

Prevalence of Infertility and Associated Risk Factors of Impaired Fecundity among Sudanese Women at Two Fertility Centers in Khartoum state

Manal Abdalla Sayed Suliman

Ihsan Elyamni Abdullah Alfakki



Al-Neelain University

Graduate College Journal

ISSN: 1858-6228

Volume 15 – 2020

Issue 08

Graduate College
Al-Neelain University

Prevalence of Infertility and Associated Risk Factors of Impaired Fecundity among Sudanese Women at Two Fertility Centers in Khartoum state

Manal Abdalla Sayed Suliman and Ihsan Elyamni Abdullah Alfakki

Department of Obstetrics and gynecological nursing, Faculty of Nursing Sciences, Al Neelain University Khartoum, Sudan

Corresponding author E-mail: ihsanelyamni11@gmail.com

Abstract

Background: Fertility is a key element of reproductive health and infertility is recognized as a global public health issue by the World Health Organization. **Objectives :** To study prevalence of infertility and associated risk factors of impaired fecundity in Sudanese women. **Methodology:** Descriptive cross sectional center base study was conducted at two fertility centers, 80 women were enrolled in the study, data were collected by structured self-administered questionnaire. **Results** Revealed that the prevalence of primary infertility 67%, secondary infertility 32%. The risk factors of impaired fecundity were advanced maternal age of respondents 28%, increased body mass indexes 44% and menstrual irregularities 45%. **Conclusion** In current study there were multi factorial risk factors of impaired fecundity in Sudanese women such as advanced maternal age which one third of respondents, increase Body Mass Indexes and menstrual irregularities. **Recommendation** Early detection and treatment of gynecological diseases.

Keywords: Prevalence .Infertility .fecundity. Risk factors

Introduction

Fertility is a key element of reproductive health and infertility is recognized as a global public health issue by the World Health Organization (Datta et al., 2016). Infertility is inability to conceive after 12 months of unprotected intercourse. Primary infertility was defined when no previous pregnancy had occurred and secondary infertility was defined when there was a prior pregnancy. Life time infertility is when a couple had experienced infertility sometime in their life. However current infertility is defined when the couple has infertility at the present time (Parsanezhad, 2013.). Infertility is experienced by an estimated 48.5 million couples worldwide and around 1 in 7 couples in the United Kingdom (Datta et al., 2016) However, prevalence estimates of lifetime infertility vary widely, in part because there is no agreed or consistent definition of infertility (Datta et al., 2016) The 12-month prevalence rate of infertility ranges from 3.5% to 16.7% in more developed countries and from 6.9% to 9.3% in the less-developed ones, with an estimated overall median prevalence of 9% Differences between the developed and developing world are emerging due to variations of infertility care and different socio-cultural values surrounding procreation and childlessness. In recent years, the

prevalence of infertility has been significantly increased (Meng et al., 2015). Risk factors of impaired fecundity or factors the increasing trend could be due to delayed childbearing of couples, alterations in semen quality due to habits such as cigarette smoking and alcohol, changes in sexual behavior and elimination of most taboos. Infertility has been recognized as a potentially serious, costly and burdensome problem for affected families. It is a medical circumstance that not only has health implications for those involved, but also is a condition linked to individual human rights. The social stigma of childlessness still leads to isolation and abandonment in many developing countries (Kazemijaliseh et al., 2015). The risk factors for infertility can be classified into genital, endocrinal, developmental and general factors. pelvic inflammatory diseases due to sexually transmitted diseases, unsafe abortion, or puerperal infection is the main cause of tubal infertility caused mainly by chlamydial infection. Polycystic ovarian syndrome is thought to be the commonest cause of a nonovulatory infertility. Several lifestyle factors may affect reproduction, including habits of diet, clothing, exercise, and the use of alcohol, tobacco, and recreational drugs. (Mokhtar, Ali Hassan, Mahdy and Elkhowsky, 2006) Recent

surveys in sub-Saharan Africa show a prevalence of 3% for primary infertility and up to 23% of secondary infertility. There are noticeable inconsistencies in infertility definitions used in population based surveys within and between countries. (Khalifa and Ahmed, 2012) Infertility is currently becoming more of a burden in Sudanese society mainly because both men and women are marrying at an older age and during difficult financial and socio-economic circumstances. Now women are having shorter reproductive periods and men want to ensure that they, as a couple, can procreate as they are unlikely to remarry. (Khalifa and Ahmed, 2012) Prevalence is the proportion of a population who have a specific characteristic in a given time period, regardless of when they first developed the characteristic (NIMH » Statistics, 2020)

Justification:- World Health Organization estimates that there are 60-80 million infertile couples worldwide with the highest incidence in some regions of Sub-Saharan Africa is said to have an “infertility belt” warped around its center as infertility rate may reach 50% compared to 20% in Eastern Mediterranean Region and 11% in the developed world (Mokhtar, Ali Hassan, Mahdy and Elkhwsky, 2006). There is a clear lack of infertility statistics in Sudan studies in parallel African countries showed the main cause of infertility among females is tubal factor due to chronic infections (post partum infections, pelvic inflammatory diseases and sexual transmitted infections). In Sudan, one study provided prevalence data in 10 states in Sudan (11.5%), primary infertility being more prevalent than secondary infertility (79.5% and 20.5% respectively). Female factor infertility constituted 37% of the total determinates of infertility while male factor constituted 20%. An ovulation was the most common female factor (69.5%) mostly due to hyperprolactinemia (47.5%). (Khalifa and Ahmed, 2012)

Objectives: To study the prevalence of infertility and to identify risk factors for impaired fecundity in Sudanese women.

Research Methodology:

Study design: -

This descriptive cross sectional centre-based study

Study settings:

Banon Center for Assisted Reproduction Technology and Nile Infertility Center (NFC)

Located in Khartoum two. They provided fertility Services which include detection and follow-up of pregnancy, obstetrics and gynecology, Conduct laparoscopy operations, uterine binocular operations, all laboratory tests, Sample and testicular and sperm bank, Laboratory tests. The In Vitro Fertilization (IVF).

Study population:

All Sudanese infertile women at reproductive age. From different demographic, social, and cultural background.

Sampling Technique: This non-probability method, convenience sampling technique during specified period.

Sample Size: 80 women

Data Collection Tool and Technique: by structural administered questionnaire. Data were collected by using interviewing structured questionnaire.

Data presented and analysis: data were processed and analyzed by SPSS version 20 and presented in cross tabulations, simple frequency tables and figures.

Ethical consideration: Approval was taken from the Research Committee at Al Neelain University and two center administrators and a verbal agreement from the participants. Before starting interviewing the participants, their consent was secured after clear explanation of this study to the participants. The participants were interviewed in a confidential way.

Results:-

Table.1: Distribution of respondents according to age .n=80

Age group	Frequency	Percent
< 20 yrs.	3	3.8
(21-30) yrs.	30	37.5
(31-40) yrs.	23	28.8
> 40 yrs.	24	30.0

Total	80	100.0
--------------	-----------	--------------

Table.2: Distribution of respondents according to level of education. n=80

level	Frequency	Percent
primary	6	7.5
secondary school	38	47.5
university	36	45.0
Total	80	100.0

Table.3: Distribution of respondents according to the Body Mass index.

Weight	Frequency	Percent
underweight	8	10.0
overweight	35	43.8
normal weight	10	12.5
obese	27	33.8
Total	80	100.0

Table no 4 Distribution of respondents according to regularity of menstrual cycle. n=80

Regularity	Frequency	Percent
regular	44	55.0
irregular	36	45.0
Total	80	100.0

Table 5: Distribution of respondents according to type of infertility. n=80

Type of infertility	Frequency	Percent
primary	54	67.5
secondary	26	32.5
Total	80	100.0

Table.6: Distribution of respondents according to gender cause of infertility.n=80

Causes	Frequency	Percent
due to woman	37	46.2
due to man	10	12.5
due to both	27	33.8
idiopathic	6	7.5
Total	80	100.0

Table.7: Association between Heavy caffeine used * types of infertility n=80

Heavy caffeine	type of infertility		Total	Chi-square	p- value
	primary	secondary			
No	33	12	45	1.595	< 0.001
Yes	21	14	35		
Total	54	26	80		

Table.8: Association between lack of exercise * types of infertility .n=80

lack of exercise	type of infertility		Total	Chi-square	p- value
	primary	secondary			
No	2	3	5	1.839	< 0.001
Yes	52	23	75		
Total	54	26	80		

Table.9: Association between the use of long term medication * types of infertility. n=80

Use of long term medication	type of infertility		Total	Chi-square	p- value
	primary	secondary			
No	45	14	59	7.882	0.007
Yes	9	12	21		
Total	54	26	80		

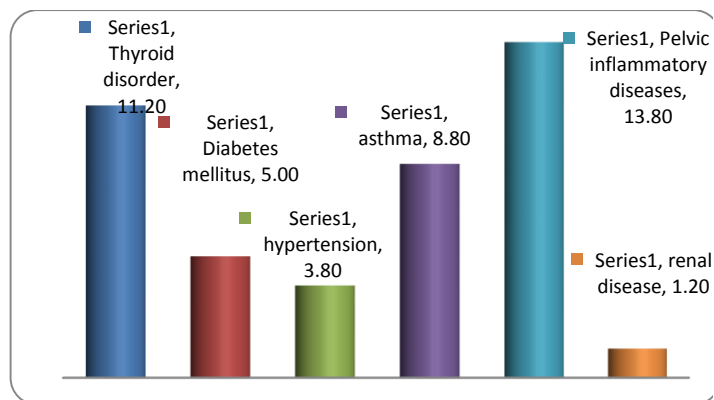
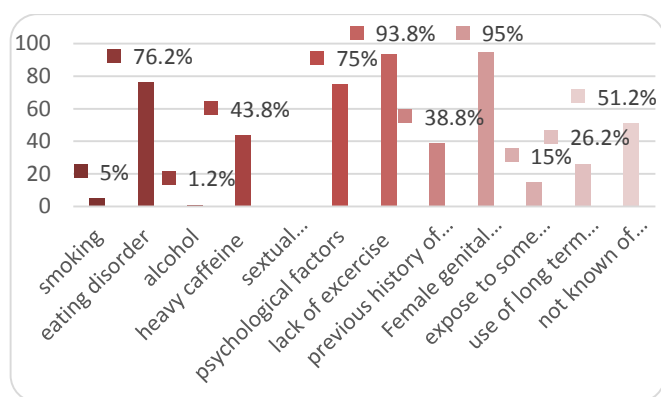


Figure (I) History of chronic illness



Figures (II) All associated risk factors of impaired fecundity

Discussion: The study is conducted to investigate the prevalence of infertility and to identify the risk factors of impaired fecundity at tow fertility centers at Khartoum state. About 80 respondents were enrolled at this study .The Majority of participants age is between 21-40 is 65% and most of participant's level of education 45% had secondary educations. . This finding is similar other study that indicated that advanced age of women was related to infertility or longer waiting times to pregnancy. (Meng et al., 2015)

In this study 67% of participants had primary infertility and 32% had secondary infertility, similar study was conducted at Iran revealed Primary infertility; 10.6% secondary infertility 2.7% and similar study was conducted in Sudan revealed the prevalence of infertility 69% of couple had primary infertility and 31% had secondary infertility (Elhussein et al., 2019)) in the current study that incidence of infertility in woman is 46%/ and in men about 12% ,in previous study reported prevalence of infertility was 12.5% among women and 10.1% among men (Datta et al., 2016)

Regarding increase body mass indexes about 45% of the participants had increase the risk of decreases fecundity

and similar study was conducted. Woman with higher BMI was more likely to have a delayed pregnancy or to be infertile, (Meng et al., 2015)

In the current study there are increase risk of respondents had previous history of pelvic inflammatory diseases and thyroid disorders with primary infertility. Similar study was conducted in Egypt while only 0.6% of cases with primary infertility. The risks of developing infertility among cases who had diabetes mellitus , hypertension and thyroid diseases were not statistically significant (Mokhtar, Ali Hassan, Mahdy and Elkhwsky, 2006)

Forty five percent of respondents complain from irregular menstruation abnormal pattern of menstrual cycle may be caused by some factors like poly cystic ovary syndrome, hyper prolactinemia and infections of genital tract. Menstrual cycle irregularity was reported among 27.3% of females with primary infertility .Females with menstrual irregularity had a significant higher risk of impaired fecundity relative to females with regular cycles this said by Egyptian study (Mokhtar, Ali Hassan, Mahdy and Elkhwsky, 2006)

Conclusion: Infertility is multi factorial in nature and several risk factors are associated with impaired fecundity, should be taken into consideration ,in this study the researcher found that risk factors that impaired fecundity are an advanced maternal age ,increase body mass indexes, menstrual irregularities .male practice of exercise.

Recommendations: Infertility should be taken into consideration in terms of reproductive health needs, early detection and treatment of any gynecological diseases especially pelvic inflammatory diseases by regular checkup provide sensitive counseling for high risk individual to avoid inappropriate treatment.

References

- Datta, J., Palmer, M., Tanton, C., Gibson, L., Jones, K., Macdowall, W., Glasier, A., Sonnenberg, P., Field, N., Mercer, C., Johnson, A. and Wellings, K., 2016. Prevalence of infertility and help seeking among 15 000 women and men. *Human Reproduction*, 31(9), pp.2108-2118.
- Elhussein, O., Ahmed, M., Suliman, S., Yahya, I. and Adam, I., 2019. Epidemiology of infertility and characteristics of infertile

couples requesting assisted reproduction in a low-resource setting in Africa, Sudan. *Fertility Research and Practice*, 5(1).

Kazemijaliseh, H., Ramezani Tehrani, F., Behboudi-Gandevani, S., Hosseinpanah, F., Khalili, D. and Azizi, F., 2015. The Prevalence and Causes of Primary Infertility in Iran: A Population-Based Study. *Global Journal of Health Science*, 7(6).

Khalifa, and Ahmed, 2020. *Reviewing Infertility Care In Sudan; Socio-Cultural, Policy And Ethical Barriers*. [Online] Available at: <https://www.researchgate.net/publication/229072336>

Meng, Q., Ren, A., Zhang, L., Liu, J., Li, Z., Yang, Y., Li, R. and Ma, L., 2015. Incidence of infertility and risk factors of impaired fecundity among newly married couples in a Chinese population. *Reproductive Biomedicine Online*, 30(1), pp.92-100.

Mokhtar, S., Ali Hassan, H., Mahdy, N. and Elkhwsy, F., 2006. Risk Factors for Primary and Secondary Female Infertility in Alexandria: A Hospital Based Case Control Study. *Journal of the Medical Research Institute*, Vol. 27 (No.4), pp.255 -61.

Nimh.nih.gov. 2020. *NIMH » Statistics*. [Online] Available at <https://www.nimh.nih.gov/health/statistics/index.shtml>

Parsanezhad, E., 2013. Epidemiology and Etiology of Infertility in Iran, Systematic Review and Meta-Analysis. *Journal of Women's Health Issues & Care*, 02(06).