ORIGINAL RESEARCH ARTICLE

Impact of recurrent pregnancy loss on depression, anxiety and fertility related stress in Omani women: A cross sectional survey

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Abstract

Pregnancy is a state of happiness and hope not only for a woman but for her family as well as near and dear ones. However, this phase of happiness comes shattering down for some couple who are not able to successfully complete pregnancy and end up losing a baby in the early stages of pregnancy. Recurrent pregnancy loss (RPL) is prevalent among Omani women and the psychosocial impact of RPL is heavy upon these young women devastating their overall quality of life. Researchers conducted a cross sectional survey among 184 Omani women who had a history of recurrent pregnancy loss in a pioneering teaching tertiary care hospital. Data collection done from using a self-reported questionnaire to assess the depression, anxiety and RPL associated stress of women with history of RPL The mean age of women with RPL was 34.05 and 81% reported 2-3 pregnancy loss. Participants reported higher mean scores of depression (9.94), Anxiety (10.32) and fertility related stress (30.28). Women with multiple pregnancy losses (above 3) reported higher level of anxiety which was significant at (p<0.05%) The findings from current study also indicated that women with RPL experience higher levels of depression, anxiety, and fertility related stress. *(Afr J Reprod Health 2024; 28 [1]: 13-21).*

Keywords: Effect; abortion; fertility stress, mental health; psychological wellbeing

Résumé

La grossesse est un état de bonheur et d'espoir non seulement pour une femme mais aussi pour sa famille ainsi que pour ses proches. Cependant, cette phase de bonheur s'effondre pour certains couples qui ne parviennent pas à mener à bien leur grossesse et finissent par perdre un bébé au début de la grossesse. Les fausses couches récurrentes (RPL) sont répandues chez les femmes omanaises et l'impact psychosocial de la RPL est lourd sur ces jeunes femmes, dévastant leur qualité de vie globale. Les chercheurs ont mené une enquête transversale auprès de 184 femmes omanaises ayant des antécédents de fausses couches récurrentes dans un hôpital universitaire de soins tertiaires pionnier. Collecte de données effectuée à l'aide d'un questionnaire autodéclaré pour évaluer la dépression, l'anxiété et le stress associé au RPL des femmes ayant des antécédents de RPL. L'âge moyen des femmes atteintes de RPL était de 34,05 ans et 81 % ont signalé 2 à 3 fausses couches. Les participants ont signalé des scores moyens plus élevés de dépression (9,94), d'anxiété (10,32) et de stress lié à la fertilité (30,28). Les femmes ayant subi plusieurs fausses couches (plus de 3) ont signalé un niveau d'anxiété plus élevé qui était significatif à (p<0.05%). Les résultats de l'étude actuelle ont également indiqué que les femmes atteintes de RPL connaissent des niveaux plus élevés de dépression, d'anxiété et de stress lié à la fertilité. *(Afr J Reprod Health 2024; 28 [1]: 13-21).*

Mots-clés: Effet; avortement; stress lié à la fertilité, santé mentale ; bien-être psychologique

Introduction

Pregnancy is one of the most life-changing events in a woman's life, and it can be one of the most stressful life events regardless of the pregnancy's outcome. The loss of a pregnancy is one such stressful event that may affect a woman and her family in general. Such a state could occur during a medical termination, miscarriage, stillbirth, or ectopic pregnancy, and is often related to the stress following such losses[1]. The loss of a pregnancy entails not only high economic burdens, but is also a social problem throughout the world and is typically experienced as a traumatic, critical event, which can lead to additional psychological distress. There may be series of adversative effects as well, including health issues, hospitalizations,

diminished social roles, as well as a diminished sense of security and quality of life (QoL)[2,3].

Recurrent pregnancy loss (RPL), also referred to as *recurrent miscarriage* or *habitual abortion*, is historically defined as 3 consecutive pregnancy losses prior to 20 weeks from the last menstrual period[4]. The term "miscarriage" is used by the Royal College of Obstetricians and gynecologists to describe pregnancy losses occurring prior to 24 weeks of gestation[5]. Additionally, the American Society of Reproductive Medicine is referring to RPL as a disease, which can have a tumultuous impact on the lives of a woman both personally and professionally[6].

Many studies report that RPL occurs in 1% of women at a specific time point[7]. When more than two losses are experienced, the incidence of RPL increases to 5%[8].

Among women who know they are pregnant, the chance of losing the pregnancy is roughly around 10% to 20%, whereas in Omani population 0.8% of women undergo recurrent pregnancy loss during their reproductive age[9]. The rate of recurrent pregnancy loss ranges around 0.85/100 births as well as 51% among study samples as reported in different studies in tertiary care unit in Oman[8-10].

Loss of desired pregnancy is disastrous life event and this problem can lead to severe physical and psychological distress. The psychological impact of RPL were reported by many studies around the world. Women with RPL have experienced stress, depression [11] anxiety grief , guilt and anger[12].

Even though literature suggests the importance of psychological, socioeconomic factors affecting pregnancy and their mediating the effects on pregnancy health, RPL is still largely under estimated in clinical practices. The European Society for Human Reproduction and Embryology (ESHRE) guideline on managing RPL emphasizes the need for studies on the emotional impact of RPL on women and their partners[13]. Moreover, these women with RPL also reported lower self-esteem and marital adjustments along with different attitude about current pregnancy[14-17]. Higher occurrence and risk of miscarriage too was reported in patients with history of RPL[18].

Despite the common occurrence of related issues, there is no literature available in Omani context regarding the psychosocial impact

the woman and family experience in such scenarios. This study sought to provide an in-depth understanding of psychosocial effects in terms of depression, anxiety and fertility related stress among Omani women. This will enable the health care providers and policy makers to provide essential culturally sensitive support to these women and to develop health policies to address the concerns of them.

Methods

A descriptive cross-sectional study design was used to understand the psychosocial distress (depression, anxiety and fertility related stress) of women with recurrent loss of pregnancy (RPL).

Participants

Women attending an Early Pregnancy Unit and/or Recurrent Miscarriage Clinic managed by nurses and doctors at the Sultan Qaboos University hospital in Muscat city, Oman were invited to participate in this study. Convenient non-probability sampling was used to recruit the samples. A sample size of 200 was determined by the G power analysis and 184 women who had experienced RPL consented to participate in the study (92% response rate). They were included if they were 18 years old and above and had two or more recurrent pregnancy losses. They were excluded if they had any mental illness.

Study instruments

The data collection instrument is a self-reported questionnaire composed of socio-demographic characteristics such as age, education, occupation, family income, number of children and number of pregnancy losses and validated standardized questionnaires to assess the psychological distress aspects like depression, anxiety and stress of the Omani women with RPL.

Arabic translated version of Hospital Anxiety and Depression scale (HADS) developed by Zigmund and Snaith in1983 was used to assess the anxiety and depression. Participants were asked to describe how they have felt during the previous week. It consists of fourteen questions, seven in relation to anxiety and seven in relation to depression. It is a Likert-type questionnaire ranging

from zero to three, giving a minimum score of zero and a maximum of 21 for each subscale. The scores are interpreted as: zero to seven indicates the absence of clinically relevant anxiety and/or depression, from eight to ten requiring consideration (borderline), and from 11 to 21 the presence of relevant symptomatology and a probable case of anxiety and/or depression[19]. The questionnaire has been translated into 25 languages and Arabic translated version is available with the Cronbach's α of 0.83 for anxiety and 0.77 for depression subscale[20]. The reliability score of our study population for HADS was Cronbach's α of .880.

RPL associated stress scale consisted of 14 questions dealing with RPL-associated stresses in personal, marital, and social domains. These questions were originally used to measure infertility-associated stress in the COMPI study (The Copenhagen Multi-center Psychosocial Infertility Research Programme) (Schmidt et al., 2005a; Schmidt, 2006). Questions were translated into Arabic and the wording was changed from 'fertility problem' to 'RPL problem' to quantify RPL-associated stress with the permission of the author. The participants were asked to rate on four-point scales from 'none at all' to 'a great deal' (1-4) except for two items in marital domains, which were scored in a 5-point Likert scale (1-5). Personal domain had six items, the marital domain had four items and the social domain had four items. Total scores ranged from 17 to 58and higher scores indicated high stress level of the participants with RPL. An internal consistency analysis of the three-domain structure consisting of personal, marital and social domains revealed that the Cronbach's alpha coefficients for each domain were 0.87, 0.74 and 0.58 for women in a study conducted by Kagami et al, 2012. Cronbach's alpha for all the items of our study participants was .846.

Data collection and analysis

Data analysis was done using IBM Statistical Packages for Social Sciences (SPSS) version 23 after data entry, data cleaning and audit for accuracy. A probability of <0.05 was considered statistically significant for all tests. Descriptive variables were analyzed using means, standard deviations, frequencies, and percentages. Correlation between depression, anxiety and stress were analyzed using Pearson r. Comparison between the impact of RPL and the socio-demographic characteristics of the participants was done using independent t tests or ANOVA analysis.

Results

Table 1 depicts the demographic characteristics of the participants. Among the 184 participants, more than half of them 98(53.3%) were in the age group of 35 -45 years and majority 84(45.7%) of them had University education. Most of them 100(54.4%) were employed and the majority 97(52.7%) reported a monthly family income of less than 1000 Omani riyals. Majority of them 124(67.4%) hailed from the other 10 governorates and only 60 (32.6%) were from Muscat governorate. Majority of the women 149(81%) had 2-3 pregnancy losses and most of them 120 (65.2%) had only 0-2 children and only 69 (37.5%) had consanguineous marriage.

As reported in Table 2, the majority 81(44%) of the women with RPL had abnormal depression scores, abnormal anxiety scores 98(53.3%). The mean and SD scores of depression (0-21), anxiety (0-21) and fertility related stress (14-58) are as follows: 9.94±4.987, 10.32±4.339 and 30.28±10.154 indicating higher levels of depression, anxiety and stress of the participants.

Mean and SD scores of personal, marital, and social domains of fertility related stress and their correlation with the total fertility scores are presented in Table 3. Participants have reported higher stress levels in all three domains, and they are positively correlating with the total scores which is significant at p<.05 level.

There was a positive significant moderate correlation existed between the depression, anxiety, and fertility stress scores of women with RPL at p<.05 levels as depicted by Table 4.

A t test or ANOVA analysis was used to Compare the mean scores of depression, anxiety and fertility related stress with the demographic characteristics of the participants. Only number of pregnancy losses and place of stay of the participants had presented difference in mean anxiety scores as per table 5. Participants who had experienced more than three pregnancy losses had reported higher anxiety scores than those who experienced 2-3 pregnancy losses (*M=11.83 Vs M=9.96), t(182) = -2.298, p<.05.*

Table 1: Demographic and clinical profile of the participants

Variables	Categories	Frequency	Percent
Educational level	Illiterate	14	7.6
	Primary education	14	7.6
	High school and higher secondary	72	39.1
	University degree and above	84	45.7
Occupation	Employed	84	45.7
	Unemployed	100	54.4
Family income	Less than 1000 Omani riyals	97	52.7
	1000 - 3000 Omani riyals	76	41.3
	Above 3000 Omani riyals	11	5.9
Place of stay	Muscat governorate	60	32.6
	Other governorates	124	67.4
Age	20-34 years	86	46.7
(Mean 34.05±6.198)	35-45 years	98	53.3
Past pregnancy losses	2-3 Pregnancy losses	149	81.0
(Mean 2.74±.928)	Above 3 Pregnancy losses	35	19.0
Number of children	0 – 2	120	65.2
	3 – 7	64	34.8
Consanguinity	No	115	62.5
	Yes	69	37.5

Table 2: Psychosocial distress of women with RPL

Psychological aspects	Category	Frequency	Percent	Mean	SD
Depression	Normal	55	29.9	9.94	4.987
	Borderline abnormal	48	26.1		
	Abnormal	81	44.0		
Anxiety	Normal	46	25.0	10.32	4.339
	Borderline abnormal	40	21.7		
	Abnormal	98	53.3		
Fertility related stress				30.28	10.154

Table 3: Correlation among the domains of fertility related stress with the total stress scores

COMPI FPSS Subscales	Minimum	Maximum	Mean	Std. Deviation	Pearson r	P value
Personal domain	6.00	24.00	13.49	4.974	.901	.000
Marital domain	4.00	18.00	8.46	3.297	.846	.000
Social domain	4.00	16.00	8.33	3.449	.835	.000
COPI FPSS Total	14.00	58.00	30.28	10.154		

Table 4: Correlation among the depression, anxiety and stress levels of women with RPL

Psychological variables	Mean	Std. Deviation	Total depression score	Total anxiety score	COMPI FPSS
Total depression score	9.94	4.987			.497**
Total anxiety score	10.32	4.339	.631**		
Fertility related stress	30.28	10.154		.506**	

**. Correlation is significant at the 0.001 level (2-tailed).

Table 5: Comparison of means of Anxiety scores with demographic characteristics

Anxiety		N	Mean	Std. Deviation	t	p value
Number of past pregnancy losses	2-3 Pregnancy losses	149	9.96	4.276	-2.298	.026
	Above 3 Pregnancy losses	35	11.83	4.342		
Place of stay	Muscat governorate	60	11.28	4.034	2.125	.035
	Other governorates	124	9.85	4.419		

Participants residing in the Muscat governorate had higher anxiety scores than the women coming for treatment from other ten governorates (*M=11.28 Vs M=9.85), t (182) = 2.125, p<.05.*

Discussion

This study investigated the impact of recurrent pregnancy loss (RPL) of Omani women attending a pioneering tertiary care teaching and research hospital of the capital city. Losing a baby in pregnancy through miscarriage or still birth is still a taboo subject globally, linked to stigma and shame. To the best of our knowledge, this is the first study investigating the psychological impact of RPL through the lens of the Arab woman in the Sultanate of Oman.

Our study reported high prevalence of depression, anxiety, and fertility related stress among the Omani women with RPL, which is like the findings of studies conducted worldwide[12,14,19-24]. Women with RPL would suffer from a grief reaction and the guilt associated with the pregnancy loss. Kolte et al had reported women with RPL had depression five times higher than the controls in their study [23]. Moreover, the feelings of uncertainty of pregnancy, and fertility related emotional struggles contribute to increasing anxiety and depression. Previous evidence has proved that women who had higher levels of depression and anxiety had higher risks of subsequent RPL[21,22]. Fluctuations in the ovarian hormones after the RPL experience may activate a vulnerability for depression[25] and these women would be at higher risks for miscarriage by dysregulation of activation of the hypothalamic-pituitary-adrenal axis[26]. Chronic anxiety causes increased procoagulant activity and decreased fibrinolytic activity which could adversely upsurge the risk of RPL[27]. Further studies would be needed to better understand the relationships between the hormonal changes and stress, depression, and anxiety among women with RPL.

It is also mentioned in the literature that, this negative psychological emotions of depression, anxiety and stress would last for a minimum of six months to one year that can have a psychological toll on the spouse and other family members as well. Tender loving care of patients with RPL in early pregnancy is advised and brief supportive psychotherapy for two hours within first 24 hours as it is proved to be effective in reducing their grief, despair, depression, anxiety and stress in a RCT study conducted in Iran[28]. Trained female clinical psychologists with a structured set up for counseling of these women in the clinical setting may be thought of in future to improve the quality of these women. Further research to evaluate the effectiveness of psychotherapy and spiritual support among women with RPL in this cultural setting can be explored.

Women with severe depression after RPL had reported lower sexual function and it may not be reported in many cultures as it is considered as forbidden[29]. Meditation and mindfulness-based psychotherapy helped the couple to transfer the stress and grief following miscarriage and facilitated better self-regulation of emotional and cognitive activities[22,28,30,31]. RPL has negative impact not only on the individual's mental health causing poor quality of life, but also a negative effect on the spouse and family members[21,24]. Health care providers need to take a holistic and couple-focused approach and spouse and family can be educated to provide adequate support to the woman in crisis. Studies have reported that the male partners remained calm and positive and focused on solutions for childbearing in future though they had high levels of stress[20,23,32]. This is a revelation for the nurses to further explore the impact on the male partner of woman with RPL and they can show sensitivity and empathy to the couple and acknowledge how the couple feel after

RPL. Nurses can play a vital role in providing clear information and understand that the couple may need specific support both in dealing with their loss and in potentially trying to have another baby.

Cultural and societal attitudes to RPL can vary worldwide. Many cultural practices in the Middle Eastern countries especially Oman related to marriage are consanguineous marriage (almost 52%) and first cousin marriage (75% of consanguineous marriages)[33,34] which is a similar finding in our study population. It is encouraging to know that there was no significant relationship between consanguinity and RPL of Omani women in a recent study conducted in a clinical setting[34].

Advanced maternal age at conception has been recognized widely as a risk factor for RPL, as it can end up in high chances of chromosomally abnormal conceptions[35]. More than half of our participants were above 34 years of age and the risk of miscarriage was lowest in women aged 25-29 (10%), and rose rapidly after age 30, reaching 53% in women aged 45 and over. A retrospective survey conducted in Oman has reported Significantly increased risks of spontaneous abortion, gestational diabetes, preeclampsia, prolonged labor, and cesarean section delivery have been observed for advanced maternal age[36]. Culture sensitive, evidence-based counseling of expectant mothers with advanced age is the need of the hour. The study findings also support the need for early pregnancy monitoring, better follow-up, and customized care for these women at risk of RPL.

Another interesting finding of this study is that women with multiple pregnancy losses (above 3) reported higher levels of depression, anxiety, and stress especially without any children, which is like other study findings elsewhere[12,14,24]. Modern technologies and other efforts to improve treatments and decrease the time needed to achieve a successful pregnancy can help these couple.

Limitations

The study is not without any limitation. As the data collection was from a single center with small size, generalizability of the results should be carefully considered. It is assured that the samples are representative of not only Muscat Governorate, but also from the other ten Governorates of Oman as this is a pioneering tertiary care hospital. As self-reported questionnaires were used, the margin of error should be taken into consideration.

Conclusions

The findings from the study indicated that women with RPL experience higher levels of depression, anxiety, and fertility related stress. The findings from the study are directly transferable to clinical practice, where screening for psychological impact of RPL on a routine basis could uncover their psychological problems and help those who need help. It awakens the need for psychological support and utilization of culturally sensitive religious beliefs by the health care providers involved in caring for these women with RPL

Ethics approval and consent to participate

After obtaining ethical approval from the college research and ethics committee and Medical research and ethics committee of the Sultan Qaboos university hospital, data was collected from the participants between April and August 2021. A female research assistant trained by the investigator approached the hospital registry to identify the list of patients visiting the fertility clinic on every Monday, Wednesday and Thursday. Then the RA approached the participants who fulfilled the inclusion criteria. After explaining about the purpose and the assurance of confidentiality and anonymity, informed consent was obtained from them before participating in the study. The participants were taken to a room and data was collected from them using a self-reported questionnaire. It was checked for completeness by the RA and was stored in locked cabinets.

Availability of data and material

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no conflict of interest with the material presented in this paper.

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Authors' contributions

Conception and design of the study: DR and JN, VS, AS

Data collection: DR, AS and AK.

Data analysis and interpretation: JN, VS.

Statistical analysis: JN

Manuscript preparation: DR, JN, AK, VS, AA.

Recruitment of patients: AK.

The authors read and approved the final manuscript.

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