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Infertility Stigma, Perceived Stress and Gratitude among Infertile Women

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The consequence of infertility is not just a medical disorder but it affects all facets of mental health which has left unnoticed over the years. The study aims to assess the relationship, influence and effects on infertility stigma, perceived stress and gratitude among infertile women which are important facets of psycho-emotional well-being. 80 infertile women were recruited using purposive sampling, responded to the Infertility Stigma Scale, Perceived Stress Scale, and Gratitude Questionnaire. Results showed infertility stigma was negatively correlated with gratitude and positively associated with perceived stress. Regression analyses revealed that infertility stigma significantly predict both perceived stress and gratitude. Furthermore, analysis on differences showed that infertile women who were housewives, rural residents, undergraduates with prolonged duration of infertility treatment reported higher levels of infertility stigma than those infertile women who were employed, urban residents, post graduates and those who had undergone infertility treatment for a shorter duration. This study highlights the profound impact of infertility stigma on the mental health of women undergoing fertility treatment. The findings emphasize the need for targeted psychosocial interventions to address infertility related stigma, reduce stress and foster positive emotional attributes like gratitude for vulnerable groups.

Keywords: Infertility Stigma, Gratitude, Perceived Stress, infertile women

Infertility is a global health issue affecting millions of women worldwide (WHO, 2018) with World Health Organization predicting that infertility would become the third major disease after cancer and cardiovascular disease in the 21st century (WHO,2020). The inability to bear a child often becomes the defining social position a married women holds in society, and she is characterized by it in the opinion of others (Remennick,2000). This preconceived notion of motherhood, and the inability to achieve success in doing so, can aggravate feelings of stigma (Xie et al., 2023), shame, anxiety (Rooney, 2018) and social isolation (Tang et al., 2024), taking a psychological toll on infertile women (Dierickx et al., 2018). A woman's perception of stigma deepens as she increasingly identifies with societal expectations of motherhood, particularly when she is unable to fulfil the role of mother (Remennick,2000). Infertility stigma not only causes distress to their mental but also affects their overall quality of life (Xie et al., 2023). Studies has shown that infertility related stress is more common among women diagnosed with primary infertility accentuating the consequential emotional influence of this condition (Patel et al.,2016). Accordingly, infertile women exhibit resentment (Gonzalez ,2000), frustration (Borght & Wyns 2018), stress (Rooney, 2018) and depression (Luo et al., 2024). This persistent stress arises from personal (Rooney & Domar,2018), communal (Wiersema et al., 2006) and socio emotional burden (Abbey et al., 1998) from non-fulfillment of bearing a child, which further associates' stigma with this condition (Greil et al., 2010., Karaca & Ünsal, 2012). Acknowledging the harmful impact of

infertility stigma on perceived stress and quality of life among infertile women emphasizes the importance of recognizing potential alleviating factors. On the other hand, Gratitude, a positive emotional response, has been associated with improved psychological health (komase, et al., 2021) and positive attitude (Sunnt et al., 2015). In the condition of infertility, cultivating gratitude as a coping mechanism, may reduce the negative psychological impacts of infertility-related stress and stigma (Venkatesan & Murali, 2018). Gratitude has gained significant attention in positive psychology research, showing strong correlates with well-being, mood and overall health. A growing body of research (McCullough et al., 2002; Park et al., 2004**)** have exhibited a strong positive association between gratitude and quality of life and a negative association with mental distress (Dewall et al., 2012; Lambert et al., 2012) in a diverse group dealing with health issues. Research demonstrated that grateful individuals easily accept ebb and flow and are better at setting free of their negative emotions (Rapoport-Hubschman et al., 2009). Findings from literature has been still scant among the infertile women, thus the objectives of the present study are as follows:

Objectives

- To ascertain the relationship between infertility stigma, perceived stress and gratitude.
- To assess the influence of infertility stigma on perceived stress and gratitude.
- To ascertain the level of difference in infertility stigma, perceived stress and gratitude among occupation, type of family, locality, qualification, duration of infertility treatment and duration of infertility.

Hypotheses

H_1 There would be significant relationship between Infertility stigma, Perceived Stress and Gratitude among infertile women.

H_2 There would be significant influence of Infertility stigma on Perceived stress and Gratitude among Infertile women.

H_3 There would be significant differences in Infertility Stigma, Perceived Stress and gratitude across occupation, type of family, locality, qualification, duration of infertility treatment and duration of infertility.

Method

Sample

The sample comprised of 80 married infertile Naga women in the age group 20-45 years who failed to conceived after 12 months of regular intercourse and are not menopausal. Participations who have adopted children and history of unstable psychiatric illness were excluded from the study and were recruited through purposive sampling.

Tools

The Infertility Stigma Scale (Fu et al., 2014) which measures insights of infertility stigma, with scores ranging from 27 to 135. The Cronbach alpha for the current sample indicated very good internal consistency at $\alpha = .96$

Perceived Stress Scale (Cohen,1988) a 10-item questionnaire which assess levels of perceived stress, with scores ranging from 0 to 40. The Cronbach alpha for the current sample indicated good internal consistency at $\alpha = .72$

Gratitude Questionnaire (McCullough, Emmons & Tsang, 2002) which measures gratitude on a scale of 6 to 42. The Cronbach

alpha for the current sample indicated very good internal consistency at α = .80.

Procedure

Before administering the questionnaire, the participants were explained about the purpose of the study and informed consent was obtained. The participation of the individuals was absolutely voluntary and confidential. Time taken to answer the questionnaires was approximately 20 minutes. The procedure was approved by ethics committee, Department of Psychology, Nagaland University.

Results

In the Infertility Stigma Scale, 10% of participants scored low, 68.8% of the participants scored moderate and 21.3% of the participants scored severe, suggesting that most of the Infertile women present a notable prevalence of stigma. For the Perceived Stress Scale, 7.5% of the participants scored low, 81.3% of the participants scored moderate, 6.3% of the participants scored high and 5% of the participants scored severe indicating that most of the participants can manage and balance infertility-related stress. In the Gratitude Questionnaire (GQ6), 22.5% of the participants scored low, while 53.8% of the participants scored moderate and 23.8% of the participants scored high, revealed that most of the participants practice gratitude that may support in managing infertility challenges.

Most of the participants were in the age group of 41-45 years (38.8%) suggesting marginally an older demographic. 32.5% of the study sample holds graduate degrees and 10% having post graduate degrees and most of the participants 57.7% were under graduates. Among the participants 51.2% were employed and 48.8% were housewives. Majority of the study sample 71.3% live as nuclear families and 28.7% were from extended families. 55.5% of the participants were from urban area and 45% from rural area. The duration of infertility for majority of the participants 50.0% was 11-15 years and a notable percent of the study sample 27.5% sought treatment for 0-1 year and 25% for 4-5 years.

To analyze the data using Pearson product moment correlation, it was first tested for normality. Upon meeting the assumptions, Pearson product moment correlation was carried out, the result is shown in Table.1

Table 1. Pearson Correlation between GQ6, Perceived Stress Scale and Infertility Stigma Scale

Variables	Correlations
Infertility Stigma X Gratitude	-.729**
Gratitude X Perceived Stress	-.434**
Infertility Stigma X Perceived Stress	.568**

**p<.01

Table 1 demonstrates that a substantial negative correlation between infertility stigma and gratitude (r = -.729, p < .01), indicates that higher levels of gratitude were associated with lower levels of infertility stigma. Likewise, a moderate negative correlation was noticed between gratitude and perceived stress (r = -.434, p < .01), suggesting that infertile women who reported higher levels of gratitude are inclined to experience lower levels of stress. Finally, a moderate positive correlation was observed between infertility stigma and perceived stress (r = .568, p < .01), indicating that women who sensed higher levels of infertility stigma tend to have higher level of stress. The Hypotheses H_1 is thus accepted.

Table 2. Regression Analysis Summary for Infertility Stigma predicting Perceived Stress

Variable	B	Coefficient standard error	β	t	p
Constant	8.832	2.102		4.202	.000
Infertility Stigma	.153	.025	.568	6.094	.000

Note: R^2adjusted= .314

Simple regression was used to examine the predictive relationship between infertility stigma and perceived stress. The analysis showed that Infertility Stigma significantly predicted perceived stress, F (1, 80) = 37.14, *p*=.000 where *p* < .05). This result indicates that Infertility Stigma makes a significant contribution to predicting Perceived stress. The Hypotheses H_2 is thus accepted.

Table 3. Regression Analysis Summary for Infertility Stigma predicting Gratitude.

Variable	B	Coefficient standard error	β	t	p
Constant	50.245	2.102		32.567	.000
Infertility Stigma	-173	.018	-.729	-9.417	.000

Note: R^2adjusted= .526

Simple regression was used to examine the predictive relationship between infertility stigma and gratitude. The analysis showed that infertility stigma significantly predicted gratitude, F (1, 80) = 88.68, *p*=.000 where *p* < .05. This result indicates that Infertility Stigma makes a significant contribution to predicting Gratitude.The Hypotheses H_2 is thus accepted.

ANOVA results showed significant differences for gratitude (F = 7.77, *p* = .007, where *p*<.01) and infertility stigma (F = 18.55, *p*=.000 *p* < .001), with housewives reporting higher levels of both infertility stigma and gratitude. However, there was no significant difference in perceived stress (F = .003, p = .956 between housewife and employed. The Hypotheses H_3 is thus partially rejected.

Table 4. ANOVA scores to see difference of Gratitude, Infertility Stigma and Perceived Stress with Occupation.

Measure	Housewife		Employed			
Gratitude	Mean	SD	Mean	SD	F	P
	2.36	.743	2.24	.916	7.77	.007
Infertility Stigma	2.33	.530	1.90	.490	18.55	.000
Perceived Stress	2.85	.745	2.85	.422	.003	.956

Table 5. ANOVA scores to see difference of Gratitude, Infertility Stigma and Perceived Stress with Type of Family.

Measure	Extended Family		Nuclear Family			
Gratitude	Mean	SD	Mean	SD	F	P
	2.30	.765	2.30	.865	.001	.977
Infertility Stigma	2.26	.619	2.05	.515	3.326	.072
Perceived Stress	2.74	.810	2.89	.489	1.113	.295

ANOVA results indicate that the type of family extended versus nuclear does not significantly affect gratitude, infertility stigma, or perceived stress. Gratitude levels were identical between extended (M = 2.30, SD = .765) and nuclear (M = 2.30, SD = .865) families (F = .001, *p* = .977). Infertility stigma was slightly higher in extended families (M = 2.26, SD = .619) compared to nuclear families (M = 2.05, SD = .515), but this difference was not significant (F = 3.326, *p* = .072). Perceived stress also showed no significant difference between extended (M = 2.74, SD = .810) and nuclear families (M = 2.89, SD = .489; (F = 1.113, *p* = .295). ANOVA results indicate that the type of family extended versus nuclear does not significantly affect gratitude, infertility stigma, or perceived stress. Gratitude levels were identical between extended (M = 2.30, SD = .765) and nuclear (M = 2.30, SD = .865) families (F = .001, *p* = .977). Infertility stigma was slightly

higher in extended families (M = 2.26, SD = .619) compared to nuclear families (M = 2.05, SD = .515), but this difference was not significant (F = 3.326, *p* = .072). Perceived stress also showed no significant difference between extended (M = 2.74, SD = .810) and nuclear families (M = 2.89, SD = .489; (F = 1.113, *p* = .295). These findings indicate that family type is not a significant factor in influencing gratitude, infertility stigma, or perceived stress among the infertile women in this study. The Hypotheses H_3 is thus rejected.

ANOVA results showed no significant difference in gratitude between rural (M = 2.25, SD = .806) and urban (M = 2.34, SD = .861) residents (F = .234, *p* = .630). However, there was a significant difference in infertility stigma, with rural residents (M = 2.28, SD = .566) reporting higher levels of infertility stigma than urban residents (M = 1.98, SD = .505; (F = 6.282, *p* = .014, where *p*<.05). No significant difference was found in perceived stress between rural (M = 2.81, SD = .668) and urban (M = 2.89, SD = .538) residents (F = .359, *p* = .551). The Hypotheses H_3 is thus partially rejected.

Table 6. ANOVA scores to see difference of Gratitude, Infertility Stigma and Perceived Stress with Locality.

Measure	Rural		Urban			
Gratitude	Mean	SD	Mean	SD	F	P
	2.25	.806	2.34	.861	.234	.630
Infertility Stigma	2.28	.566	1.98	.505	6.282	.014
Perceived Stress	2.81	.668	2.89	.538	.359	.551

ANOVA results showed no significant difference in gratitude among undergraduates (M = 2.35, SD = .766), graduates (M = 2.27, SD = .919), and postgraduates (M = 2.13, SD = .991; (F = .265, *p* = .768). There was a significant difference in infertility stigma, with undergraduates (M = 2.26, SD = .575) reporting higher levels than graduates (M = 1.92, SD = .392) and postgraduates (M = 1.88, SD = .641; (F = 4.27, *p* = .017 where p<.05). No significant difference was found in perceived stress among undergraduates (M = 2.85, SD = .729), graduates (M = 2.81, SD = .402), and postgraduates (M = 3.00, SD = .000; (F = .312, p = .723). The Hypotheses H_3 is thus partially rejected.

Table 7: ANOVA scores to see difference of Gratitude, Infertility Stigma, Perceived Stress with Qualification.

Measure	Graduate		Post Graduate and above		Undergraduate			
Gratitude	Mean	SD	Mean	SD	Mean	SD	F	P
	2.27	.919	2.13	.991	2.35	.766	.265	.768
Infertility Stigma	1.92	.392	1.88	.641	2.26	.575	4.27	.017
Perceived Stress	2.81	.402	3.00	.000	2.85	.729	.312	.723

Table 8. ANOVA scores to see difference of Gratitude, Infertility Stigma and Perceived Stress with Duration of Infertility treatment

Measures	0-1 Year		2-3 Years		4-5 Years		6 years and above			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	P
Gratitude	2.05	.722	2.30	.949	2.40	.821	2.00	.	.732	.538
Infertility Stigma	2.45	.671	2.00	.471	2.05	.510	3.00	.	2.866	.046
Perceived Stress	2.77	.869	2.90	.316	2.85	.489	4.00	.	1.133	.345

ANOVA results showed no significant difference in gratitude among the groups with different duration of infertility treatment (0-1 year: M = 2.05, SD = .722; 2-3 years: M = 2.30, SD = .949; 4-5 years: M = 2.40, SD = .821; 6 years and above: M = 2.00, SD = (F = .732, *p* = .538). There was a significant difference in infertility stigma, with the 6 years and above group (M = 3.00) revealing higher levels than the other groups (0-1 year: M = 2.45, SD = .671; 2-3 years: M = 2.00, SD = .471; 4-5 years: M = 2.05, SD = .510 (F = 2.866, *p* = .046 where p<.05). No significant difference was found in perceived stress among the groups (0-1 year: M = 2.77, SD = .869; 2-3 years: M = 2.90, SD = .316; 4-5 years: M = 2.85, SD = .489; 6 years and above: M = 4.00, SD = (F = 1.133, *p* = .345. The Hypotheses H_3 is thus partially rejected.

Table 9. ANOVA scores to see difference of Gratitude, Infertility Stigma and Perceived Stress with Duration of infertility

Measures	1-5 Years		6-10 Years		11-15 Years		16-20 Years			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	P
Gratitude	2.29	.825	2.26	.915	2.30	.823	2.67	.577	.206	.892
Infertility Stigma	2.14	.663	2.00	.522	2.15	.533	2.33	.577	.547	.652
Perceived Stress	2.79	.699	2.91	.596	2.88	.516	2.33	1.15	.907	.442

ANOVA results reveal that the duration of infertility (1-5 years, 6-10 years, 11-15 years, and 16-20 years) does not significantly impact gratitude, infertility stigma, or perceived stress. Gratitude levels were consistent across all duration (F = .206, *p* = .892), with means ranging from 2.26 to 2.30. Similarly, infertility stigma did not differ significantly among the groups (F = .547, *p* = .652), with means ranging from 2.00 to 2.33. Perceived stress also showed no significant variation (F = .907, *p* = .442), with means ranging from 2.33 to 2.91. These results suggest that the length of infertility treatment does not significantly influence these psychological measures. The Hypotheses H_3 is thus partially rejected.

Discussion

The present finding found a substantial negative correlation between gratitude and infertility stigma suggesting that higher levels of gratitude is associated with lower level of infertility stigma as, gratitude is strongly tied in promoting mental wellness (Wood et al., 2010) and building resilience (Emmons & McCullough, 2004). In recent years a growing body of research (Duckworth & Steen, 2005; Linley et al., 2009; Seligman et al., 2006) have shown that gratitude helps in developing positive attitude and support individuals experiencing mental crisis and help them regain their mental well-being. Present study also showed that gratitude was moderately negatively correlated with perceived stress among infertile women. Rapoport-Hubschman and colleagues (2009) also reported that grateful individuals easily go through ups and downs in life and thereby experience less stress. Present study also showed infertility stigma as a significant predictor of perceived stress. Similar study was reported by Dierickx et al (2018) that negative emotions in infertile women, like stress and social shame contributes to heightened psychological distress among infertile women. Another study by (Jiang et al., 2018) demonstrated that infertile women desiring to get pregnant but failing to do so increases their level of stress. In addition, regression analysis revealed a significant negative relationship between infertility

stigma and gratitude, indicating that higher levels of infertility stigma are linked to lower levels of gratitude. This is supported by research reported by Choi et al (2023) that among infertility women, stigma reduces positive emotions including gratitude by increasing feelings of shame and isolation.

The present study also found notable differences in infertility stigma and gratitude between housewives and employed women where, housewives showed higher levels of both infertility stigma and gratitude. Although, no significant difference was seen in perceived stress between the two groups. The elevated infertility stigma amid housewives was determined from a study by (Ünal et al., 2018) where the findings demonstrated that unemployed women experience more stigma than their counterparts because of social and financial insecurity and also likely due to increased social probing (Greil et al., 2011). The increased level of gratitude among housewives might be ascribed to their appreciation of daily activities and moments within their home environments, as suggested by (Froh et al., 2009). The absence of significant differences in perceived stress suggests that occupation alone may not be a primary determinant of stress levels (Domar et al., 2019). The present study also demonstrated that family type regardless of extended or nuclear has no significant impact on infertility stigma, perceived stress and gratitude. These results suggest that the way infertility impacts stigma, stress and gratitude might rely less on family structure and more on other personal, social and cultural influences. This is consistent with research studies (Greil, 1997; Balen & Inhorn, 2002) that highlights the varied experiences of infertility across different social and cultural contents. Also, the present study found that infertile women residing in rural areas showed higher level of infertility stigma that those living in urban settings. The present research finding is identical to the report noted by Xie and colleagues (2023) where it was reported that traditional rural settings, family composition, traditional gender roles often play a powerful role in rural communities leading to increased stigma in infertile women living in rural areas. The present findings showed no significant differences in perceived stress and gratitude between participants living in rural and urban areas. Bigbee (1987) also reported that stress levels among rural and urban woman are comparable, though the type of stressors they face may differ and in developing world, little is known about the difference in gratitude between urban and rural areas, and it's unclear whether these differences are due to people or places (Plaut & Markus, 2002). Another finding reveled that infertile women who were undergraduates and below showed higher level of stigma compared to those participants who attained higher educational level. The present findings align with research reported by (Xie et al., 2023; Zhang et al., 2023) proposing that higher education level have better understanding of the biological complication of infertility and thus reducing the feeling of shame and blame. The current study also showed that there is no differences in gratitude between undergraduates and post graduates which is consistent from a research study by Sreenandhini (2020) where it reported that people can practice gratitude in their daily lives and can lead a more optimistic life regardless of their education level.

The current study also revealed that women who had undergone prolonged treatment for six years and more experienced higher levels of infertility stigma than those who had undergone shorter duration of treatment. Greil and colleagues (2010) also stated that prolonged treatment leads to vulnerability of medical interventions, societal pressures and emotional turmoil of unsuccessful attempts, which can aggravate

feelings of social isolation, shame and blame. The present findings showed no differences in gratitude and perceived stress over treatment duration suggestive that these factors may be less related to the length of infertility and more influenced by individual coping strategies, personality traits or social support systems (Park et al., 2004; Watkins et al.,2003) and individual differences in coping mechanisms (Domar et al., 2019; Carver et al., 2010).

Conclusion

In spite of the limitations of the limited sample size, the present findings showed infertility stigma was negatively associated with gratitude and positively correlated with perceived stress indicative that infertile women who had stigma attached had poor sense of gratitude and higher perception of stress which might have negative influence on their mental health as also predicted by present regression analysis. The present study also revealed that infertile women who were housewives, rural residents, undergraduates with prolonged duration of infertility treatment reported higher levels of infertility stigma than those infertile women who were employed, urban residents, post graduates and those who had undergone infertility treatment for a shorter duration. There were no differences shown in both gratitude and perceived stress across type of family, locality, educational qualification and duration of infertility treatment.

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