International Journal of Clinical Obstetrics and Gynaecology

Dr. Gupta AK
The NIHFW, Delhi University
(DU), New Delhi, India

Dr. Karali HF
Associate Professor, Obstetrics and
Gynaecology consultant, Newcastle
University Medicine Malaysia
(NUMed), Johor, Malaysia

Dr. Zaigham MT
University Malaysia Sabah (UMS),
Malaysia

Dr. Farhad ES
International Medical University
(IMU), Malaysia

Dr. Tiwari A
Research Analyst, American
Academy of Orthopaedic Surgeons,
Chicago, IL

Stress and depression among infertile couples: A cross-sectional study from a government fertility clinic

Dr. Gupta AK, Dr. Karali HF, Dr. Zaigham MT, Dr. Farhad ES and Dr. Tiwari A

DOI: https://doi.org/10.33545/gynae.2022.v6.i3a.1178

Abstract
Background: Infertility is usually associated with long-term stress, which can manifest as anxiety and depressive symptoms. The goal of this study is to look into the emotional well-being of couples dealing with infertility challenges, as well as to look into the causes of anxiety and despair in these couples.
Methods: The research was conducted in a government clinic set up at New Delhi, India with the participation of two hundred couples (400 participants), who were attending there for treatment purposes. The Fertility Problem Inventory (FPI) and the Hamilton Depression Score (HAM-D) were utilized to develop the questionnaire. We also interviewed our subjects to find out more about their sociodemographic and fertility-related characteristics. To evaluate our hypotheses, we used independent-samples t-tests (M SD) and the chi-square test.
The objective of the study: The study's goal was to assess the stress and sadness experienced by infertile couples who visited government infertility clinics, as well as to determine the independent variables that may have been associated with infertility. These characteristics included age, sex, educational qualification, profession, infertility period, and type of family.
Results: Infertile women were younger (48% were in 26 to 30 years), while 40% of men were 31-35 years old. However, females experienced a much lower level of psychological well-being. Anxiety and depression in infertile couples were linked with age, marriage duration, social issues, sexual issues, and marital relationship tension. Financial stress was also associated with trait anxiety. Our method could explain 58 percent of the variance in depressive symptoms and 62 percent of the variance in anxiety-related symptoms.
Conclusions: Symptoms of depression and anxiety in infertile couples were present prominently. It caused an impact on marital & sexual relationships. It is essential to encourage the monitoring of these markers as well as the treatment of underlying stress through suitable psychological therapies.

Keywords: Infertility, infertility-related psychological distress, depression, anxiety, sexual relationship

Introduction

Infertility is a couple's apparent inability to conceive. In most cases, 50 percent of couples conceived during 3 months of regular unprotected sexual intercourse, 75 percent for 6 months, and 80-85 percent within one year.[1]Children are frequently wanted immediately after a couple becomes sexually active, generally through marriage, and the couple's inability to conceive a child is readily acknowledged by the pair as well as by everyone else (Inhorn & Patrizio, 2014) [2]. Primary infertility is the most prominent cause of infertile couples across the world. The World Health Organization defines primary infertility as when a person has never had a pregnancy, while secondary infertility is defined as when a person has had at least one past pregnancy (infertility, 2020). The number of infertile couples globally is believed to be from 48.5 million to 186 million women. (Zegers-Hochschild *et al*., 2009) [7]. Infertility is reported to strike 8 to 12 percent of couples all over the world and these numbers vary across the world. In 2010, 1.9 percent of women between 20–44 years who desired children were unable to do so (primary infertility), and 10.5 percent of women who had formerly had a successful pregnancy were unable to have another successful pregnancy (secondary infertility) ("Infertility is a global public health issue" 2019). As a result, infertility has become a serious global public health concern. The overall prevalence of primary infertility in India, according to WHO projections, ranges from 3.9 percent to 16.8 percent. Infertility rates differ considerably across India, ranging from 3.7 percent within Uttar Pradesh, Himachal Pradesh, and Maharashtra to 5% throughout Andhra Pradesh and 15% throughout Kashmir.

Corresponding Author:
Dr. Karali HF
Associate Professor, Obstetrics and
Gynaecology consultant, Newcastle
University Medicine Malaysia
(NUMed), Johor, Malaysia
Email id: hassanfadhil@yahoo.com
Hassanfadhil.Hussainkarali@newcastle.edu.my

Furthermore, within the same region in India, it has been shown that the frequency of primary infertility fluctuates with tribe and caste. (DHS Comparative Reports Infecundity, Infertility, and Childlessness in Developing Countries, n.d.; Zegers-Hochschild *et al.*, 2009) [7].

Infertility is a significant public health issue with pressing social repercussions. Every culture places a strong emphasis on parenthood. Most communities around the world are built with the expectation that children will care for and support their aging parents. Even in countries with welfare support structures, children and families are obligated to provide the majority of elderly care (Ram, N.D.). Because of the societal value placed on parenthood, infertile couples face adverse implications in terms of social standing, regard, and leadership. Couples feel a sense of failure, loss, and isolation irrespective of the medical cause of infertility. (Ram, n.d.). On the other hand, infertility itself also can have a negative effect on relationships. As an ailment of a couple as a purposeful unit, the incapability to become pregnant particularly when couples do not communicate openly about it, frequently results in a loss of sexual satisfaction (Nelson *et al.*, 2008) [22] or even a relationship crisis (Peterson *et al.*, 2007) [23]. The societal environment's other elements, e.g., social pressure (a perceived expectation of being a mother) also can exacerbate the psychological effects of infertility (Miles *et al.*, 2009) [24]. Couples feel a strong sense of failure, loss, and isolation irrespective of the medical cause of infertility (Ram, n.d.). The purpose of this study was to assess stress and sadness in infertile couples.

Methodology
Type of study conducted: Cross sectional descriptive study
Duration of study: The current research was performed over a four-month period. (October 2018 till January 2019).

Study location: The research was conducted at the National Institute of Health and Family Welfare's Munirka (NIHFW) infertility clinic in New Delhi. NIHFW, is an apex institute under the Ministry of Health & Family welfare.

Study population: The study population comprised infertile couples of 18-49 years of age availing of outdoor patient department (OPD) services from Infertility Clinic, NIHFW, New Delhi. Both the husband and the wife were questioned separately using the same data collection techniques. The study only included couples who had been married for more than a year.

Sampling technique: Approx. annually around 1500 new patients and 3500-4500 follow-up patients visit this infertility clinic, NIHFW, Delhi. Using a purposeful sampling method/technique, 200 registered infertile couples who were visiting an infertility centre for treatment and expressed agreement to engage and met criteria for inclusion were admitted into the study.

ETHICS
The study design was approved by the NIHFW's Ethical Committee (NIHFW/Dean/Letter/2018 dated 26-04-2019) and permission was also obtained from the administrative heads of NIHFW for the collecting of data from infertile couples.

Consent: Before being enrolled in the study, all participants signed a written informed consent form. Confidentiality and privacy of participants were ensured. Those who did not show willingness for consent have not been included in the study.

Statistical analysis: The information gathered was summarized and evaluated in Excel and using SPSS (Social Package for Social Sciences) 23.0. The Chi-square test was employed in this study to determine the link between socio-demographic characteristics and the perceived social support, level of depression & stress due to infertility. The Kuppuswami-based socio-demographic, Hamilton Depression Rating Scale & Fertility Problem Inventory tools were utilized to evaluate the psychological profiles of infertile couples & have been presented as percentage and frequency. The results of the T-test were used to contrast male and female ratios to the Fertility Problem Inventory dimensions.

Quality Assurance
Steps were taken to ensure that the data collected was of high quality. A pilot study of 20 couples was conducted in the initial study. The data collected during the pilot study was not included in the main research.

Results:
The analysis of the results is based on the following tools used in the study:

Socio-demographic profile
Among 200 couples, male patients were older than females as the majority of males were 31-35 years old while females were in the 25-30 years age group. The duration of marriage among an enormous number of couples was 4-7 years. A sizeable percentage of the patients were Hindu and had completed their education up to a bachelor's and were urban dwellers. The majority of patients in this study come from joint families. Among males, more than half were semi-skilled workers, while the majority of females were housewives. The income-wise distribution shows that more than half the number of male patients in the present study were in the 15000-30000 Rs income group. The majority of females were housewives.

Table 1: Socio-demographic profile of Infertile couples (N=400)

Socio-demographic variables		Male N	%	Female N	%	Total N	%
Age (yrs.)	21-25 Years	15	7.5	34	17	49	12.3
	26-30 Years	46	23	96	48	142	35.5
	31-35 Years	80	40	53	26.5	133	33.3
	36-40 Years	49	24.5	17	8.5	66	16.5
	>40 Years	10	5	0	0	10	2.5
Duration of Marriage	Less than 2 years					12	3.0
	2-4 years					101	25.25
	4-7 years					138	34.5
	7-10 years					101	25.25
	10-15 years					42	10.5

	More than 15 years				6	1.5
Religion	Hindu	162	81	160	80	322	80.5
	Muslim	34	17	35	17.5	69	17.3
	Sikh	4	2	5	2.5	9	2.25
Type of family	Nuclear	69	34.5	72	36	141	35.25
	Joint	131	65.5	128	74	259	64.75
Education	Illiterate	2	1	9	4.5	11	2.8
	Less than middle school	1	.5	6	3	7	1.8
	Middle school certificate	17	8.5	15	7.5	32	8.0
	High school certificate	39	19.5	40	20	79	19.8
	Intermediate	54	27	41	20.5	95	23.8
	Graduation degree	69	34.5	64	32	133	33.8
	Postgraduate or Professional degree	18	9	25	12.5	43	10.8
Occupation	Unemployed	6	3	0	0	6	1.5
	Housewife	0	0	158	79	158	39.3
	Unskilled Worker	40	20	2	1	42	10.5
	Semi-skilled worker	110	55	30	15	140	35
	Skilled Worker	39	19.5	10	5	49	12.3
	Semi-Professional	2	1	0	0	2	0.5
	Professional	3	1.5	0	0	3	0.75
Income	< 15000 Rs	65	37.5	167	83.5	242	60.5
	15001 -30000 Rs	88	44	28	14	116	29
	> 30000 Rs	37	18.5	5	2.5	42	10.5

Measurement of Depression
The HAM-D is a questionnaire that is used to estimate the degree of depression in patients. According to the current study, infertile couples suffer from depression and psycho-social stress as a consequence of their infertility, which influenced their day-to-day lives. Socio-demographic variables like sex, duration of the marriage, religion, area of residence, type of family, education, occupation, and income were used in the present study and showed a statistically significant difference in terms of psycho-social stress and depression among these couples.
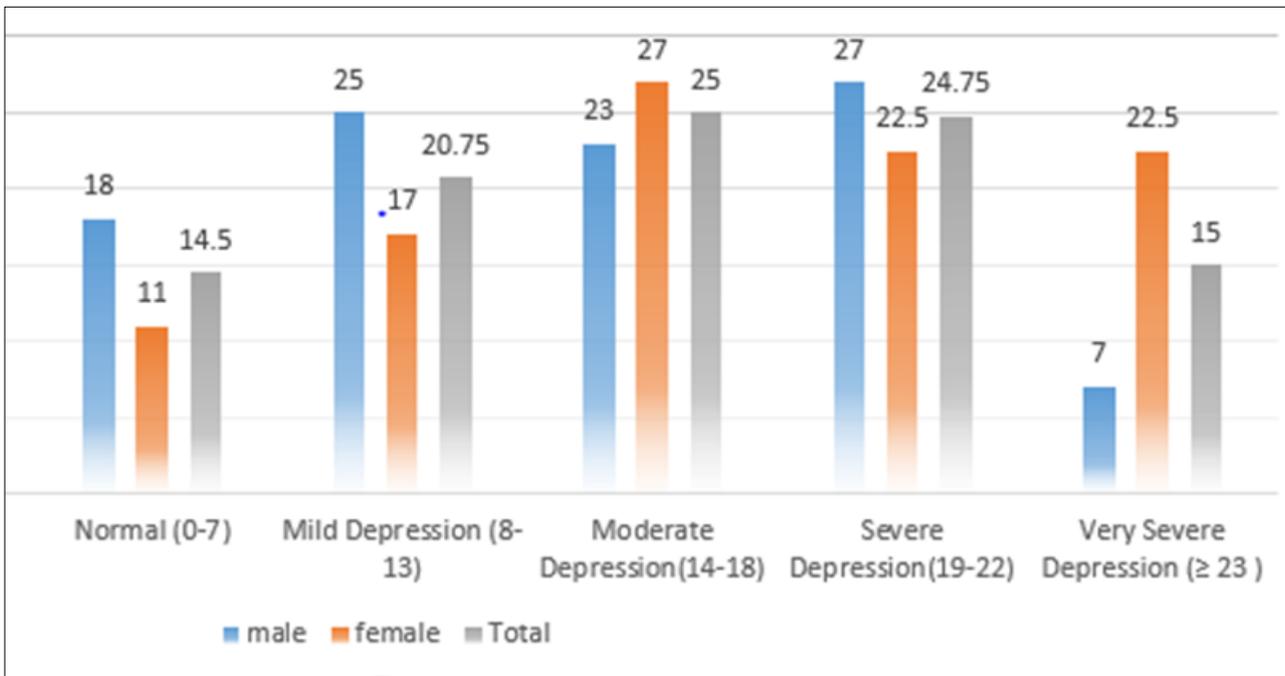

Fig 1: Distribution of levels of depression among males and females' participants

Table 2: Distribution of levels of depression among males and females' participants

Range	Grading of Depression	Male N %		Female N %		Total N %	
0-7	Normal	36	18	22	11	58	14.5
8-13	Mild Depression	49	25	34	17	83	20.75
14-18	Moderate Depression	46	23	54	27	100	25
19-22	Severe Depression	54	27	45	22.5	99	24.75
≥ 23	Very Severe Depression	15	7	45	22.5	60	15
		Total Male= 200		Total Female= 200		Total= 400	

Chi square = 24.573, df = 4 P value = .000

For the measurement of depression, it was discovered that most male patients experienced moderate to severe depression. While the majority of females fell into the severe to very severe depression category. Most male patients were between the ages of 31 and 35 and had moderate to severe depression. More than half of the female patients who were 26-30 years old and suffering from severe to extremely severe depression. Infertile couples who had been married for four to seven years were more likely to be moderately depressed. Patients in both nuclear and joint families exhibited depression ranging from moderate to severe. Moreover, half of the patients were graduates with severe depression, according to the findings. In terms of occupation, the majority of semi-skilled workers were depressed to a moderate degree. Female participants who were housewives, on the other hand, showed a very severe level of depression. The majority of those in the low-income group experienced moderate to severe depression.

Fertility Problem Inventory tools
With five dimensions, the Fertility Problem Inventory (FPI) was conducted to assess the stress caused by infertility.FPI provides a meaningful assessment of infertility-related stress, and particular information on social concern, sexual concern, relationship concern, rejection of childfree living and the need for parenthood, as well as a single global score of patient concern. Infertility-related stress was moderate in both males and females.

Table 3: The results of a T-test comparing male and female fertility proportions

Fertility Problem Inventory	Gender	Number of individuals	Mean	Std. Deviation	T test
Social concern	Male	200	39.34	6.51434	-1.292
	Female	200	40.28	7.96611	
Sexual concern	Male	200	29.77	4.49982	-2.049*
	Female	200	30.735	4.91074	
Relationship concern	Male	200	21.27	7.81231	-1.697
	Female	200	22.585	7.68231	
Rejection of childfree lifestyle	Male	200	42.83	3.9266	-1.826
	Female	200	43.565	4.11954	
Need for parenthood	Male	200	15.565	2.47109	-2.137*
	Female	200	16.115	2.67348	
Global stress	Male	200	148.7750	16.49103	-2.488*
	Female	200	153.2800	19.59083	
	* = p value <0.05				

Table 4: Distribution of level of global stress (FPI tool) among male and female

Fertility Problem Inventory	Male		Female		Total	
	N	%	N	%	N	%
Extreme High stress	24	12	60	30	84	21
Moderate-High Stress	143	71.5	110	55	253	63.25
Average stress	33	16.5	30	15	63	15.75
Low stress	0	0	0	0	0	0

The FPI tool were analyzed, and the finding had not shown any substantial differences between males and females related to all FPI.However, it was found that females have more Global stress than male. The majority of patients between the ages of 26 and 30 had a moderately high degree of stress, which increases as the length of marriage grows. Moderate high level of stress was found in both Hindu & Muslim patients. Both joint and nuclear type of family has moderate high level of stress in high number of patients. Education wise finding showed that more than half of patients were graduate & had moderate high level of stress, however among all patients irrespective of level of education, had moderate high level of stress. Majority of housewives and semiskilled workers had moderate high level of stress.

Table 5: Distribution of level of depression with a duration of the marriage

Duration of Marriage	Level of depression				
	Normal	Mild Depression	Moderate depression	Severe depression	Very Severe depression
less than 2 years	33.33%	16.66%	33.33%	16.66%	0
2-4 years	1.98%	21.78%	29.7%	30.7%	15.84%
4-7 years	21%	21%	22.46%	20.28%	15.21%
7-10 years	12.87%	26.73%	21.78%	1.78%	16.83%
10-15 years	19%	9.5%	28.57%	30.95%	11.9%
more than 15 years	33.33%	0	33.33%	33.33%	0%
Total	14.5%	21%	25.25%	24.5%	14.75%

Chi square = 35.447 df = 20, P value = .018

The findings are based on data collected from only one government infertility clinic with limited sample size and therefore may not be considered for broader generalization and application. A larger study sample could not be taken owing to the time constraints & single researcher. Since this study was conducted in a government hospital, hence comparison with private hospital is not possible as patients in these facilities may differ in their socio-demographic characteristics.

Discussion

The primary goal of this research is to determine the severity of a psychological problems among infertile couples. The inability to conceive and the usual social reactions in society to infertile couples are the source of numerous psychological difficulties for this group. (Brockington, I. (2012-02) [10].

The bulk of the males in this study were between the ages of 31 and 35. In a similar study, the average age of 1076 male infertility patients were 30.1+- 4.75 years. 97 Another study revealed a similar trend, stating that the majority of guys in the 33–39-year age group. (Patel *et al*., 2016) [11]. For the measurement of depression, the majority of male patients in this study scored moderate to severe depression. The majority of females fell into the category of severe to very severe depression. According to similar research, most of the females suffered from moderate to severe depression. (Turki Al-Homaidan, 2011). Furthermore, another study discovered that the majority of infertile women suffer from moderate to severe depression. (Abadsa & TAL-Yazori, 2017) [13].

This research finding shows that among patients who were married for 4-7 years, the majority had mild to moderate levels of depression. Similarly, in another study, the majority of infertile women married for 4-6 years, and women who had been infertile for 4 to 6 years had higher levels of depression than women who had been infertile for 1 to 3 years. (Turki Al-Homaidan, 2011). Long-term infertility and failed treatment cycles exacerbate stress and psychopathologic issues, particularly depression. (Berg & Wilson, 1991) [14] (Lok, 2002) [15].

In this study, among the majority of patients, both males, as well as females, had moderate levels of infertility-induced stress. The finding of the current study is inconsistent with a study that reported that the majority of patients had a moderate-high level of stress (*Shreshtha*, n.d.). The Findings were similar as those reported in another study based on infertile patients (Verma & Baniya, 2016) [17]. The isolating character of infertility has previously been mentioned, robbing couples of vital social support at a time when they really need it. Infertile women have discovered that interacting with their social surroundings, such as dealing with feelings of jealousy or envy upon learning of other women's pregnancies or being in the presence of new-borns and children, is one of the most challenging elements to manage. (Cousineau, 2007) [18] Men's reactions to infertility are like women's in many respects; they feel guilt, humiliation, low self-esteem, rage, loneliness, loss, and personal failure. (Lakatos *et al*., 2017) [19] Inability to father a child can have an impact on a man's identity and cause him to doubt his manhood. This is especially true in the event of infertility caused by the male factor. (Cousineau, 2007) [18]. (Hardy, 2002) [20] When compared to controls, women in infertile couples reported poor marital adjustment and quality of life. Men, on the other hand, maybe less satisfied with their intercourse, maybe because of the psychological pressure to conceive or the forced timing of intercourse around the woman's ovulatory cycle. (Monga, 2004).

Conclusions

This cross-sectional was done to find out the psychosocial profile of infertile couples. Findings of the study show that socio-demographic characteristics, depression & stress are associated with infertility. For the measurement of depression, it was found, that a large number of male patients scored the moderate to severe depression, among the females, the majority scored in the category of severe to very severe depression. Both males, as well as females, had moderate levels of infertility-induced stress. The different domains of FPI tool were analyzed and the finding had not shown any substantial differences between males and females related to following FPI domains, but it was found that females have more Global stress than male.

Recommendations

To ease their suffering and improve their well-being, the researcher suggests the following:

1. Reduce infertile couples' psychological suffering and avoid the development of psychiatric disorders later in life, the psychosocial part of infertility should be given more attention and considered at all phases of treatment and medical therapies.
2. Medical practitioners could be educated about the relevance of their role in the couple's infertile journey through awareness campaigns. So that a health care worker knows what to look for and what to do to treat it.
3. Physicians who can identify couples who are at risk for marital adjustment issues should always recommend them to mental health or social worker.
4. Incorporating mental health workers into reproductive clinics and providing concurrent counselling to patients may help them deal with psychosocial concerns connected to infertility.
5. Discussing goal re-alignment with the couples may encourage them to consider other options for parenting, such as adopting, IVF, or spending lots of time with their extended family.

Declaration of Conflicting Interest

The authors declare that there are no conflicts of interest.

Author's contributions

The author designed the study and took the help of statisticians in data analysis and interpretation all authors contributed to the drafting, revision, and final approval of this manuscript.

Limitations

The findings are based on data collected from only one government infertility clinic with a limited sample size and therefore may not be considered for broader generalization and application. A larger study sample could not be taken owing to the time constraints & single researcher. Since this study was conducted in a government hospital, hence comparison with the private hospital is not possible as patients in these facilities may differ in their socio-demographic characteristics.

Abbreviations

IVF: In vitro fertilization; NIHFW: National Institute of Health & family welfare, FPI: Fertility Problem Inventory

References

1. https://www.who.int/reproductivehealth/topics/infertility/DHS-CR9, 2021, Dec 18.pdf Assessed on

2. Infertility around the globe: New thinking on gender, reproductive technologies, and global movements in the 21st century Inhorn M, Patrizio P Human Reproduction Update. 2014;21(4):411-426

3. https://www.nhp.gov.in/disease/reproductive-system/infertility. National health portal Assessed on jan 12/2022

4. Who.int. Infertility. [Online] 2020. Available at: <https://www.who.int/news-room/fact-sheets/detail/infertility#:~:text=Primary%20infertility%20is%20when%20a,diagnosis%20and%20treatment%20of%20infertility.> [Accessed 21 March 2022].

5. Rutstein Shea O, Iqbal Shah H. Infecundity, infertility, and childlessness in developing countries. DHS Comparative Reports No. 9. Calverton, Maryland, USA: ORC Macro 2004. Available at http://dhsprogram.com/pubs/pdf/CR9/CR9.pdf.

6. Bharadwaj AS. Culture infertility and gender-vignettes from South Asia and North Africa. Sexual health exchange, 2002.

7. The International Committee for Monitoring Assisted Reproductive Technology (ICMART) and the World Health Organization (WHO) Revised Glossary on ART Terminology, Zegers-Hochschild F, Adamson G, […] Van Der Poel S Human Reproduction. 2009;24(11):2683-2687.

8. Infertility is a global public health issue. World Health Organization, 2019. https://doi.org//entity/reproductivehealth/topics/infertility/perspective/en/index.html

9. Ram et al. Childlessness and its consequences in India: Levels, patterns, and Differentials. Final Report. International Institute for Population Sciences; Mumbai, India. 2006 Sept. 308 p. Retrieved on April 11, 2019.

10. Brockington I. Obstetric and gynaecological conditions associated with psychiatric disorder. In New Oxford Textbook of Psychiatry. Oxford, UK: Oxford University Press. Retrieved 20 Mar. 2022, 2012-02. from https://oxfordmedicine.com/view/10.1093/med/9780199696758.001.0001/med-9780199696758-chapter-0020020.

11. Patel A, Sharma PS, Narayan P, Binu VS, Dinesh N, Pai PJ. Prevalence and predictors of infertility-specific stress in women diagnosed with primary infertility: A clinic-based study. Journal of human reproductive sciences. 2016;9(1):28-34. https://doi.org/10.4103/0974-1208.178630

12. Al-Homaidan HT. Depression among Women with Primary Infertility attending an Infertility Clinic in Riyadh, Kingdom of Saudi Arabia: Rate, Severity, and Contributing Factors. International journal of health sciences. 2011;5(2):108-115.

13. Abadsa AA, Al-yazori MT. The social support as a mediator between the infertility stress and depression among infertile female in the Gaza Strip, 2017.

14. Berg BJ, Wilson JF. Psychological functioning across stages of treatment for infertility. Journal of behavioural medicine. 1991;14(1):11-26. https://doi.org/10.1007/BF00844765

15. Lok IH, Lee DT, Cheung LP, Chung WS, Lo WK, Haines CJ. Psychiatric morbidity amongst infertile Chinese women undergoing treatment with assisted reproductive technology and the impact of treatment failure. Gynaecologic and obstetric investigation. 2002;53(4):195-199. https://doi.org/10.1159/000064560

16. Alisha Shrestha, Priyambada Tiwari, "Stress Level and Coping Strategies among Infertile Woman Attending a Private Hospital", International Journal of Science and Research (IJSR), https://www.ijsr.net/get_abstract.php?paper_id=ART2019660, Volume 7 Issue 9, September 2018, 498 - 501

17. Verma K, Baniya GC. A comparative study of depression among infertile and fertile women. International Journal of Research in Medical Sciences. 2016;4:3459-3465.

18. Cousineau TM, Domar AD. Psychological impact of infertility. Best practice & research. Clinical obstetrics & gynaecology. 2007;21(2):293-308. https://doi.org/10.1016/j.bpobgyn.2006.12.003

19. Lakatos E, Szigeti JF, Ujma PP, Sexty R, Balog P. Anxiety and depression among infertile women: a cross-sectional survey from Hungary. BMC women's health. 2017;17(1):48. https://doi.org/10.1186/s12905-017-0410-2

20. Hardy, et al. 'Gender, infertility and assisted reproductive technologies'. World Health Organization Geneva. 2002; p392-393 Retrieved on April 19, 2019.

21. Monga, M., Alexandrescu, B., Katz, S. E., Stein, M., & Ganiats T. Impact of infertility on quality of life, marital adjustment, and sexual function. Urology. 2004;63(1):126–130. https://doi.org/10.1016/j.urology.2003.09.015

22. Nelson CJ, Shindel AW, Naughton CK, Ohebshalom M, Mulhall JP. Prevalence and predictors of sexual problems, relationship stress, and depression in female partners of infertile couples. The journal of sexual medicine. 2008;5(8):1907-1914. https://doi.org/10.1111/j.1743-6109.2008.00880.x

23. Peterson BD, Newton CR, Feingold T. Anxiety and sexual stress in men and women undergoing infertility treatment. Fertility and sterility. 2007;88(4):911-914. https://doi.org/10.1016/j.fertnstert.2006.12.023

24. Laura Miles M, Merle Keitel, Margo Jackson, Abigail Harris, Fred Licciardi. Predictors of distress in women being treated for infertility, Journal of Reproductive and Infant Psychology. 2009;27(3):238-257. Doi: 10.1080/02646830802350880