weighing less than 500 g.

##### Inclusion criteria:

Woman in reproductive age ranging from 15 years to 49 years who have experienced a miscarriage in the past month was included in this study. The miscarriage either induced or spontaneous are included, patients who are willing to participate in the study without any financial or medical help and able to understand and sign the consent form.

##### Exclusion criteria:

Any other than induced or spontaneous miscarriage such as ectopic pregnancy were excluded from the study. Subjects with a positive history of diagnosed depression were also not

included. The woman not willing to participate and sign the consent form was excused too.

##### Study tools:

After obtaining approval from the ethical review committee of Zainab Panjwani hospital, patients were asked to sign informed consent. Study pre-structured Performa was dictated by the primary investigator or postgraduate on-duty doctor to the patient, the Performa has two sections, one with demographic details including age, educational status, planning of pregnancy, awareness of pregnancy, parity, previous pregnancy outcomes, history of miscarriages, mode of conception, social help etc and the second section consist of Edinburg postnatal depression scale (EPDS). Edinburg Postnatal depression scale consists of 10 questions inquiring the presence of depressive symptoms, the response from participants were scored within 0 – 3. The total score of this scale may range from 0 – 30 indicating different frequencies and intensities of depressive illness in participants. The resulting score of less than 8 indicates mild to moderate stress, 9 – 11 scoring shows possible depression, 12 -13 score in a fairly high indication of depression,  $\leq 14$  scoring is dangerous and needs immediate help from support to manage the issue. A positive score on question number 01, 02 and 03 of Edinburg postnatal depression scale is needed to be identified on a priority basis as these questions evaluate suicidal ideation of subject and may results in the harmful event for the woman or other family members.

##### Data management and analysis:

For the frequency of positive depression screening we used frequencies and percentage test, Descriptive statistics for continuous variables like, age and gestation age at the miscarriage was performed. The multivariate regression test was performed to state the association of different factors with positive depressive scoring. The P-value of  $<0.005$  will be considered significant. Statistical package of

social sciences (SPSS) version 21 was used to add, edit and analyze the data.

Ethical consideration:

All the ethical issues were considered thoroughly by the primary investigator, confidentiality of patients was ensured. Any question which may facilitate a sad reaction was excluded to avoid any unfavorable outcome.

Results:

Among all 180 subjects (132) 73.3% mothers were less than 30 years of age including 43 (23.9%) within 18 to 25 years and 89 (49.4%) of 25 to 30 years, only 48 (26.6%) of study subjects were above 30 years of age with 40 (22.2%) within 30 to 35 years of age limit and 8 (4.4%) of 35 to 40 years. The widely reported gestational age was 8 to 12 weeks, marking 97 (53.9%) of all study subjects. The frequency of demographic variables including literacy and other related dependent variables such as pregnancy planning, social support, pregnancy awareness, miscarriage history and mode of conception are mentioned in Table 01.

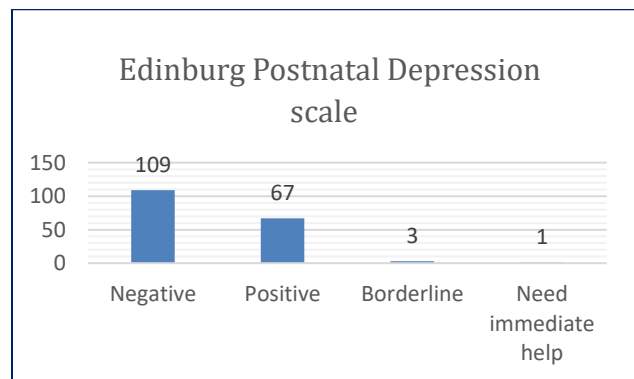
Frequency distribution of independent and dependent variables.

GESTATIONAL AGE	4-8 weeks	8 (4.4%)
	8-12 weeks	97 (53.9%)
	12-16 weeks	44 (24.4%)
	16-20 weeks	27 (15%)
	20-24 weeks	4 (2.2%)
PREGNANCY PLANNING	Planned	161 (89.4%)
	Unplanned	19 (10.6%)
SOCIAL SUPPORT	Lives alone	84 (46.7%)
	Lives with others	96 (53.3%)

PREGNANCY AWARENESS	Yes	92 (51.1%)
	No	88 (48.9%)
MISCARRIAGE HISTORY	None	41 (22.8%)
	1	71 (39.4%)
	2	57 (31.7%)
	3	11 (6.1%)
CONCEPTION MODE	Spontaneous	178 (98.9%)
	Assisted	2 (1.1%)

Overall screening of Edinburg postnatal depression scale was categorized within four sections, Negative screening was reported from 109 (60.6%) of subjects, while 67 (37.2%) subjects showed positive results after evaluation. Borderline category represented subjects required social support to overcome their issues presented in 03 (1.7%) and only 1 (0.6%) subject was evaluated as fourth and last category of “need immediate help” and mentioned suicidal ideation. (Fig 01)

Fig 01: Frequency distribution of Edinburg Postnatal depression scale in study participants.



The dispersion of depression screening showed maximum positive cases in the youngest age group of study subjects, making it 27 out of 42 had a positive screening in 18 to 25 years

category, 15% of total sample size. This finding reports the vulnerability of young mothers. While the second-highest positive results reported in 25 to 30 years category with 19 (10.5%) out of 88 subjects, the p-value was  $< 0.005$  and marked as significant. The gestational age showed very interesting results, the earliest age of gestation reported in our study was 4 to 8 weeks and 8 out of 180 subjects screened negative in this group making 4.4% of overall data. The second category was 8 to 12 weeks of gestation and 97 subjects were recruited in this group, this is the largest group of our study resulting in 12(6.6%) of subjects with positive screening along with 03 (1.6%) showing borderline symptoms. While a wide range of 82 (45.5%) was screened negative.

The third group of 12 to 16 weeks gestation resulted in 25 (13.8%) out of 44 subjects with positive screening. The remaining two groups of gestational ages ranging from 16 to 20 weeks and 20 to 24 weeks represented very diverse and alarming results with 27 (14.9%) out of 27 and 4(2.2%) out of 4 subjects with positive results respectively, no subject screened negative in these groups but all positives with one borderline

subject in a group of 16 to 20 weeks gestation. The P-value was significant with  $<0.005$  scores. The fortitude of positive screening test result with different depending variables described earlier were evaluated and mentioned in Table 02.

Variables	Positive	Negative	borderline	P-Value	
AGE OF MOTHER (years)	18-25 years	27 (15%)	15 (8.3%)	0	$< 0.005$
	25-30 years	19 (10.5%)	69 (38.3%)	1 (0.5%)	
	30-35 years	14 (7.7%)	24 (13.3%)	2 (1.1%)	
	35-40 years	7 (3.8%)	1 (0.5%)	0	
GESTATIONAL AGE	4-8 weeks	0	8 (4.4%)	0	$< 0.005$
	8-12 weeks	12 (6.6%)	82 (45.5%)	3 (1.6%)	
	12-16 weeks	25 (13.8%)	19 (10.5%)	0	
	16-20 weeks	26 (14.4%)	0	1 (0.5%)	
	20-24 weeks	4 (2.2%)	0	0	
PREGNANCY PLANNING	Planned	66 (36.6%)	92 (51.1%)	3 (1.6%)	0.015
	Unplanned	1 (0.5%)	17 (9.4%)	1 (0.5%)	
SOCIAL SUPPORT	Lives alone	17 (9.4%)	65 (36.1%)	2 (1.1%)	$< 0.005$
	Lives with others	50 (27.7%)	44 (24.4%)	1 (0.5%)	
PREGNANCY AWARENESS	Yes	47 (26.1%)	42 (23.3%)	3 (1.6%)	$< 0.005$
	No	20 (11.1%)	67 (37.2%)	0	
MISCARRIAGE HISTORY	None	0	41 (22.7%)	0	$< 0.005$
	1	16 (8.8%)	54 (30%)	1 (0.5%)	
	2	40 (22.2%)	14 (7.7%)	3 (1.6%)	
	3	11 (6.1%)	0	0	
CONCEPTION MODE	Spontaneous	66 (36.6%)	109 (60.5%)	3 (1.6%)	$< 0.005$
	Assisted	1 (0.5%)	1 (0.5%)	0	
PARITY	Nil	28 (15.5%)	7 (3.8%)	0	$< 0.005$
	1	30 (16.6%)	9 (5%)	3 (1.6%)	
	2	9 (5%)	55 (30.5%)	1 (0.5%)	
	3	0	27 (15%)	0	
	4	0	11 (6.1%)	0	

On analyzing the odds ratio of our study results, we find out that Pregnancy planning had a positive association with depression marking 1.81 times higher likelihood of getting positive results. While Prior pregnancy outcome also had

a positive association with 14.9 OR and showing 14.9-time higher incident rates in null parity category to be depressed.

(Table 03)

PREGNANCY PLANNING	1.81 (0.33 - 9.77)
SOCIAL SUPPORT	0.50 (0.14 - 1.8)
AWARENESS OF PREGNANCY	0.83 (0.26 - 2.6)
PRIOR MISCARRIAGES	0.09 (0.009 - 0.94)
	0.14 (0.016 - 1.21)
	0.607 (0.06 - 5.32)
PRIOR PREGNANCY OUTCOMES	14.9 (1.82 - 122.4)

#### Discussion:

The literature has been proved that miscarriages cause psychological and social problems<sup>25</sup>, it is stated that the prolonged psychiatric issues are reported in females more than male partners, some studies have elaborated the demographic determinants which may cause grief and depressive illness after miscarriage such as age<sup>26</sup>, education, parity or living children and marital status.<sup>27</sup> Another study showed 66.6% anxiety disorder and 55.7% of positive depression screening after miscarriage.<sup>27</sup>

Only a few studies are available to evaluate the determinants associating depression after a miscarriage in Pakistani woman but the frequency of depressive illness data is not available as gynecologists and obstetrics do not evaluate a post-miscarriage woman for mental issues nor refer them to psychologists for early detection of mental distress and helping subjects in coping techniques and timely intervention to create awareness for the patient and family members. A longitudinal cohort study from Hong kong<sup>26</sup> establishes the association of different

factors with positive depressive illness, according to this study young age, infertility and history of mental issues are vital risk factors for post-miscarriage depression, and however, the frequency of depression after a spontaneous miscarriage in Asian females is comparatively lower. In our study, we aimed to analyze the frequency of positive depression screening after miscarriage and the associated determinants influencing mental stress. The depression screening was performed with the help of Edinburg postnatal depression scale which represented 109 (60.6%) negative subjects, while 67 (37.2%) positive, 03 (1.7%) borderline and 1 (0.6%) subjects in “need immediate help” group. Another study of Pakistani woman’s depression frequency after miscarriage<sup>25</sup> has stated age group 15 – 30 years are vulnerable to depression with 17/76 subjects while our study has more elaborated age groups with four subcategories and showed a relatively higher incidence of positive screening in 18 to 25 years with 27/42 subjects and 25 to 30 years group indicated 19/88 positive subjects. In literature review Pakistani population has no strong

evidence for gestational age as depression determinant which is analyzed in our study thoroughly. The highest frequency of positive screening was recorded in 16 to 24 weeks of gestation age with 31/31 subjects, The prior pregnancy outcomes and history of miscarriages are well-analyzed factors internationally while there is a vast space to research on Pakistani population. Social support is another factor which was analyzed in our study and the result represented 50/91 of subjects living in joint families were screened positive. History of miscarriages is an independent determinant of depression, a Meta-analysis from Pennsylvania stated 161/2598 positive subjects with no or single miscarriage history while 5/88 with the history of multiple miscarriages.<sup>29</sup> Similarly another study from Norway indicated the association of maternal age and previous pregnancy outcomes with depression after miscarriage<sup>30</sup> while our study evaluated almost similar results with an amplified frequency of positive screening of depression in 30 – 35 years of age and null parity.

#### Conclusion:

In our population-based study from Pakistan, we precisely describe the frequency of depressive illness along with associated determinants of the subjects. The lack of data from governmental hospital setup and primary health care setup it is difficult to get a prevalence of miscarriages, although with this study we can evaluate some of a few important factors influencing stress, anxiety and depression in a woman after miscarriage. More focused studies with larger sample size and multiple centers are required to understand the socio-cultural problems helping neglect an important factor of psychological health.

#### References:

1. Woods-Giscombé CL, Lobel M, Crandell JL. The impact of miscarriage and

parity on patterns of maternal distress in pregnancy. *Research in nursing & health*. 2010 Aug;33(4):316-28.

2. Goopy S, St John A, Cooke M. Shrouds of silence: three women's stories of prenatal loss. *Australian Journal of Advanced Nursing*, The. 2006 Mar;23(3):8.

3. McLean A, Flynn C. 'It's not just a pap-smear': Women speak of their experiences of hospital treatment after miscarriage. *Qualitative Social Work*. 2013 Nov;12(6):782-98.

4. Collins C, Riggs DW, Due C. The impact of pregnancy loss on women's adult relationships. *Grief Matters: The Australian Journal of Grief and Bereavement*. 2014;17(2):44.

5. Frost M, Condon JT. The psychological sequelae of miscarriage: a critical review of the literature. *Australian and New Zealand Journal of Psychiatry*. 1996 Jan 1;30(1):54-62.

6. Wilcox AJ, Weinberg CR, O'Connor JF, Baird DD, Schlatterer JP, Canfield RE, Armstrong EG, Nisula BC. Incidence of early loss of pregnancy. *New England Journal of Medicine*. 1988 Jul 28;319(4):189-94.

7. Chard T. 11 Frequency of implantation and early pregnancy loss in natural cycles. *Bailliere's clinical obstetrics and gynaecology*. 1991 Mar 1;5(1):179-89.

8. Farren J, Jalmbrant M, Falconieri N, Mitchell-Jones N, Bobdiwala S, Al-Memar M, Tapp S, Van Calster B, Wynants L, Timmerman D, Bourne T. Posttraumatic stress, anxiety and depression following miscarriage and ectopic pregnancy: a multicenter, prospective, cohort study. *American journal of obstetrics and gynecology*. 2020 Apr 1;222(4):367-e1.

9. Cumming GP, Klein S, Bolsover D, Lee AJ, Alexander DA, Maclean M, Jurgens JD. The emotional burden of miscarriage for women and their partners: trajectories of anxiety and depression over 13 months. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2007 Sep;114(9):1138-45.

10. Engelhard IM, van den Hout MA, Arntz A. Posttraumatic stress disorder after pregnancy

loss. General hospital psychiatry. 2001 Mar 1;23(2):62-6.

11. Janusz B, Jurek J, Dejko-Wańczyk K. THE GRIEVING PROCESS AFTER CHILD LOSS FROM THE PERSPECTIVE OF THE CONTINUING BONDS THEORY: A SYSTEMATIC CASE STUDY.

PSYCHOTERAPIA. 2018 Jan 1(4):31-42.

12. Kones MO, Kaydirak MM, Aslan E, Yildiz H. The Perinatal Grief Scale (33-item Short Version): validity and reliability of the Turkish/Perinatal Yas Olcegi (33 maddeli Kisa Surum): Turkce gecerlilik ve guvenilirlik calismasi. Anadolu Psikiyatri Dergisi. 2017 Jun 1;18(3):231-7.

13. Horsch A, Beinart H, Kennedy P, Llewelyn S: posttraumatic stress disorder following childbirth and pregnancy loss. Clinical psychology in practice. Blackwells, London 2009

14. Napiórkowska-Orkisz M, Olszewska J. ROLA PERSONELU MEDYCZNEGO WE WSPARCIU PSYCHICZNYM KOBIETY I JEJ RODZINY PO PRZEBYTYM PORONIENIU. PIELEGNIARSTWO POLSKIE POLISH NURSING. 2017 Jul 1:529.

15. Katzenellenbogen JM, Nedkoff L, Cannon J, Kruger D, Pretty F, Carapetis JR, Dempsey KE, De Dassel J, Anderson M, De Klerk N, Hung J. Low positive predictive value of International Classification of Diseases, 10th Revision codes in relation to rheumatic heart disease: a challenge for global surveillance. Internal medicine journal. 2019 Mar;49(3):400-3.

16. Stirtzinger R, Robinson GE. The psychologic effects of spontaneous abortion. CMAJ: Canadian Medical Association Journal. 1989 Apr 1;140(7):799.

17. Batool SS, Azam H. Miscarriage: Emotional burden and social suffering for women in Pakistan. Death studies. 2016 Nov 25;40(10):638-47.

18. Iwanowicz-Palus G, Mróz M, Bień A. Quality of life, social support and self-efficacy in women after a miscarriage. Health and Quality of Life Outcomes. 2021 Dec;19(1):1-8.

19. Malik A, Shafi A, Umair I, Bajwa SM, Butt A, Bukharie F. Frequency of Depressive Disorders among Women after Miscarriage. Journal of the College of Physicians and Surgeons Pakistan. 2020 Feb 1;30(2):192-6.

20. Qu F, Wu Y, Zhu YH, Barry J, Ding T, Baio G, Muscat R, Todd BK, Wang FF, Hardiman PJ. The association between psychological stress and miscarriage: a systematic review and meta-analysis. Scientific reports. 2017 May 11;7(1):1-8.

21. de La Rochebrochard E, Thonneau P. Paternal age and maternal age are risk factors for miscarriage; results of a multicentre European study. Human reproduction. 2002 Jun 1;17(6):1649-56.

22. Kalsoom UE, Haneefa B. DETERMINANTS OF PSYCHOLOGICAL DISTRESS AMONG WOMEN HAVING MISCARRIAGES. Journal Of Medical Sciences. 2019;27(4):363-6.

23. Pathiraja RP, Rohanachandra YM, Kaththiriarachchi ST, Nishad AA. A descriptive cross sectional study on mental health outcome and perceived care needs following miscarriage in a tertiary care hospital in Sri Lanka.

24. Kinsey CB, Baptiste-Roberts K, Zhu J, Kjerulff KH. Effect of multiple previous miscarriages on health behaviors and health care utilization during subsequent pregnancy. Women's Health Issues. 2015 Mar 1;25(2):155-61.

25. Magnus MC, Wilcox AJ, Morken NH, Weinberg CR, Håberg SE. Role of maternal age and pregnancy history in risk of miscarriage: prospective register-based study. bmj. 2019 Mar 20;364.