



RESEARCH ARTICLE

RISK FACTORS ASSOCIATED WITH INFERTILITY AMONG SUDANESE WOMEN IN KHARTOUM STATE 2013

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ABSTRACT

Background: Female infertility either primary or secondary type is a multifactorial condition. It constitutes a worldwide public health problem that has gained much concern during the past two decade. Causes and risk factors of infertility can be classified into: genital, endocrinal, developmental and general factors Overall aim of the study was to identify the risk factors of infertility among Sudanese women.

Materials and methods: Multi center-based cross sectional descriptive study design was conducted at Khartoum state .the total number of participants enrolled in this study mounted to 162 infertile women. Data were collected using standardized administered questionnaire to assess risk factors associated with infertility among Sudanese women .SPSS version 16 was used to analyze the collected data.

Results: Distribution of participants by age in years showed there is no significant association with type of infertility p value (0.747), also found that significant relation between current occupation and type of infertility p value (0.01), regard distribution of participants by smoking and type of infertility seen strong association p value (0.007). Distribution of participants by ever been subjected to circumcision and type of infertility revealed no significant relation P value (0.41). Distribution of participants by family history of infertility illustrated strong association with type of infertility P value (0.004) and distribution of participants by uterine fibroids showed highly significant association with type of infertility P value (0.000)

Conclusion: Most common risk factors of female infertility in this study are family history of infertility; current Occupation, uterine fibroids and smoking were strong associated by types of infertility. Female circumcision and age was not associated by types of infertility among Sudanese women.

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INTRODUCTION

Worldwide the overall incidence of infertility related to both male and female factors continue to rise despite the many achieved advances in reproductive technology (Almroth and Elmusharaf, 2014) Infertility is a global reproductive health issue and its social and psychological consequences simply cannot be ignored. Efficient treatment for infertility is time-consuming, expensive and often unsuccessful (Aziz, 2010). It is estimated that an average of 10% of the global reproductive-age population is unable to get pregnant or carry a pregnancy to term. While there is no universal definition of infertility, a couple is generally considered clinically infertile when pregnancy has not occurred after at least twelve months of

regular sexual activity without the use of contraceptives. Primary infertility is defined as childlessness and secondary infertility as the inability to have an additional live birth for a parous woman (Elkhwsky *et al.*, 2010). Infertility seems to be a multidimensional health issue which occurs not only due to health problems related to the fallopian tubes, the ovaries, and the endometrium, but it may also be a result of the choices imposed by the modern lifestyle, like the higher average age of people who get married (Eniola *et al.*,2012).

MATERIALS AND METHODS

Multi center-based cross sectional descriptive design was conducted. This study was carried out in Nile Fertility Center (NFC), Khartoum Reproductive Health care Centre (KRHC), Sudan Assisted Reproductive Clinic (SARC) and Dr. Elsir Abuelhassan Center which are the largest centers provided

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assisted conception and modern antenatal care in Sudan. The study targeted all infertile women in reproductive age 15-49 years, from all Sudanese tribes and ethnic groups, all socioeconomic groups and religions. Four health centers from (Mokhtar *et al.*, 2006) centers were randomly selected, and then Proportional sample size was drawn from each selected center. The number participants of attending infertile women in each center were used to estimate the respective proportions total of 162 infertile women were enrolled in the study. Was selected from each center by systematic random sampling technique. Data was collected by four trained research team using standardized administered questionnaire to assess the risk factors of infertility among Sudanese women. The data were analyzed using statistical package of social science (SPSS) version 0.16 and significance test was checked by chi-square X^2 and the results was accepted when the P.value is 0.05% or less.

RESULTS AND DISCUSSION

Table 1. Distribution of infertility's types among participants by age (n=162)

Age in years	Type of infertility		Total
	Primary infertility	Secondary infertility	
Less than or 20 years	2 1.2%	0 .0%	2 1.2%
21- 30 years	47 29.0%	25 15.4%	72 44.4%
31- 40 years	39 24.1%	22 13.6%	61 37.7%
41- 50 years	19 11.7%	8 4.9%	27 16.7%
Total	107 66.0%	55 34.0%	162 100.0%

P-value = 0.747;

37.7% of participants their age between (31- 40 years).

In current study 72 (44.4%) of participants age between (21-30) years, represented 47(29.0%) were primary infertility and 25 (15.4%) of participants were secondary infertility as in table (1), contradicted to another study done by Nousheen Aziz in Liaquat University Hospital 2007 her findings were 11(34.3%) presenting with primary infertility and 6 (33.3%) presenting with secondary infertility were their age (20-30) years ⁽⁶⁾ In this study the age is not significantly associated with types of infertility (P. value =0.747), from while the age is significantly associated with type of infertility in literature review ^(7,8).

Table 2. Distribution of infertility types among participants versus current occupation (n=162)

Current Occupation	Type Of Infertility		Total
	Primary infertility	Secondary infertility	
Employee	11 6.8%	11 6.8%	22 13.6%
Professional job	29 17.9%	13 8.0%	42 25.9%
Merchant	3 1.9%	0 .0%	3 1.9%
Student	2 1.2%	6 3.7%	8 4.9%
House-wife	56 34.6%	25 15.4%	81 50.0%
Other	6 3.7%	0 .0%	6 3.7%
Total	107 66.0%	55 34.0%	162 100.0%

P-value = 0.01

50.0% of participants were House-wife

As showed in table 2 above the result revealed that half of participants 81(50.0%) were house wife, 56(34.6%) were primary infertility and 25(12.4%) were secondary infertility so the current occupation was significantly associated with type of infertility P.value 0.01, however findings of Roupa Z and et al (2009) in another study 15 (13.6%) of participants were house wife, two third of them employee 96 (62.8%) this result corresponding with the literature review ⁽⁵⁾.

Table 3. Distribution of infertility types among participants versus smoking (n=162)

Being smoke	Type of infertility		Total
	Primary infertility	Secondary infertility	
Yes	5 3.1%	10 6.2%	15 9.3%
No	102 63.0%	45 27.8%	147 90.7%
Total	107 66.0%	55 34.0%	162 100.0%

P-value = 0.007

9.3% of participants were smokers

As regard distribution of participants by smoking Fifteen of participants (9.3%) were smoker,10 (6.2%) of smoker were secondary infertility and 5(3.1%) of them were primary infertility, so there is strong statistical significant association between smoking and type of infertility P-value = 0.007, this revealed by table (3), the present results agreed with literature review, cigarette smoking interferes with folliculogenesis (nicotine and other harmful chemicals in cigarettes interfere with estrogen synthesis) (Mokhtar *et al.*, 2006; Rakesh Sharma *et al.*, 2013; PMCID, 2017) the present study results differ from Roupa z. et al findings, where 50(45.5%) of the participants were smokers (Eniola *et al.*, 2012).

Table 4. Distribution of infertility types among participants versus circumcision (n=162)

Been subjected to circumcision	Type of infertility		Total
	Primary infertility	Secondary infertility	
Yes	105 64.8%	53 32.7%	158 97.5%
No	2 1.2%	2 1.2%	4 2.5%
Total	107 66.0%	55 34.0%	162 100.0%

P-value = 0.41

97.5% of participants were circumcised

The great majority 97.5% of participants were circumcised. About two third of participants 64.8% were primary infertility and one third 32.7% were secondary infertility, there is no statistically significant association between types of infertility P-value = 0.41, table (4) illustrated that, this findings agree to other studies their findings were 98.6% underwent extensive female genital mutilation (FGM) (Roupa *et al.*, 2009). Also This findings are similar to those reported in other study done by Lars Almroth et al in Sudan (Pingping *et al.*, 2006).

39.5% of participants have family history of infertility

In the present study, thirty nine point five percent of participants had family history of infertility, while twenty one percent of participants had family history of infertility were

primary infertility and eighteen point five percent were secondary infertility this are strong statistically significant associated with family history and types of infertility P-value = 0.004 illustrated that by table (5). The findings of the present study agreed with results of Samiha Mokhtar *et al.*, 2011

Table 5. Distribution of infertility types among participants versus family history (n=162)

Family history of infertility	Type of infertility		Total
	Primary infertility	Secondary infertility	
Yes	34 21.0%	30 18.5%	64 39.5%
No	73 45.1%	25 15.4%	98 60.5%
Total	107 66.0%	55 34.0%	162 100.0%

P-value = 0.004

Table 6. Distribution of infertility types among participants versus uterine fibroids (n=162)

Uterine fibroids	Type of infertility		Total
	Primary infertility	Secondary infertility	
Yes	5 3.0%	15 9.3%	20 12.3%
No	102 63.0%	40 24.7%	142 87.7%
Total	107 66.0%	55 34.0%	162 100.0%

P-value = 0.00

12.3 % of participants had uterine fibroids

In present study uterine fibroids were twelve point three percent of participants; three percent of participants were primary infertility while nine point three percent were secondary infertility, so there is highly statistically significant association between Uterine fibroids and types of infertility P-value = 0.00 demonstrated in table (6). Present results higher than previous study conducted in Alexandria by Samiha Mokhtar and et al, primary infertility and secondary infertility were 1.7%, 4.7% respectively (Mokhtar *et al.*, 2011). According to literature review, fibroids in the uterus are extremely common in women in their 30s. Large fibroids may cause infertility by impairing the uterine lining, blocking the fallopian tube, distorting the shape of the uterine cavity or altering the position of the cervix (Rakesh Sharma *et al.*, 2013) and also contributory role of uterine fibroids to infertility by increasing with age, which becomes significant as more women are delaying childbearing. Therefore, fibroids and infertility frequently occur together (Van Heertum and Barmat, 2014). And current medical therapy for fibroids is associated with suppression of ovulation, reduction of estrogen production, or disruption of the target action of estrogen or progesterone at the receptor level, and it has the potential to interfere in endometrial development and implantation (World Health Organization, 2014).

Conclusion

The results of the present study are comparable with other local and international studies which revealed that uterine fibroids, family history of infertility, and age at marriage are risk factors for primary and secondary infertility which strategic management should be directed an Infertility should be

considered a public health issue (seen as a governmental responsibility).

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