Sudan Journal of Medical Sciences
Volume 12, Issue no. 2, DOI 10.18502/sjms.v12i2.917
Production and Hosting by Knowledge E

Research Article

Social Meaning and Consequences of Infertility in Ogbomoso, Nigeria

Fehintola A. O.[1], Fehintola F. O.[2], Ogunlaja O. A.[1], Awotunde T. O.[1], Ogunlaja I. P.[3], and Onwudiegwu U.[4]

[1]Obstetrics and Gynaecology Department, Bowen University Teaching Hospital, Ogbomoso, Oyo State, Nigeria
[2]Community Medicine Department, Bowen University Teaching Hospital, Ogbomoso, Oyo State, Nigeria
[3]Obstetrics and Gynaecology Department, General Hospital, Ilorin, Kwara State, Nigeria
[4]Department of Obstetrics, Gynaecology,and Perinatology, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria

Abstract

Background: This study examined the meaning of infertility from layman's perspective, and experiences of women suffering from infertility among reproductive age women seeking care at the gynaecology unit of the Bowen University Teaching Hospital, Ogbomoso, Nigeria. **Materials and Methods:** It was a cross-sectional study. Quantitative and qualitative data collection methods were employed. Quantitative data collection was by the aid of a structured interviewer-administered questionnaire among 200 women seeking care for infertility at the hospital. Qualitative data collection was by Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs). **Result:** Approximately 40% and 60% of the respondents seeking care for infertility were suffering from primary and secondary infertility respectively. Perceived meaning and etiologies of childlessness were multidimensional, but 33% of the respondents not sure of the causal factor. Seventy-nine percent were under pressure to become pregnant. The high premium placed on fertility within marriage has placed a larger proportion of them under pressure from their husbands (25%), their mother-in-laws (40%), and the community (14%). **Conclusion:** This study concluded that women regard infertility to be caused by multiplicity of factors. Most of these etiologies were unscientific and unverifiable. Fruitful expectations also put enormous burden on those women suffering from infertility including adverse psychosexual effects. The unceasing pressure due to infertility in this group of patients calls for urgent intervention as most of these women become susceptible to high risk sexual behavior, depression and other severe consequences.

Keywords: Social meaning, consequences, infertility

Corresponding Author:
Fehintola A. O.; email:
akintunds@yahoo.com

Received: 15 June 2017
Accepted: 1 July 2017
Published: 4 July 2017

Production and Hosting by Knowledge E

Editor-in-Chief:
Prof. Mohammad A. M. Ibnouf

OPEN ACCESS

الملخص

الخلفية: بحثت هذه الدراسة معنى العقم من وجهة نظر الشخص العادي، وتجارب النساء اللواتي يعانين من العقم بين النساء في سن الإنجاب اللائى حضرنا للحصول على الرعاية في وحدة أمراض النساء في مستشفى بوين الجامعى التعليمى اوقبوموسو، نيجيريا.

المواد والطرق: فى دراسة مستعرضة تم فيها توظيف أساليب جمع البيانات الكمية والنوعية. تم جمع البيانات الكمية بمساعدة من مقدمى استبيان المقابلة المعد من ٢٠٠ امرأة حضرن للحصول على الرعاية الخاصة بالعقم في المستشفى. تم جمع البيانات النوعية من المناقشات البؤرية والمقابلات المفتاحية.

النتيجة: حوالي ٤٠٪ و ٦٠٪ من المستطلعات اللواتى يلتمسن العلاج من العقم يعانين من العقم الابتدائي والثانوي على التوالي. وكان معنى ومسببات عدم الإنجاب من وجهة النظر متعددة الأبعاد، ولكن ٣٣٪ من المستطلعات لم تكن متأكدة من عامل السببية. وكانت ٩٩ ٪ تحت الضغط لتصبح حاملا. وقد وضعت أهمية كبيرة على الخصوبة في إطار الزواج نسبة كبيرة منهن تحت ضغط من أزواجهن (٢٥٪)، امهات أزواجهن (٤٠٪) والمجتمع (١٤٪).

الخلاصة: خلصت هذه الدراسة إلى أن النساء يعتبرن أن يكون سبب العقم هى عوامل عديدة. وكانت معظم هذه المسببات غير علمية ولا يمكن التحقق منها. وضعت التوقعات والطموحات أيضا عبء هائل على تلك النساء اللواتي يعانين من العقم بما في ذلك آثار نفسية سلبية. الضغط المتواصل بسبب العقم في هذه المجموعة من المرضى يدعو للتدخل العاجل لأن معظم هؤلاء النساء تصبح عرضة للسلوك الجنسي عالية المخاطر، والاكتئاب وعواقب وخيمة أخرى.

1. Introduction

Infertility can be defined as the inability of a couple to achieve conception over a twelve months' period despite regular unprotected sexual intercourse [1]. Recent global evidence shows infertility as a major public health problem. It is a problem of global proportion affecting between 8 and 12 percent of couples worldwide [2]. In developing countries, about 25% of couples are infertile due to primary or secondary infertility [3]. In Nigeria, overall prevalence of infertility is 22% with primary infertility at 5% and secondary at18% [4].

Infertility possess socio-cultural attributes and challenges at both etiological and experiential levels. Etiological explanation differs to an extent between health care

providers, patients, and the society [5]. From the western medical tradition, explanations on the causes of infertility centered on biological and empirical factors which could readily be subjected to clinical investigations [6]. To the traditional medical practitioners, the factors responsible for infertility would range from explainable such as biological factors to unexplainable factors such as supernatural factors.

Cultural beliefs are major determinants in the prevailing explanation of infertility from the lay perspectives. The divergence in the etiological explanation of infertility between the patient and the professional health care provider has implications for care provision and compliance of the patient to treatment.

Infertility has psychosocial impacts on couples especially the women [7]. This is more obvious in high fertility settings where children are highly desired and parenthood is culturally mandatory [8]. In African settings, infertility is a socially unacceptable condition; leading most infertile couples on a relentless "quest for conception" [9]. Studies have shown that women not only are harassed by the family members but face various forms of marital instabilities [10–17].

On the above backdrop, this study investigated the perceived causes and impacts of infertility in the context of patient seeking care at Bowen University Teaching Hospital Ogbomoso in Oyo State. Understanding patient's perception on the etiology and experiences of infertility will go a long way in furthering patient centered care and scaling up compliance to treatment.

2. Material and Methods

2.1. Location of the study

The study was carried out at the Bowen University Teaching Hospital (BUTH) Ogbomoso. The teaching hospital has gynaecology unit. Ogbomoso is a semi-urban town with a projected population of 861,300 according to the 2004 national census. This study was based in the gynaecology unit of the hospital.

2.2. Study Design

This study was cross-sectional in nature.

2.3. Study Population

The study was carried out among women of reproductive age (15 - 49 years) who are currently married with infertility challenge and currently seeking care at the gynaecology unit of the hospital. Another group of currently married women (15-49) having at least two living children who brought their children for care at the Well Infant Clinic of the hospital during the period of the study were included in the qualitative aspect of the study. Women outside the age group stated above and those who refused to participate were excluded.

2.4. Sampling Method

A purposive sampling methodology was used to select eligible patients for the study while sample size was determined using fishers' formular11. This gave a total of 200 women. Every patient with infertility that fulfilled the inclusion criteria for the study was enrolled at every gynaecology clinic visit until the expected sample size of 200 was achieved. Forty women who are currently married (between 15 and 49 years) having at least two living children were recruited for the four FGDs i.e. ten participants per group. From the women suffering from infertility, eight were chosen by balloting for the 8 KIIs.

2.5. Data Collection Techniques and Instruments

Data collection was by quantitative and qualitative research techniques. T Semi-structured interviewer administered questionnaires, Key Informants Interviews and Focus group discussions were the instruments used in the study

2.6. Quantitative Data

A semi-structured interviewer administered questionnaire was used in quantitative data collection. This tool was designed based on findings from the literatures. Information on the educational status of the patient and the job description of the husband was also collected and used for socio - economic stratification into class 1 to 5.12 In this study, class 1 and 2 were grouped as upper social class, class 3 as middle social class while class 4 and 5 were grouped as lower social class to aid data analysis. The instrument was translated from English to Yoruba and was administered in Yoruba. Interviews were conducted by appropriately trained interviewers.

2.7. Qualitative Data

A total of 4 FGDs and 8 Key Informants Interviews (KIIs) were conducted throughout the period of the study. Separate guideline for FGDs and KIIs were developed in English and translated into Yoruba language, and pretested. KIIs conducted for women with infertility to delve into their perceptions and experiences regarding infertility.

2.8. Method of Data Analysis

Quantitative data entry was done using Statistical Package for Social Science (SPSS) version 20. Descriptive analysis was used, among others, for the socio-demographic

characterization of the respondents and other relevant variables (age, education, social status etc. Audio recordings of FGDs and KIIs were transcribed within 48 hours of the interview to ensure data credibility, and content analysis was done.

2.9. Ethical Consideration

Ethical clearance was obtained from the ethics and research committee of Bowen University Teaching Hospital, Ogbomoso. During data collection individuals were informed about the purpose of the study, confidentiality, and the right not to participate or withdraw at any time without any effect on their health or other services.

3. Results

3.1. Quantitative Data

Majority of the respondents (50%) were between 30 and 39 years of age. More than two-third (68%) of the respondents were Christians. Majority (82.5%) were within the first ten years of their marriage. Sixty-five percent of the respondents had less than secondary school education.

Fifty percent of the respondents belonged to lower social class as shown in Table 1 above.

Table 2 showed that 60% of the respondents had at least a pregnancy before now. Within the category of women who had been pregnant before, majority (33.4%) had a living child. More than three fourth (79%) of the respondents were under pressure to become pregnant at the time of the survey. A relatively high proportion (40%) attributed the source to

their mother-in-laws, while (25.3%) perceived their husbands as the source. Society in general contributed (19%) as the source of pressure.

A number of the respondents perceived infertility aetiology from multiple sources. A high proportion of the respondents were disoriented on this as (33%) could not provide concrete response on etiology. The view that lifestyle and risky behaviors could have implications on fertility was shared by (25%) of the respondents as they attributed the cause to induced abortion and STIs. Sixteen percent of the respondents attributed aetiology of infertility to spiritual forces such as the devils, witches, and ancestral spirits while 22% in-correctly highlighted use of OCPs and IUCD as causes of infertility.

According to Table 4 above, all the respondents had sought orthodox care at one time or the other for infertility. Multiple health seeking behavior was observed among the respondents. About (56%) sought for help from the church while (50%) visited

Variables	Frequency	Percentage
Age of women (Years)		
20 – 29yrs	85	42.5
30 – 39yrs	100	50
40 – 49yrs	15	7.5
Total	200	100
Religion		
Christianity	136	68
Islam	64	32
Traditional	None	0
Total	200	100
No. of years Married		
5-Jan	80	40
10-Jun	85	42.5
15-Nov	25	12.5
>15	10	5
Total	200	100
Level of Education		
No Formal Education		
Primary	40	20
Secondary		
Tertiary	90	45
Total	50	25
	20	10
	200	100
Social class		
Upper	40	20
Middle	60	30
Lower	100	50
Total	200	100

Table 1: Socio-demographic Characteristics of the respondents.

Variable	Frequency	Percent
Yes	120	60
No	80	40
Total	200	100
Pregnancy Outcome		
Voluntary termination	43	35.8
Spontaneous Abortion	37	30.8
Delivered	40	33.4
Total	120	100
Current pressure to become pregnant		
Yes	158	79
No	42	21
Total	200	100
Source of the pressure to become pregnant		
Husband	40	25.3
Mother-in-law	60	40
Father – in-law	5	3
Parents	2	1.2
Friends	13	8.2
Society in general	30	19
Self	8	3.3
Total	158	100

Table 2: Pregnancy History and Pressure to become pregnant among the respondents.

the herbalists. Fifty six percent had prayers and spiritual cleansing while (19%) had to offer sacrifices to appease the gods apart from seeking medical care.

Variables	Frequency	Percent
Induced Abortion	28*	14
STIs	21*	11
Devil	15*	7.5
Sinful lifestyle	11*	5.5
Ancestral spirit	9*	4.5
Witches	8*	4
Abnormal menses	22*	11
Watery sperm	18*	9
Use of IUCD and OCPs	22*	11
I don't know	66	33

Table 3: Respondents' perception on factors responsible for infertility and consequences of infertility on marital relationship. *multiple responses were recorded.

Variable	Frequency	Percent
Source of care sought apart from the hospital		
Church	112*	56
Herbalist	100*	50
Treatment received apart from orthodox medicine		
Prayers		
Spiritual cleansing	60*	30
Herbal concoction	52*	26
Sacrifice to appease gods	70*	35
	38*	19

Table 4: Sources of health seeking and Treatment given among survey respondents with infertility. *Multiple responses were recorded.

4. Qualitative Data

4.1. Key Findings from Focus Group Discussion

4.1.1. Perception of participants about infertility and its etiologies in this environment:

Majority of the participants perceived infertility as inability to achieve pregnancy in a couple

Some other participants perceived infertility as not having more than a child or having no male child irrespective of number of children. This was corroborated by a statement made by one of the participants " a *couple with only one child is not better than those with none"*.....a 38 year old farmer.

4.2. Socially acceptable limit of infertility

Majority of the participants perceived that a fertile couple should achieve conception within the first 3 to 6 months of marriage, while for others it may take up to a year or longer. This is because of the pressure that may be exerted if the waiting time until pregnancy goes beyond a socially acceptable limit.

"If a woman marries this month, we start counting the months, one, two, and three; still if nothing happens the elders will tell the husband to seek help ".....a 32 years old pepper seller

Majority of the participants felt that infertility etiologies were more spiritual, and traditional than medical. In explaining the spiritual causes, a 26 years old tailor said,"It *is the devil that causes infertility since it is the will of God that marriage be fruitful."*

"*It runs in some families as a result of ancestral curses; as such the couple needs to go for deliverance*" .....a 30 years old hospital maid.

Some participants perceived infertility as a result of punishment from God. A 29 years old food vendor said that a woman may be punished as a result of previous termination of pregnancy.

Majority of the participants perceived infertility as women's problem. Only 8% of the participants said that it could be caused by men. Other causes mentioned include dark menses, and egress of semen from the vagina after intercourse.

4.2.1. Attitudes of people towards women with infertility

Majority of the participants said they empathize with women who have challenges of infertility

Some of them however believed that they are suffering from their sins and should be dealt with carefully in order to prevent transfer of curses to others. *"Such couple can never wish you well. They usually maltreat other people's children. It is better to*

avoid them" ..... a 33 years old civil servant. *"I can never allow them to carry or play with my children because they can poison them"* ..... a 36 years old teacher.

Some of the participants said that infertile women are sometimes called "witches" and usually not invited to naming ceremonies and children's birthday parties.

4.2.2. Findings From Key Informants Interviews (KIIS)

The KIIs explored the perceptions of the women with infertility on the subject matter and their experiences so far. Informants were chosen at random over 8 clinic visits. One of the informants has a living child who is a ten-year-old boy. Three of the informants are presently in their second marriage. Their first marriage ended in divorce due to infertility. In two out the remaining five informants, their husbands married a second wife.

Majority of the informants perceived infertility as inability to achieve pregnancy in a woman living with a man for at least a year. However, some of the informants said that pressure to become pregnant became enormous barely six months into their marriage. All the informants believed that a woman with a living child is not infertile irrespective of the sex.

4.3. Causes of infertility

Most of the informants perceived aetiology of infertility as more spiritual than physical. A 42 years old food vendor said "*My mother was married for 15years before she was able to conceive. I am presently experiencing the same. There is a curse upon us"*.

Very few informants agreed that infertility may be caused by men. *"My husband has a low sperm count and we were told that it was the cause of our childlessness. He is presently on medication*" ..... a 34 years old banker. Other etiologies mentioned were STIs, and uterine fibroids

4.4. Treatment of infertility

Most of the informants had sought care from many hospitals, churches and some have visited herbalists before coming to our facility. *"I was given concoction mixed with my urine. My husband started beating me when I refuse to take it. I Carried a sacrifice to one of the junctions in our neighborhood naked in the middle of the night two years ago"* .....a 45 years old hospital maid.

None of the informants accepted child adoption as an option for management of infertility. *"I will rather remain childless than to take another woman's child as mine. The child will eventually know. Our relatives will laugh at me* ".....a 37 years old banker.

Majority of the informants said that they were left to source for funds for the treatment of infertility. *"My husband believes that I am the one having problem since the second wife is presently pregnant. He is not ready to waste money on me"* .....a 29 years old tailor. "*My husband does not believe in orthodox medicine. He sees hospital treatment as a waste of money"* .....a 43 years old banker.

4.5. Consequences of infertility

Four of the eight informants reported history physical assault in their marriage as a result of infertility. *"My husband usually comes home late and drunk. He occasionally beats me calling me different names. He once said that I was the source of his sorrow"* .....a 39 years old food vendor.

Psycho-social effects of infertility gathered from the KIIs ranged from depression, low self-esteem, to attempted suicide. "*I felt tired of living on the day of the naming ceremony of my husband's second wife. My husband did not allow me to carry the baby. They started calling me a witch. I left the venue of the ceremony disgraced. I felt so bad that I drank a bottle of kerosene when I got home. It was a neighbor that God used to save me by taking me to the hospital"* .....a 49 years old trader.

5. Discussion

The findings of this study provided an insight into the dynamics of infertility from the perspectives of women attending infertility clinics. Majority of the respondents in this study were between ages 30 and 39 years, and had spent more than five years in marriage. Most of them also had secondary infertility and were in the lower social class.

These findings were similar to that of Sule et al. [13] where higher proportion of the women had secondary infertility and have spent more than five years in their marriages.

As shown in the KIIs, the acceptable waiting time until pregnancy was less than six months from day of wedding. Pressure starts mounting up after 6 months of

marriage and it became intense after the first 3 Years of infertility. This finding was similar to that of Okonofua et al. [9]. Majority of the respondents seek help through modern medicine and other sources. This may be a pointer to the perceptions of the women and community in general about the etiology of infertility. This was similar to the findings from other local studies [10, 14]. More than two thirds of the respondents were under pressure to achieve conception in the study with higher proportion of the pressure from their husbands and in-laws. This emphasized the need for adequate

and quality counseling which may be difficult to achieve considering the high work load and inadequate staffing in the modern health system in Nigeria.

Issues relating to infertility are often negotiated within communal context rather than between the husband and wife alone [18–21]. The interference of significant others in marital relations and challenges is common among Nigerians. Earlier studies have confirmed the likely pressure from these significant others [2, 8, 10]. Infertility related pressure could cause marital strains. This was confirmed by most of the respondents as they established the existence of threats from husbands and relatives to secure other wives for their husbands as a way of overcoming their infertility. Some marriages ended in divorce as some of the women who participated in the KIIs were in their second marriages because of infertility. This was similar to the findings of previous studies [9, 10, 22–24].

While it is easier for husbands and in-laws to consider marrying a second wife as an alternative to infertility, the same attitude is not displayed towards child adoption. A negative disposition towards child adoption is not only common among husbands and relatives, but even among infertile women. This was confirmed by reactions of participants in the FGDs and KIIs on the subject of child adoption. This negative disposition has been well documented in previous studies [15, 16, 25].

The practice of plural health seeking is common in Nigerian communities [17, 18]. This practice was also confirmed among respondents as they sought help through the orthodox and non-orthodox medical systems. Similar to the health seeking patterns, a number of the respondents perceived aetiology of infertility from multiple sources. This pattern has also been reported in previous studies [17–20].

Most participants in this study correctly identified some of the causes of infertility but some also incorrectly highlighted factors that do not cause infertility such as use of IUCD and OCPs. The in-correct fear that the method will cause infertility can lead to under-utilization and worsening of the un-met need for contraception in the developing countries.

Most of the respondents in this study were blamed for their infertility and were made to source for funds for their treatments leading to financial constraints and economic deprivation. Women with secondary infertility especially those with a living child enjoy some support from their husbands, and are less likely to be under intense pressure compared to those with primary infertility.

Orthodox treatment, even the low technology ones is beyond the reach of most of the respondents. Physical violence was reported by some of the respondents in this study while others reported threats of violence.

Psycho-social effects of infertility recorded in this study ranged from depression, low self-esteem to actual suicide attempt. This was similar to findings from previous studies [30-33].

The limitation of this study includes the fact that it is hospital based. This would have excluded other women within the same category and similar challenges seeking help through alternative sources. In spite of these limitations, the study was able to make minimal contributions on the effects of infertility on reproductive age women in the Yoruba community.

6. Conclusion

Cultural beliefs are major determinants in the prevailing explanation of infertility from the lay perspectives in Nigeria. These create divergence in the etiological explanation of infertility between the patient and the professional health care provider which has implications for care provision and compliance of the patient to treatment. With the continued pressure, due to infertility in the absence of quality support from the hospital system in form of adequate counseling and from the significant others, a number of the women under pressure could become susceptible to high risk sexual behavior, depression and other psychological problems.

7. Competing Interests

The authors declare that they have no competing interests.

8. Acknowledgements

I am using this opportunity to acknowledge useful contributions from Dr. Olorunfemi Ogundele of the community health department, Obafemi Awolowo University Teaching Hospitals Complex, Ile Ife, Osun State, Nigeria for his input in writing of this article.

9. Disclosure Statement

None for all authors.

References

[1] A. Fidler and J. Bernstein, "Infertility: From a personal to a public health problem," Public Health Reports, vol. 114, no. 6, pp. 494–511, 1999.

[2] F. van Balen and M. Inhorn, Interpreting infertility: a view from the social sciences. In: Inhorn M., van Balen F., editors. Infertility around the globe: new thinking on

childlessness, gender, and reproductive technologies, University of California Press, London, UK, 2002.

[3] E. Vayena, P. J. Rowe, and H. B. Peterson, "Assisted reproductive technology in developing countries: Why should we care?" Fertility and Sterility, vol. 78, no. 1, pp. 13–15, 2002.

[4] American Society of Reproductive Medicine, Patient's fact sheet: infertility. American Society of Reproductive Medicine.org. Dec. 1997. http://www.asrm.org/Patients/FactSheets/Infertility-Fact.pdf (26 Feb 2004).

[5] A. Daar and Z. Merali, "Infertility and social suffering: the case of ART in developing countries," in Report of a meeting on Medical, Ethical, and Social Aspects of Assisted Reproduction, E. Vayena, P. Rowe, D. Griffin, and E. Vayena, Eds., pp. 17–21, WHO, Geneva, Switzerland, 2001.

[6] American Society of Reproductive Medicine, Frequently asked questions about infertility. asrm.org, www.asrm.org/Patients/faqs.html1#Q2: (12 Mar 2004).

[7] O. Giwa-Osagie, Social and ethical aspects of assisted conception in anglophonesub-saharanafrica. In: Vayena E, Rowe P, Griffin D, editors. Report of a meeting on "Medical, Ethical, and Social Aspects of Assisted Reproduction; 2001, 17-21 Sept; Geneva, Switzerland: WHO; 2001. pp. 50-54.

[8] M. Gijsels, Z. Mgalla, and L. Wambura, 'No child to send': context and consequences of female infertility in northwest tanzania. In: Boerma T, Mgalla A, editors. Women and infertility in sub-saharanafrica. Amsterdam: Royal Tropical Institute; 2001. pp. 203-221.

[9] F. E. Okonofua, H. Diana, and O. Adetanwa, "The social meaning of infertility in south-west Nigeria," Health Transition Review 7, pp. 205–220, 1997.

[10] F. E. Okonofua, U. Onwudiegwu, and O. A. Odunsi, "Illegal Induced Abortion: A Study of 74 Cases in Ile-Ife, Nigeria," Tropical Doctor, vol. 22, no. 2, pp. 75–78, 1992.

[11] Research methodology with statistics for health and social sciences by Margarent Olabisi Araoye. pp. 177–122, 2004 edition.

[12] O. Olusanya, E. Okpere, and M. Ezimokhai, "The importance of social class in voluntary fertility control in a developing country," West Afr J Med, vol. 4, pp. 205–211, 1985.

[13] J. O. Sule, P. Erigbali, and L. Eruom, (2008). Prevalence of infertility in women in a Southwestern Nigerian community. African Journal of Biomedical research, 11:225-227. Amsterdam: Royal Tropical Institute Press. Sage, University of Michigan Press.

[14] P. Butler, "Assisted reproduction in developing countries-facing up to the issues," Progress in Reproductive Health Research, vol. 63, pp. 1–8, 2003.

[15] P. Devroey, M. Vandervorst, P. Nagy, and A. Van Steirteghem, "Do we treat the male or his gamete?" Human Reproduction, vol. 13, suppl. 1, pp. 178–185, 1998.

[16] J. T. Boerma and Mgallaz, Eds., Women and infertility in Sub-Saharan Africa: a multidisciplinary perspective. Amsterdam the Netherlands, KIT Publishers, Amsterdam the Netherlands, 2001.

[17] A. S. Jegede, "The Yoruba cultural construction of health and illness," Nordic journal of African studies, vol. 11, no. 3, pp. 322–335, 2002.

[18] B. J. Feyisetan, S. Asa, and J. A. Ebigbola, "Mothers' management of childhood diseases in Yorubaland: the influence of cultural beliefs," Health transition review: the cultural, social, and behavioural determinants of health, vol. 7, no. 2, pp. 221–234, 1997.

[19] B. Datta and F. Okonofua, "What about us? Bringing infertility into reproductive care," Quality/Calidad/Qualite, vol. 13, pp. 1–31, 2002.

[20] L. Leonard, (2001). Problematizing fertility: Scientific accounts and Chadian women's narratives. In M.C Inhorn, and F. Van Balen (Eds.). Infertility around the globe: New thinking on childlessness, gender, and reproductive technologies (pp.193-213). Berkeley: University of Califonia Press.

[21] E. Vayena, P. Rowe, D. Griffin, P. Van Look, and T. Turmen, Current practices and controversaries in assisted reproduction. In: Vayena E., Rowe P., Griffin D., editors. Report of a meeting on "Medical, Ethical, and Social Aspects of Assisted Reproduction; 2001, 17-21 Sept; Geneva, Switzerland: WHO; 2002. p. xv-xxi.

[22] P. Butler, "Assisted reproduction in developing countries-facing up to the issues," Progress in Reproductive Health Research, vol. 63, pp. 1–8, 2003.

[23] B. Datta and F. Okonofua, "What about us? Bringing infertility into reproductive care," Quality/Calidad/Qualite, vol. 13, 2002.

[24] L. Leonard, (2001). Problematizing fertility: Scientific accounts and Chadian women's narratives. In M. C. Inhorn, and F. Van Balen (Eds.). Infertility around the globe: New thinking on childlessness, gender, and reproductive technologies (pp.193-213). Berkeley: University of Califonia Press.

[25] S. Carr, N. Unwin, and T. Pless-Mulloli, An introduction to Public Health and Epidemiology. Bershire, Open University Press, McGraw- Hill Education, England, 2007.