

Original Article

Depression and Associated Factors among Women having Primary Infertility

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Abstract

Background: Depression is significantly higher in infertile women especially among women having primary infertility. The purpose of the study was to determine the level of depression and associated factors related to depression among women having primary infertility.

Materials and Methods: This cross-sectional study was conducted from January to December 2022 with 165 women having primary infertility who were enrolled by convenience sampling technique from Dhaka Medical College and Hospital. A semi-structured questionnaire and checklist were used for data collection through face-to-face interview and reviewing medical records respectively. Data were analyzed by statistical software. Quality control and all ethical issues were strictly maintained in the study.

Results: The mean age of women having primary infertility was 29.45 (± 5.302) years. Out of 165 respondents, 160 (97%) showed depression. The majority 84(50.9%) had mild to moderate level of depression, while 49(29.7%) had moderate to severe depression. The mean duration of marriage was 8.48 (± 4.78) years and the mean duration of getting treatment for infertility 2.33(± 2.193) years. Among all, 113(68.5%) were trying to conceive for last 2-7 years and 59(35.75%) of the respondents had showed depression who faced negligence of husband for primary infertility and was statistically significant ($p < 0.05$). Besides, 116(70.30%) participants had showed depression who had taken ovulation induction drugs for treatment purpose and it was statistically significant ($p < 0.05$). In addition, 101(61.27%) participants showed depression to bear expenses for infertility treatment and was statistically significance($p < 0.023$).

Conclusion: Depression was strongly associated with factors related to primary infertility like negligence of husband, taking ovulation inducing drugs, difficulties to bear expenses for infertility treatment. Specific interventions should be taken to prevent depression and at the same time government should conduct campaign to create awareness about primary infertility and depression.

Keywords: Depression, Associated Factors, Primary Infertility

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Introduction

Infertility is a disease of the male or female reproductive system defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse¹. Infertility has been classified into either primary infertility or secondary infertility. Primary infertility refers to couples who have not become pregnant after at least 1 year having sex without using any birth control methods. Secondary infertility refers to couples who have been able to get pregnant at least once, but now are unable². Being one of the main problems in reproductive health, infertility is a matter of serious concern for the World Health Organization (WHO) ¹. The relationship between depression and infertility is a two-way street. Research shows that infertility can lead to depression. And there's some evidence to suggest that depression may influence fertility³.

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A cross-sectional study was conducted during April-July 2016 at Tu Du Hospital and that study was provided useful insight of correlates of depressive symptoms among Vietnamese infertile women⁴. Reproductive health strategy of Bangladesh is overlooking the problem of infertility; instead, the focus has always been on overpopulation issue. There is evidence that potential causal factors of infertility are also widely present in Bangladesh⁵. Infertile people had a higher prevalence of depression than fertile people^{6,7}.

By studying various literature of different countries, there is knowledge gap was found in between depression and other factors related to depression among women who are solely suffering from primary infertility. So, the purpose of this study was to identify the level of depression and associated factors related to depression among women having primary infertility attending in In vitro fertilization (IVF) center of Dhaka Medical College Hospital (DMCH).

Materials and Methods

This cross sectional observational study was carried out in the In vitro fertilization (IVF) center of Dhaka Medical College Hospital, Dhaka, Bangladesh from January 2022 to December 2022. Total 165 samples were included in this study who were suffered from primary infertility and fulfilled the selection criteria. The place was selected purposively and convenience sampling technique was used. A semi-structured questionnaire and a checklist were used for the collection of data from the respondents by face to face interview. The questionnaire was based on **Goldberg Depression Questionnaire (GDQ)** scale⁸. Data were processed and analyzed by computer software SPSS (Statistical Package for Social Sciences), version 26.

Findings related to socio-demographic characteristics Table-1 showed that in respect of age of the respondents, majority 84(50.9%) of the respondents were in the age group of 18-29 years; mean age \pm SD was 29.45 years \pm 5.302. In respect of age of the husband of the respondents, majority 141 (85.5%) were in the age group of 30-59 years and mean \pm SD was 35.13 \pm 6.036.

Most of them 108(65.5%) lived in the urban area and majority were Muslim 156(94.5%). Regarding level of education, majority 87(52.7%) belonged to the Primary to SSC level and 16(9.7%) were illiterate. Most of them 101(61.2%) were housewives and 125 (75.8%) were belonged to nuclear family.

Regarding monthly family income, out of 165 women, most of them 96(58.2%) had monthly family income 11000-20000 taka, 42(25.5%) had monthly income 21000-40000 taka, 14(8.5%) had monthly income 41000-80000 taka and 13(7.9%) had monthly income 50000-10000 taka and the mean was 22448.48 (Table-1).

Table-I : Sociodemographic characteristics of the respondents (n=165)

Attributes	Frequency	Percentage
Age of the respondents (in complete years)		
18-29	84	50.9
30-39	77	46.7
40-49	04	2.4
Age of the husband of the respondents (in complete years)		
21-29	23	13.9
30-59	141	85.5
60-65	1	0.6
Residential status		
Urban	108	65.5
Rural	57	34.5
Religion		
Muslim	156	94.5
Sanatan	09	5.5
Level of education		
Illiterate	16	9.7
Primary to SSC	87	52.7
Higher Secondary&above	62	37.6
Occupation		
Housewife	101	61.2
Business / Service	20	12.1
Others	44	26.7
Family type		
Nuclear	125	75.8
Joint	40	24.2
Monthly family income (in Taka)		
5000-10000	13	7.9
11000-20000	96	58.2
21000-40000	42	25.5
41000-80000	14	8.5

Level of depression**Table-2:** Distribution of the respondents according to level of depression (by using Goldberg Depression Scale):

Level of depression	Score	Frequency	Percentage
No depression	0-9	5	3.0
Possibly mildly depression	10-17	8	4.8
Borderline depression	18-21	11	6.7
Mild-Moderate depression	22-35	84	50.9
Moderate-Severe depression	36-53	49	29.7
Severely depression	54-90	8	4.8
Total		n=165	100

Table-2 showed that, according to GDQ scale, out of 165 respondents 5(3%) had no depression. Most of them, 84(50.9%) had mild to moderate depression, 49 (29.7%) had moderate to severe depression, Others 11(6.7%) had borderline depression, 8 (4.8 %) had severe depression and 8 (4.8 %) had possibly mild depression.

Associated factors related to primary infertility:**Table-3:** Distribution of respondents by age at marriage and duration of trying to conceive:

Attributes (in years)	Group	Frequency	Percentage	Statistics
Age at marriage	11-20	64	38.3	Mean \pm SD=20.73 \pm 4.115 Minimum = 11 Maximum = 35
	21-30	62	37.6	
	31-40	39	23.6	
	Total	165	100	
Duration of trying to conceive	2-7	113	68.5	Mean \pm SD=6.52 \pm 4.036 Minimum = 2 Maximum = 20
	8-13	40	24.2	
	14-20	12	7.3	
	Total	165	100	

Table -3 revealed that in respect of the age at marriage, majority were 64(38.3%) belonged to group 11-20 years and 113(68.5%) respondents were trying to conceive for 2-7 years.

Table-4: Distribution of respondents by duration of marriage and duration of treatment for infertility:

Attributes (in years)	Group	Frequency	Percentage	Statistics
Duration of marriage	1-5	52	31.5	Mean \pm SD=8.48 \pm 4.78 Minimum = 2 Maximum = 22
	6-10	72	43.6	
	11-15	25	15.2	
	16-25	16	9.7	
	Total	165	100	
Duration of treatment for infertility	1-2	116	70.3	Mean \pm SD=2.33 \pm 2.193 Minimum = 1 Maximum = 15
	3-5	40	24.2	
	6-10	7	4.2	
	11-15	2	1.2	
	Total	165	100	

In table-4 showed that distribution of respondents by duration of marriage and duration of treatment for infertility.

Table-5: Association between levels of depression with difficulty to bear expenses for infertility treatment:

Difficulty to bear expenses	Level of depression						Total f(%)	Significance
	No depression	Possibly mild depression f (%)	Borderline depression f(%)	Mild-moderate depression f (%)	Moderate-severe depression f (%)	Severe depression f (%)		
Yes	1(0.6)	3(1.8)	4(2.42)	52(31.51)	37(22.42)	4(2.42)	101(61.27)	x ² = 12.991 df = 5 p= 0.023
No	4(2.42)	5(3.03)	7(4.24)	32(19.39)	12(7.27)	4(2.42)	64 (38.77)	
Total	5(3)	8(4.8)	11(6.7)	84(50.9)	49(29.7)	8(4.8)	165 (100)	

The study revealed that majorities had faced difficulty to bear expenses for infertility treatment and among them 52(31.51%) had suffered from mild to moderate depression. The rest of the association was shown in table-5. The association between level of depression and difficulty to bear expenses for infertility treatment was statistically significant (P = 0.023).

Table-6: Association between levels of depression with negligence of husband of the respondents:

Negligence of husband	Level of depression						Total f(%)	Significance
	No depression	Possibly mild depression f (%)	Borderline depression f(%)	Mild-moderate depression f (%)	Moderate-severe depression f (%)	Severe depression f (%)		
Yes	0(0)	0(0)	0(0)	24(14.54)	30(18.18)	5(3.03)	59 (35.8)	x ² = 31.572 df = 5 p= 0.000
No	5(3.03)	8(4.84)	11(6.67)	60(36.36)	19(11.51)	3(1.81)	106 (64.2)	
Total	5(3)	8(4.8)	11(6.7)	84(50.9)	49(29.7)	8(4.8)	165 (100)	

In the table-6 showed that 59(35.8%) participants had suffered from negligence of the husbands and among them 30(18.18%) had showed moderate to severe depression. The association between level of depression and negligence of husband were statistically significant (P = 0.000).

Table-7: Association between level of depression and taking of ovulation inducing drugs of the respondents:

Taking of ovulation inducing drugs	Level of depression						Total f(%)	Significance
	No depression	Possibly mild depression f (%)	Borderline depression f(%)	Mild-moderate depression f (%)	Moderate-severe depression f (%)	Severe depression f (%)		
Yes	3(1.81)	4(2.42)	4(2.42)	58(35.1)	40(24.24)	7(4.2)	116 (70.3)	x ² = 12.112 df =5 p= 0.033
No	2(1.21)	4(2.42)	7(4.24)	26(15.75)	9(5.45)	1(0.6)	49 (29.7)	
Total	5(3)	8(4.8)	11(6.7)	84(50.9)	49(29.7)	8(4.8)	165 (100)	

In table-7 the study revealed that majority 116(70.3%) had taken ovulation inducing drugs and among them 58(35.1%) had suffered from mild to moderate depression, 40(24.24%) had suffered from moderate to severe depression. The association between level of depression and taking of ovulation

inducing drugs was statistically significant (P = 0.033).

Discussion

This cross-sectional study was carried out among 165 women having primary infertility at infertility unit (IVF

Centre), Dhaka Medical College Hospital, Dhaka. This study revealed that the mean age for the infertile women was 29.45 ± 5.302 years. Another cross sectional study was conducted in Bangladesh in 2017 among 112 infertile women, age range between 18-49 years and mean age was 28.5 ± 5.5^9 . In the present study, respondents were between the ages of 18-49 years. Majority (52.1%) of the participants were in the age group of 28-37 years. In this study there was no strong association with increasing age with depression and infertility. In contrast, another study showed infertile women are worst victim of psychological morbidities with increasing age⁹.

Study discussed that the mean age for the husband of infertile women was 35.13 ± 6.036 years. Another cross sectional study was conducted in Bangladesh in 2018 among 112 infertile couples, age range of husband in between 29-38 years and mean age was 32.46 ± 4.16 ,¹⁰ which was nearly similar with present study. In the present study, among the respondents, majority 156(94.5%) were Muslim, 9(5.5%) were Sanatan. This was due to most of the people in the country were Muslim¹¹.

In this study, 87(52.7%) had completed Secondary School, 62(37.6%) had completed higher secondary & above, 16(9.7%) were illiterate. This was due to raising awareness about education. But there was no significant association with level of depression. Another cross sectional study among 120 infertile women in Morocco in 2017 revealed that 50(41.7%) completed primary school or less and 70(58.3%) studied higher school and over¹². This may be due to education system and socio-economic differences.

This study, among 165 of primary infertile women, majority 101(61.2%) were homemaker, 44(26.7%) were included in others category and 20(12.1%) were included in business or service. In the other hand, Japanese researchers also showed that unemployed women had a greater tendency towards experiencing depression than did employed participants¹³.

This study showed 125(75.8%) were belonged to nuclear family and 40(24.2%) were belonged to joint family. Among the nuclear family 86(52.0%) showed mild to moderate level of depression which is greater than joint family. Besides, 96(58.2%) respondents had monthly family income 11000-20000 taka, 42(25.5%) had in between 21000-40000 taka, 14(8.5%) had in between 41000-80000 taka and 13(7.9%) had in between 50000-100000 taka. This was due to the fact that most of the participants at DMCH were from middle and low

socio-economic status. In the cross-sectional study in Morocco, among 120 infertile women 115(95.8%) had middle or low income and 5 (4.2%) higher income¹².

Finally, findings of the study showed that there was no significant correlation between age, education, occupation and monthly income with the severity of depression. This is in contrast with a study conducted on 238 Turkish women which revealed that poor income status and low education level were associated with higher rate of depression¹⁴. Also, the level of depression was found to be significantly higher among subjects with low or no formal education and among the unemployed infertile women in Ghana¹⁵. An Iranian study also showed that there is more depression among housewives than service holders which correlates with our study¹⁶.

In this study according to GDQ scale, out of 165 respondents 5(3%) had no depression. The remaining 160 (97%) had depression. Another cross sectional descriptive study was carried out on 112 purposively selected infertile married women of Kurmitola General Hospital, Dhaka. The Goldberg Depression questionnaires (GDQ) and Beck Anxiety Inventory (BAI) were administered. The study showed 70 (62.5%) infertile women showed different levels of depression (GDQ scale). Of these, 12(10.7%) had mild to moderate and 36 (32.1%) had moderate to severe level of depression.⁹ This was might be due to duration of this treatment.

This study revealed that mean duration of marriage was 8.48 ± 4.78 years and in 9-15 years of duration of marriage group, depression disorder was more prevalent. The study also showed that 116 (70.3%) were taking ovulation inducing drugs and among them 58(50%) suffered from mild to moderate depression, another cross sectional study conducted on Bangladesh in 2017 among of 112 infertile women showed 67.9% were taking ovulation inducing drugs and among them 43.8% had mild to moderate depression and that was not statistically significant ($p > 0.05$)⁹.

Infertility is a global health problem now-a-days¹⁹. Depression increases with duration of infertility¹⁷. Our findings reaffirm the necessity for gynecologists and other medical practitioners to monitor women receiving reproductive therapy for psychosocial distress. If professionally supervised psychological therapies are taken into account as a crucial component of the care of female infertility, the quality of life for women with fertility issues might be significantly enhanced¹⁸.

One of the strong points of the present study was done in the most specialized government medical center in

Dhaka where treatment cost so minimum so that it had found many patients regarding infertility especially primary infertility. Besides, the nature of cross sectional study design limits the establishment of casual inferences with study variables that was an important limitation of this study.

Conclusion

Infertility cannot be treated as an individual problem; it has a wide range of social and health repercussions, one of the common psychological conditions linked to primary infertility is depression, which has a substantial impact on the lives of infertile couple specially in women as well as their care and follow up.

References

- World Health Organizations. Infertility. Available from: <https://www.who.int/news-room/fact-sheets/detail/infertility>. [Cited on 2018].
- MedlinePlus. Infertility and its effects. [Internet]. Available from: <https://medlineplus.gov/ency/article/001191.htm>. [Cited on 2022 January 10].
- Healthline. Infertility related to depression. Available from: <https://www.healthline.com/health/infertility-depression>. [Cited on 2022 March 30].
- Vo TM, Tran QT, Le CV, Do TT, Le TM. et al. Depression and associated factors among infertile women at Tu Du hospital, Vietnam: a cross-sectional study. *Int J Women's Health*. 2019 May 28;11:343-351. doi: 10.2147/IJWH.S205231. PMID: 31239787; PMCID: PMC6551559.
- Inhorn MC and Patrizio P et al. Infertility around the globe: new thinking on gender, reproductive technologies and global movements in th 21st century. *Human Reproduction update*,2015;21(4): 411-26.
- Begum BN and Hasan S et al. Psychological problems among women with infertility problem: a comparative study. *J Pak Med Association*,2014: 64(11): 1287-91.
- Chowdhury TS, Chowdhury TA, Begum SA, Begum Y, Amatullah M et al. Depressive morbidity among female partner of infertile couple in a tertiary care setup in Bangladesh: Depressive morbidity in infertile female partner. *Bangladesh Medical Research Council Bulletin*, 2019; 45(2):93-98.
- Counselling resource. Goldberg Depression Questionnaire, Available from: <https://counsellingresource.com/quizzes/depression-testing/goldberg-depression/>. [Cited on 2011 April 25].
- Alam MJ, Rahman MM, Afsana NE et al. Psychological impacts of infertility among married women attending in a tertiary hospital, Dhaka. *Anower Khan Modern Medical College Journal*, 2018;9(1):10-14.
- Hamid N. The effectiveness of stress management based on cognitive-behavior method on depression, anxiety and fertilization of infertile women. *International Journal of Behavioral Sciences*. 2011;5(1):55-60.
- Bangladesh Bureau of Statistics (BBS), Statistical yearbook of Bangladesh. [Cited on 2019].
- Zaidouni A, Fatima O, Amal B, Siham A, Houyam H, Jalal K, Rachid B et al. Predictors of infertility stress among couples diagnosed in a public center for assisted reproductive technology. *Journal of Human Reproductive Sciences*. 2018;11(4):376.
- Magdum M, Chowdhury MAT, Begum N, Riya S et al. Types of Infertility and Its Risk Factors among Infertile Women: A Prospective Study in Dhaka City. *Journal of Biosciences and Medicines*. 2022;10(4): 158-168.
- Erdem K, Ejder Apay S et al. A Sectional Study: The Relationship between Perceived Social Support and Depression in Turkish Infertile Women. *Int J Fertil Steril*. 2014 Oct;8:303-14. Epub 2014 Nov 1.
- Alhassan A, Ziblim AR, Muntaka S.A et al. Survey on depression among infertile women in Ghana. *BMC Womens Health*. 2014 Mar 10;14(42).DOI: 10.1186/1472-6874-14-42.
- Ramezanzadeh F, Aghssa MM, Abedinia N, Zayeri F, Khanafshar N, Shariat M, Jafarabadi M et al. A survey of relationship between anxiety, depression and duration of infertility. *BMC Womens Health*. 2004; 4: 9. Published online 2004 Nov 6. DOI: 10.1186/1472-6874-4-9. PMCID: PMC534113.
- Deka PK and Sarma S. Psychological aspects of infertility. *British Journal of Medical Practitioners*. 2010;3(3):336.
- Boivin J, Bunting L, Collins JA, Nygren KG et al. International estimates of infertility prevalence and treatment-seeking: potential need and demand for infertility medical care. *Human reproduction*. 2007; 22(6):1506-1512.
- Sultana A, Tanira S, Adhikary S, Keya KA, Akhter S et al. Explained infertility among the couple attending the infertility unit of Bangabandhu Sheikh Mujib Medical University (BSMMU), Bangladesh. *Journal of Dhaka Medical College*. 2014;23(1):114-120.