Mental health outcome and perceived care needs of women treated for a miscarriage in a low-resource setting

JOHNBOSCO IFUNANYA NWAFOR, VITUS OKEWUCHUKWU OBI, CHUKA NOBERT OBI, CHUKWUNENYE CHUKWU IBO, DARLINGTON-PETER CHIBUZOR UGOJI, BLESSING IDZUINYA ONWE, VICTOR UCHENNA ONUCHUKWU

Department of Obstetrics and Gynecology, Alex Ekwueme Federal University Teaching Hospital, Abakaliki, South-East Nigeria

ABSTRACT
Introduction: There have been many advances in the management of miscarriage in recent times including the introduction of expectant and medical management protocols. However, a study of the psychological impact of the condition and its management has not received similar attention.

Aim: To determine the psychosocial consequences of miscarriages and perceived needs of the patients compared to the care provided by the hospital.

Materials and Method: This was a prospective cohort study conducted between January 15, 2018 and April 30, 2019. Participants were recruited on admission and psychological morbidity was assessed at 1 week after a miscarriage in the gynecological clinics. They were screened for psychological morbidities using DASS 21 (Depression, Anxiety and Stress Scale).

Results: Of 140 women that participated in the study, severe depression was reported in 8 (5.7%) whereas 12 (8.5%) participants reported symptoms of extremely severe depression. Moderate to severe anxiety was present in 23.5% while extremely severe anxiety was noted among 21.5% of the women. Stress was reported in over half of respondents and severe to extremely severe stress occurred in 19.9% of the participants. Factors significantly associated with psychological morbidities following miscarriage include age ≥35 years, no living child, subfertility, planned pregnancy, and assisted conception. Healthcare providers not listening to the patient’s concern, non-participation in decision making, and dissatisfaction with care were associated with adverse psychological outcomes.

Conclusion: Psychological morbidity following a miscarriage is common among participants in our study. The provision of the correct information and psychological debriefing may be useful in enabling women to adjust emotionally following miscarriage.

Key words: Abakaliki; mental health outcome; miscarriage; perceived care needs.
women and their partners consider miscarriage as a tragic, complicated, and life-altering experience causing emotional and psychological distress resulting in significant suffering. \[^{[4]}\] While a short grief reaction following a miscarriage can be normal, some progress to a pathological prolonged grief reaction. \[^{[2,5]}\]

Recent evidence suggested that spontaneous miscarriage is associated with significant and possibly enduring psychological consequences. \[^{[6]}\] More than half of women who suffer from miscarriage would suffer from various psychological morbidities in the weeks and months following the event. \[^{[6]}\] Common psychological problems include grief, depression, and anxiety. Stress disorder and obsessive-compulsive disorder had also been reported. \[^{[1-10]}\]\n
Expression of grief and depression may show cultural variation and coping strategies may differ depending on culture, racial, or ethnic background. \[^{[7]}\] When open expression of emotions such as sadness is considered inappropriate in certain cultures they may tend to somatize their distress. Studies have suggested that grief and depression after spontaneous miscarriage are often unrecognized by healthcare providers. \[^{[8,9]}\]\n
Unlike in postpartum psychological problems, in the context of miscarriage, simple and effective screening measures of psychological morbidity have not been well established. \[^{[9]}\]\n
The recognized factors that contribute to such morbidity include demographic factors, psychiatric history, pregnancy-specific factors, reproductive history, satisfaction with the care provided by healthcare professionals during and following the loss, and perception of social support. \[^{[10-16]}\]\n
The association of such factors with psychological morbidity after a miscarriage has not been assessed in Abakaliki.

This study aimed to describe the psychosocial consequences of miscarriages, its correlates, and perceived needs in the care provided by the hospital, and this could shed some light on possible preventive strategies.

**Materials and Method**

**Study area:** Abakaliki is the capital of Ebonyi state which is in the south-east geographical zone of Nigeria. Alex Ekwueme Federal University Teaching Hospital is a tertiary institution located in Abakaliki. The hospital receives a referral from all parts of the state and neighboring states of Benue, Enugu, Cross River, and Abia as well as any part of the country.

The obstetrics and gynecology department is one of the many departments in the hospital. The functions of the obstetric unit are performed in the booking, antenatal, postnatal, and family planning clinics; labor, antenatal, and intensive care unit as well as obstetric theater.

**Study design:** A prospective cohort study was carried out at an obstetrics and gynecology unit of Alex Ekwueme Federal University Teaching Hospital, from January 15, 2018, to April 30, 2019. The participants were 156 consecutive women who were admitted to the unit with a pregnancy loss of fewer than 28 weeks. Women were recruited to the study within 24 h of diagnosis and then followed up at 1 week after the miscarriage. The psychological morbidity was assessed at 1 week in the gynecological clinic visit. Previous psychiatric illness and conditions that limit their ability to understand the study questions were considered as exclusion criteria.

**Data collection instrument and procedures:** Data were collected by the researchers. A self-administered questionnaire was used to collect data from the study participants. The sociodemographic details, the participant’s experience of care received at the hospital, and the perceived care needs of participants were collected using a specifically designed, structured, pretested, and validated questionnaire. The DASS (Depression, Anxiety and Stress Scale) was used to collect data on psychological morbidities [see Appendix 1]. The DASS is a 21-item self-report instrument designed to measure the three related negative emotional states and stress. \[^{[17]}\] In completing the DASS, the individual is required to indicate the presence of a symptom over the previous week. Each item was scored from 0 (“did not apply to me at all over the past week”) to 3 (“applied to me very much or most of the time over the past week”). It was also designed to get data on the care they received at the hospital in comparison to their expectations about the services at the hospital. Women identified with specific psychological morbidities were referred to a psychiatrist for additional evaluation and treatment.

**Data processing and analysis:** All returned questionnaires were checked manually for completeness and consistency of responses. The collected data were coded and analyzed using Epi Info version 7.0 (CDC, USA). Continuous variables were presented as means ± standard deviations (SDs), while categorical variables were summarized as numbers and percentages. Logistic regression analysis, presented with the odds ratios (OR) and 95% confidence intervals (CI), was used to identify factors associated with psychological morbidities following a miscarriage. The \( P \) values < 0.05 were considered to be statistically significant.

**Ethical consideration:** Before the commencement of the study, ethical approval was obtained from the Research and Ethics Committee of the Alex Ekwueme Federal University Teaching Hospital, Abakaliki. Written informed consent was obtained from each study participant to confirm willingness to participate after explaining the objectives of the study. They were informed about the option of opting out of the study if they want and that opting out would not affect their
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Results

Of the 156 participants who met the inclusion criteria, only 140 returned for follow-up assessment. Four women were excluded because they did not meet the inclusion criteria. All the study participants who returned for follow-up responded to the questionnaire making the response rate to be 100%. The mean age of the respondents was 26.2 ± 2.1 years. The majority of the participants, (62.9%), were <35 years while 74.3% were married. Sixty-nine women had 1 or 2 children whereas 37 (26.4%) of the participants had no living child. Almost half (48.6%) of respondents had a previous history of 1 or 2 miscarriages. History of subfertility was present in 11.4% of the women and 7.9% of participants conceived through assisted conception [Table 1].

Of the 140 women that participated in the study, severe depression was reported in 8 (5.7%), whereas 12 (8.5%) participants reported symptoms of extremely severe depression. Moderate to severe anxiety was present in 42.7% while extremely severe anxiety was noted 21.5% of the women. Stress was reported in over half of respondents and severe to extremely severe stress occurred in 19.9% of the participants [Table 2].

Univariate logistic regression analysis showed that age ≥ 35 years (OR = 2.07, 95% CI = 1.05–4.08, P value = 0.04), no living child (OR = 24.89, 95% CI = 10.01–61.89, P value < 0.0001), history of subfertility (OR = 0.25, 95% CI = 0.12–0.54, P value = 0.0004), and assisted conception (OR = 3.14, 95% CI = 1.41–6.99, P value = 0.005) were factors associated with depression among the participants [Table 3]. Anxiety among the clients was significantly associated with age ≥ 35 years (OR = 0.14, 95% CI = 0.07–0.32, P value < 0.0001), no living child (OR = 20.00, 95% CI = 8.23–48.58, P value < 0.0001), history of subfertility (OR = 0.16, 95% CI = 0.07–0.36, P value < 0.0001), planned pregnancy (OR = 0.43, 95% CI = 0.21–0.87, P value = 0.01), and assisted conception (OR = 3.85, 95% CI = 1.66–8.92, P value = 0.001) [Table 4], whereas stress among the study cohorts was also associated with age ≥ 35 years (OR = 2.45, 95% CI = 1.155.23, P value = 0.01), no living child (OR = 21.27, 95% CI = 8.185.28, P value < 0.0001), history of subfertility (OR = 0.34, 95% CI = 0.160.69, P value = 0.003), and assisted conception (OR = 2.67, 95% CI = 1.26–5.66, P value = 0.01) [Table 5].

Healthcare providers not listening to patient’s concerns (OR = 5.91, 95% CI = 2.66–13.13, P value < 0.0001) and dissatisfaction with care (OR = 11.50, 95% CI = 4.74–27.91, P value < 0.0001) were associated with symptoms of depression [Table 6], whereas non-participation in decision making during care (OR = 2.34, 95% CI = 1.07–5.15, P value = 0.03) and dissatisfaction with care received (OR = 2.67, 95% CI = 1.26–5.66, P value = 0.009) were significantly associated with symptoms of anxiety [Table 7]. Participants who developed symptoms of stress were more likely to have their concerns not listened to by healthcare providers (OR = 3.67, 95% CI = 1.71–7.85, P value = 0.001), and dissatisfied with their treatment (OR = 7.41, 95% CI = 3.34–16.46, P value < 0.0001) [Table 8].

Discussion

This study addressed an area that is very important in clinical practice, yet seldom reported in our area of practice. It

| Table 1: Sociodemographic and clinical characteristics of women admitted with miscarriage |
|-----------------------------|-----------------------------|-----------------------------|
| Characteristics             | Frequency (n=140) | Percentage (%)                |
| Age (years)                 |                |                              |
| 20-25                       | 14             | 10.0                         |
| 26-31                       | 38             | 27.1                         |
| 32-37                       | 57             | 40.7                         |
| ≥38                         | 31             | 22.2                         |
| Marital status              |                |                              |
| Married                     | 104            | 74.3                         |
| Unmarried                   | 36             | 25.7                         |
| Employment status           |                |                              |
| Employed                    | 92             | 65.7                         |
| Unemployed                  | 48             | 34.3                         |
| Parity                      |                |                              |
| 0                           | 31             | 22.1                         |
| 1                           | 9              | 6.4                          |
| 2                           | 13             | 9.3                          |
| 3                           | 26             | 18.6                         |
| 4                           | 24             | 17.1                         |
| ≥5                          | 37             | 26.5                         |
| Number of living children   |                |                              |
| None                        | 37             | 26.4                         |
| 1-2                         | 69             | 49.3                         |
| ≥3                          | 34             | 24.3                         |
| Previous miscarriage        |                |                              |
| 0                           | 51             | 36.4                         |
| 1                           | 49             | 35.0                         |
| 2                           | 19             | 13.6                         |
| ≥3                          | 21             | 15.0                         |
| History of subfertility     |                |                              |
| Yes                         | 16             | 11.4                         |
| No                          | 124            | 88.6                         |
| Planning of pregnancy       |                |                              |
| Planned                     | 26             | 18.6                         |
| Unplanned                   | 114            | 81.4                         |
| Type of conception          |                |                              |
| Spontaneous                 | 129            | 92.1                         |
| Assisted                    | 42             | 7.9                          |
| Type of miscarriage         |                |                              |
| Complete                    | 9              | 6.4                          |
| Incomplete                  | 88             | 62.9                         |
| Missed                      | 34             | 24.3                         |
| Inevitable                  | 9              | 6.4                          |

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studied the presence of psychological morbidity among women who had miscarriages, which is a very common gynecological presentation. It is important to study this in Abakaliki since the psychological response to such a life event varies among different populations.

Over half of the women who presented with miscarriage had some psychological disturbance. These findings were similar to the findings of studies done in Sri Lanka, Norway, the USA, and Sweden. As past literature has shown that psychological distress is highest shortly after the miscarriage and decreases with time, one explanation of this difference may be the difference in timing of the assessment. Earlier the assessment the more severe the
Table 6: Association of participants description of the services received and expectations of care at the hospital with symptoms of depression

| Variable                             | Absent | Present | OR   | 95% CI   | P      |
|--------------------------------------|--------|---------|------|----------|--------|
| They listened to my concern          |        |         |      |          |        |
| Yes                                 | 27     | 26      | 5.91 | 2.66-13.13 | <0.0001|
| No                                  | 13     | 74      |      |          |        |
| Explained about the condition        |        |         |      |          |        |
| Yes                                 | 32     | 34      | 0.64 | 0.33-1.25 | 0.19   |
| No                                  | 44     | 30      |      |          |        |
| Explained about treatment methods    |        |         |      |          |        |
| Yes                                 | 29     | 39      | 1.17 | 0.59-2.29 | 0.65   |
| No                                  | 28     | 44      |      |          |        |
| Participated in decision making      |        |         |      |          |        |
| Yes                                 | 40     | 32      | 1.79 | 0.91-3.49 | 0.09   |
| No                                  | 28     | 40      |      |          |        |
| Satisfaction with service           |        |         |      |          |        |
| Yes                                 | 23     | 15      | 11.50| 4.74-27.91| <0.0001|
| No                                  | 12     | 90      |      |          |        |
| Expects to understand                |        |         |      |          |        |
| Yes                                 | 34     | 40      | 0.90 | 0.46-1.76 | 0.76   |
| No                                  | 32     | 34      |      |          |        |
| Expects explanation                 |        |         |      |          |        |
| Yes                                 | 32     | 43      | 1.12 | 0.57-2.19 | 0.75   |
| No                                  | 26     | 39      |      |          |        |
| Expects education on treatment       |        |         |      |          |        |
| Yes                                 | 37     | 39      | 1.48 | 0.75-2.90 | 0.25   |
| No                                  | 25     | 39      |      |          |        |
| Expects opportunity for questions    |        |         |      |          |        |
| Yes                                 | 10     | 34      | 1.19 | 0.50-2.83 | 0.69   |
| No                                  | 19     | 77      |      |          |        |

Table 7: Association of participants description of the services received and expectations of care at the hospital with symptoms of anxiety

| Variable                             | Absent | Present | OR   | 95% CI   | P      |
|--------------------------------------|--------|---------|------|----------|--------|
| They listened to my concern          |        |         |      |          | 30     |
| Yes                                 | 30     | 32      | 1.77 | 0.89-3.50 | 0.09   |
| No                                  | 27     | 51      |      |          |        |
| Explained about the condition        |        |         |      |          | 29     |
| Yes                                 | 29     | 36      | 1.94 | 0.97-3.89 | 0.06   |
| No                                  | 22     | 53      |      |          |        |
| Explained about treatment methods    |        |         |      |          | 32     |
| Yes                                 | 32     | 36      | 0.59 | 0.31-1.17 | 0.13   |
| No                                  | 43     | 29      |      |          |        |
| Participated in decision making      |        |         |      |          | 53     |
| Yes                                 | 53     | 49      | 2.34 | 1.07-5.15 | 0.03   |
| No                                  | 12     | 26      |      |          |        |
| Satisfaction with service           |        |         |      |          | 26     |
| Yes                                 | 26     | 39      | 2.67 | 1.26-5.66 | 0.009  |
| No                                  | 15     | 60      |      |          |        |
| Expects to understand                |        |         |      |          | 36     |
| Yes                                 | 36     | 44      | 0.58 | 0.29-1.15 | 0.12   |
| No                                  | 35     | 25      |      |          |        |
| Expects explanation                 |        |         |      |          | 40     |
| Yes                                 | 40     | 37      | 0.67 | 0.34-1.31 | 0.24   |
| No                                  | 39     | 24      |      |          |        |
| Expects education on treatment       |        |         |      |          | 33     |
| Yes                                 | 33     | 41      | 1.16 | 0.59-2.28 | 0.66   |
| No                                  | 27     | 39      |      |          |        |
| Expects opportunity for questions    |        |         |      |          | 29     |
| Yes                                 | 29     | 32      | 0.84 | 0.43-1.64 | 0.61   |
| No                                  | 41     | 38      |      |          |        |

psychological morbidity would be. Anxiety, stress, and early complicated grief may also have an overlapping effect on a relatively high rate of psychological morbidities in our study.
With the current trend in the developing countries of women postponing childbearing until later years, the effect of miscarriage on older women (≥35 years) in this study shows that older women had higher psychological morbidities when compared with younger women. These findings were not in agreement with results from similar studies reported by other authors,[5-7] due to cultural differences as a reaction to adverse life outcomes that varies from one culture to another.

Women with no living child who had a miscarriage were more likely to present with symptoms of psychological morbidities in this study. By contrast, the presence of children appears to be entirely protective. Several researchers have also reported lower symptom levels with an increasing number of children.[5-7] However, since this study lacked comparison group it did not disclose the more striking finding that women with several children who had miscarriage did not exhibit significant higher symptom levels as compared to women with children who had not experienced a recent reproductive loss. The apparent reduction in the psychological effect of miscarriage on women with children in this study contradicts a large body of research linking life events involving loss to that of increases in psychological morbidities.[8] Stress studies have focused on factors that buffer individuals from the pathogenic effects of negative life events, with much attention accorded to social supports.[6] For a woman who miscarries, the presence of living children may afford psychological support indirectly, by presenting evidence of reproductive success in the past.

Furthermore, miscarriage in women with a history of infertility assisted conception, and planned pregnancy were associated with increased psychological morbidities in this study cohorts. This is probably because this subgroup of women are at risk of psychological morbidities due to their peculiar characteristics, so miscarriage would further worsen already existing psychological symptoms.

Women with a history of prior miscarriage were not affected more strongly by their miscarriages than were women without prior loss in this study. Subgroup analysis among nulliparous women in this study did not alter this finding. Previous studies of miscarriage found no association between prior miscarriage and increased psychological morbidities in their study cohorts.[5-7]

Several factors related to patients’ experience of service provision were significantly associated with symptoms of depression, anxiety, and stress. Patients who felt that their concerns were not listened to, did not participate in decision making and those who were dissatisfied with

Table 8: Association of participants description of the services received and expectations of care at the hospital with symptoms of stress

| Variable                              | Stress   | OR       | 95% CI     | P        |
|---------------------------------------|----------|----------|------------|----------|
|                                       | Absent   | Present  |            |          |
| They listened to my concern           |          |          |            |          |
| Yes                                  | 29       | 14       | 3.67       | 1.71-7.85| 0.001    |
| No                                   | 35       | 62       |            |          |
| Explained about the condition         |          |          |            |          |
| Yes                                  | 44       | 34       | 0.99       | 0.51-1.96| 1.00     |
| No                                   | 35       | 27       |            |          |
| Explained about treatment methods     |          |          |            |          |
| Yes                                  | 35       | 31       | 1.40       | 0.72-2.73| 0.32     |
| No                                   | 33       | 41       |            |          |
| Participated in decision making       |          |          |            |          |
| Yes                                  | 19       | 31       | 0.64       | 0.32-1.29| 0.21     |
| No                                   | 44       | 46       |            |          |
| Satisfaction with service             |          |          |            |          |
| Yes                                  | 34       | 26       | 7.41       | 3.34-     | <0.0001  |
| No                                   | 12       | 68       |            | 16.46    |          |
| Expects to understand                 |          |          |            |          |
| Yes                                  | 51       | 43       | 1.19       |          | 0.64     |
| No                                   | 23       | 23       | 0.59-2.40  |          |          |
| Expects explanation                   |          |          |            |          |
| Yes                                  | 38       | 35       | 0.93       | 0.48-1.82| 0.84     |
| No                                   | 36       | 31       |            |          |
| Expects education on treatment        |          |          |            |          |
| Yes                                  | 31       | 47       | 0.98       | 0.49-1.93| 1.00     |
| No                                   | 25       | 37       |            |          |
| Expects opportunity for questions     |          |          |            |          |
| Yes                                  | 39       | 29       | 1.68       | 0.86-3.28| 0.13     |
| No                                   | 32       | 40       |            |          |
care received had significantly more stress, anxiety, and depressive symptoms. These findings were similar to findings in Norway, India, and Sri Lanka.[5,6,7] The factors associated with psychological morbidity among women who underwent miscarriage were useful in identifying women who are at a higher risk for such morbidity so that effective screening and treatment strategies can be introduced. As less satisfaction with service provision was associated with the presence of psychological distress, consideration should be given on how to improve the current practice to reduce the psychological burden on patients. Our study suggests that validating the patient’s concerns and giving more explanations about the miscarriage and its treatment would be useful in reducing psychological distress. Increasing awareness among hospital staff about the high frequency of depressive symptoms, anxiety, and stress following miscarriage would be important; as it would help the medical staff to adopt a more sensitive approach towards their patients.

As a high percentage of women experience depressive and anxiety symptoms following a miscarriage, screening women presenting with miscarriages for psychological distress would be an important step in identifying those at risk of developing these disorders and would help decide whether a referral to mental health services is appropriate. Previous literature has revealed that the level of anxiety and depressive symptoms gradually decrease with time and return to normal by about 12 months. Therefore, follow-up of these women for longer periods once discharged from the hospital would help identify those whose symptoms persist, and these patients could be referred to psychiatric services for further assessment.

The strength of this study is that it is one of the few studies in the developing countries that assessed depression, anxiety, and stress among women who had miscarriages using standardized scales. However, this study has some limitations. The major weakness of the study was that data were collected only at a single point of time and there was no control group. Therefore, the authors recommend a longitudinal psychological assessment at intervals up to 1 year after miscarriage with matched control among women with miscarriage in low resource settings to determine their psychological outcome.

Conclusion

Psychological morbidity following a miscarriage is common among participants in our study. Risk factors associated with psychological morbidity should be used to identify women who are at a higher risk to provide effective screening and offer treatment. Provision of correct information, patient’s participation in decision making in their medical care, and psychological debriefing, may be useful in enabling women to adjust emotionally following miscarriage.

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Conflicts of interest

There are no conflicts of interest.

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Appendix 1

Questionnaire to assess mental health outcomes and perceived care needs of women treated for miscarriage at the Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Southeast, Nigeria.

Informed consent form

Dear Madam,

I am a doctor and researcher in the Obstetrics and Gynaecology department of the Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Ebonyi State. I am carrying out a study on “mental health outcome and perceived care needs of women treated for miscarriage at the Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Southeast, Nigeria.” This study aimed to describe the psychosocial consequences of miscarriages and perceived needs in the care provided by the hospital, and this could shed some light on possible preventive strategies to be adopted during the care of women with a miscarriage to optimize their psychological outcome.

Participation in this study is voluntary and you are at liberty to decline to participate or withdraw anytime without offering any reason. Also, opting-out from the study will not affect the care you will receive in the hospital. All information will be treated confidentially and the findings will not be linked to any individual. This research has no harm to the participants.

This study has been ethically approved by the Research and Ethics Committee of the Alex Ekwueme Federal University Teaching Hospital Abakaliki as conveyed vide reference FETHA/REC/VOL1/2017/575 dated 9th December 2017.

Should you have any inquiries, please feel free to contact me at any time via email at nwaforjohnbosco97@gmail.com or by phone at +2347035742084.

Your assistance would be much appreciated.

Yours Sincerely,

Dr Nwafor J.I.

By signing here, you consent to participate in this study:

_____________________ _________________ __________________
Name Signature Date

Kindly fill this questionnaire

1) Please tick or fill the spaces provided
2) Do not leave any question unanswered
3) Tick or fill only one response to each question
4) You are encouraged to be truthful while filling out the questionnaire as your response to the questions will not affect your care.

1. Sociodemographic characteristics of the participant:

A) Age (years): _____________
B) Marital status: Married ( ) Single ( ) Divorced ( ) Separated ( )
C) Employment status: Employed ( ) Unemployed ( )
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D) Parity: 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) ≥ 5 ( )
E) Number of living children: 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) ≥ 5 ( )
F) Number of previous miscarriage: 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) ≥ 5 ( )
G) History of subfertility: Yes ( ) No ( )
H) Planning of pregnancy: Planned ( ) Unplanned ( )
I) Mode of conception: Spontaneous ( ) Assisted ( )
J) Type of miscarriage: Complete ( ) Incomplete ( ) Missed ( ) Inevitable ( )

2. DASS 21

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of the time
3 Applied to me very much or most of the time

|   | Statement                                                                 | Rating |
|---|---------------------------------------------------------------------------|--------|
| 1 | I found it hard to wind down                                              | 0 1 2 3 |
| 2 | I was aware of dryness of my mouth                                        | 0 1 2 3 |
| 3 | I could not seem to experience any positive feeling at all                | 0 1 2 3 |
| 4 | I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion) | 0 1 2 3 |
| 5 | I found it difficult to work up the initiative to do things              | 0 1 2 3 |
| 6 | I tended to over-react to situations                                      | 0 1 2 3 |
| 7 | I experienced trembling (e.g. in the hands)                              | 0 1 2 3 |
| 8 | I felt that I was using a lot of nervous energy                           | 0 1 2 3 |
| 9 | I was worried about situations in which I might panic and make a fool of myself | 0 1 2 3 |
|10 | I felt that I had nothing to look forward to                              | 0 1 2 3 |
|11 | I found myself getting agitated                                           | 0 1 2 3 |
|12 | I found it difficult to relax                                             | 0 1 2 3 |
|13 | I felt down-hearted and blue                                              | 0 1 2 3 |
|14 | I was intolerant of anything that kept me from getting on with what I was doing | 0 1 2 3 |
|15 | I felt I was close to panic                                               | 0 1 2 3 |
|16 | I was unable to become enthusiastic about anything                        | 0 1 2 3 |
|17 | I felt I was not worth much as a person                                   | 0 1 2 3 |
|18 | I felt that I was rather touchy                                           | 0 1 2 3 |
|19 | I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat) | 0 1 2 3 |
|20 | I felt scared without any good reason                                     | 0 1 2 3 |
|21 | I felt that life was meaningless                                          | 0 1 2 3 |

Note: (d) = depression, (a) = anxiety and (s) = stress

3. Description of the services received and expectations at the hospital

a) Did your healthcare providers listen to your concern? Yes ( ) No ( )
b) Did your healthcare providers explain the condition to you? Yes ( ) No ( )
c) Did your healthcare providers explain the treatment methods to you? Yes ( ) No ( )
d) Did you participate in decision making during your care? Yes ( ) No ( )
e) Were you satisfied with the services received during your care? Yes ( ) No ( )
f) Did you expect healthcare providers to show empathy and understanding about your condition? Yes ( ) No ( )
g) Were you educated on the treatment you received? Yes ( ) No ( )
h) Were you provided with an opportunity to ask questions about your condition and your care? Yes ( ) No ( )

KEY

NB: Scores on each category of the DASS-21 will need to be multiplied by 2 to calculate the final score. Participants are classified in each category into normal, mild, moderate, severe, and extremely severe based on their final score.

|                | Depression | Anxiety | Stress |
|----------------|------------|---------|--------|
| Normal         | 0-9        | 0-7     | 0-14   |
| Mild           | 10-13      | 8-9     | 15-18  |
| Moderate       | 14-20      | 10-14   | 19-25  |
| Severe         | 21-27      | 15-19   | 26-33  |
| Extremely Severe| 28+      | 20+     | 34+    |