

## Minimising the Risk of Unwanted Pregnancies among Female University Undergraduates in Lagos, Nigeria: The Quantum of Knowledge and use of Long Acting Reversible Contraceptives

<sup>1</sup>Fabamwo Adetokunbo Olusegun, <sup>2</sup>Wright Kikelomo Ololade and <sup>1</sup>Akinola Oluwarotimi Ireti

<sup>1</sup>Department of Obstetrics and Gynaecology,

<sup>2</sup>Department of Community Health and Primary Health Care,  
Lagos State University College of Medicine, Ikeja, Lagos, Nigeria

---

**Abstract:** Nigerian young adults face a lot of challenges in their reproductive health with unintended pregnancies. Long Acting Reversible Contraceptives (LARCs) are a group of birth control methods which provide longer contraceptive cover with minimal maintenance. This study was designed to assess the awareness and practices regarding LARCs in female undergraduates at a cosmopolitan university of South West Nigeria. This descriptive cross-sectional study was conducted in March 2011 amongst 363 female students of a tertiary institution in Lagos Nigeria using pre-tested, structured questionnaires. Respondents were recruited by multistage sampling technique whilst Microsoft Excel and Epi Info Version 3.5.1 Statistical Softwares were used for data entry and analysis. Further analyses were conducted to test for possible association between variables with level of significance set at  $p < 0.05$ . Regular sexual activity was documented in 37.2% of respondents. Less than half (42.4%) of the respondents had heard about LARCs with the popular sources of information being lectures and health workers in descending proportions of 59.7 and 42.9%, respectively. The most popular LARC known to the respondents is Copper T. Out of the sexually active respondents, 46.7% had heard of LARCs and only 19.4% use them. The commonest LARC used is IUCD in 13.4% and the commonest non-LARC used is the condom as reported by 47.8% of the respondents. Most of the sexually active respondents (94.8%) had never visited a Family Planning Clinic.

**Key words:** Long-acting, reversible, contraception, undergraduates, Lagos

---

### INTRODUCTION

Nigeria has an unacceptably high maternal mortality rate compared to other countries in Sub Saharan Africa and the developed world. Unsafe abortion is a major contributor to maternal mortality in the developing world countries. It mainly endangers women in countries where abortion is highly restricted by law and in countries where although, legally permitted safe abortion is not easily accessible (Grimes *et al.*, 2006). The recourse to clandestine pregnancy terminations end up sometimes with fatal consequences. The Nigerian adolescents and young adults in particular face a lot of challenges in their reproductive health with unintended pregnancies. No doubt, the prevention and avoidance of unwanted pregnancies are necessary panaceas for eliminating or at best reducing the incidence of unsafe abortions in Nigeria.

In Western Africa, progress towards adoption of contraception has been dismally slow. Attitudinal

resistance remains a barrier and access to contraceptives though improving is still shockingly limited (Cleland *et al.*, 2011).

The contraceptive prevalence rate in Nigeria is <13% (Monjok *et al.*, 2011). Some of the reasons for the low uptake of available contraceptive methods include the persisting pro-natalist culture of the people, religious preachments which discourage the use of contraception, poor availability and distribution of contraceptive commodities and women's fear of contraceptive side effects (Orji and Onwudiegwu, 2002). It is indeed plausible to state that lack of awareness of newer and contemporary contraceptive methods militates against an improved uptake and utilisation of contraception among Nigerian women. Knowledge and awareness of emergency contraception among Nigerian undergraduates ranged between 58 (Aziken *et al.*, 2003) and 67.8% (Ebuehi *et al.*, 2006). Adolescents' success in avoiding pregnancy often depends on having access to contraceptive information methods and services

(Blanc *et al.*, 2009). Long Acting Reversible Contraceptives (LARCs) are a group of birth control methods which leave the user free from any further responsibility after they have been applied. They also function for a long period of time once applied. Commonly available types in Nigeria include intrauterine contraceptive devices, implants like Norplant, Jadelle and the injectables like Noristerat and Depo Provera. More modern LARCs but not commonly available in Nigeria are Implanon, Mirena and Nuva Ring.

Due to the perceived pivotal role of literacy and level of education in promoting awareness and utilisation of contraception, it is often assumed that university undergraduates will score high on both counts. Regrettably, studies have shown relatively poor awareness and utilisation of modern contraceptive methods even among female undergraduates (Orji *et al.*, 2005a, b; Fabamwo and Akinola, 2008; Adeyinka *et al.*, 2009). The inbuilt relative convenience of this group of contraceptives should expectedly make it more acceptable to young adults, especially university undergraduates who need to devote time to their academic pursuits.

This study was designed to assess the knowledge, attitude and practice of long acting reversible contraceptives in medical and non-medical undergraduates in a cosmopolitan university, South West Nigeria.

## MATERIALS AND METHODS

This is a descriptive cross-sectional study conducted in March 2011 in a state university campus in the city of Lagos. Ethical Committee approval was obtained from the Lagos State University Teaching Hospital's Health Research Ethical Committee (HREC).

After obtaining informed consent a Multistage Sampling Method was used in recruiting 363 participants. A simple random sampling method by balloting was used. Subsequently, respondents were proportionately selected from the various year groups. The students' responses were captured using self-administered structured questionnaires which comprised open and close-ended questions on knowledge, attitude and practices regarding LARCs. The questionnaire had been pre-tested to exclude ambiguities and to aid tool refinement.

Microsoft Excel and Epi Info Version 3.5.1 Statistical Software were used for data entry and analysis. Further analyses were done using Student's t-test and Chi-square for possible association between variables with level of significance set at  $p < 0.05$ .

## RESULTS AND DISCUSSION

A total of 400 questionnaires were distributed and 363 were returned properly filled resulting in a response rate of approximately 91%. Most the respondents (89.8%) were between the ages of 16 and 30 years with a mean age of  $22.5 \pm 5.25$  years (Table 1). Of all the respondents, 32.8% were in the 1st year (100 level). Majority of the participants (87.3%) were single and Christianity was the predominant religion (77.1%) (Table 1).

Regular sexual activity was recorded in 135 respondents (37.2%). Sexual activity was significantly higher with increasing age ( $p < 0.05$ ). Of all the respondents, 56 (15.4%) had been pregnant before with 38 (10.5%) having previous deliveries (Table 2).

Table 1: Sociodemographic data of the respondents

Variables	Number	Percentage
<b>Age group</b>		
16-20	149	41.0
21-30	177	48.8
31-40	23	6.3
>40	14	3.9
<b>Level of study</b>		
100	119	32.8
200	69	19.0
300	36	9.9
400	69	19.0
500	51	15.4
600	14	3.9
<b>Marital status</b>		
Single	317	87.3
Married	40	11.0
Divorced	6	1.7
<b>Religion</b>		
Christianity	280	77.1
Islam	78	21.5
Others	5	1.4

Table 2: Sexual and reproductive history of respondents

Variables	Number	Percentage
<b>Sexually active</b>		
Yes	135	37.2
No	228	62.8
Total	363	100.0
<b>History of pregnancy</b>		
Yes	56	15.4
No	307	84.6
Total	363	100.0
<b>Number of pregnancies</b>		
One	19	33.9
Two	17	30.4
≥ Three	20	35.7
Total	56	100.0
<b>History of delivery</b>		
Yes	38	10.5
No	325	89.5
Total	363	100.0
<b>History of abortion</b>		
Yes	26	7.2
No	337	92.8
Total	363	100.0

Less than half of all the respondents (42.4%) had heard about LARCs with commonest sources of information being from lectures and seminars (59.7%), from health workers (42.9%), electronic media (26.0%) and print media (20.8%) (Table 3). The commonest types of LARC's known were Copper T (70.8%), Depo Provera (36.4%), Noristerat (22.1%) and Implanon (14.3%). Only 0.6% of respondents had heard of Nuva Ring. Among the sexually active respondents only 46.7% had heard about LARC's. In terms of usage, 67 (49.6%) of the sexually active respondents use any form of contraception. Among those who use contraception, only 13 (19.4%) use LARC's while 54 (80.6%) use other forms of contraception. The types of LARC's used are IUCD's (13.4%), Depo Provera (4.5%) and Jadelle (1.5%). The non-LARC methods used are condoms (47.8%), oral contraceptive pills (13.4%), emergency contraception (Postinor) 11.9%, Rhythm Method (4.5%) and coitus interruptus (3.0%) (Fig. 1).

Table 3: Awareness of larc's among the respondents

Variables	Number	Percentage
<b>Heard of LARC's</b>		
Yes	154	42.4
No	209	57.6
<b>Source of information</b>		
Lectures/Seminars/Workshop	92	59.7
Health workers	66	42.9
Radio/Television	40	26.0
Friends	38	24.7
Newspapers/Magazines/Books	32	20.8
Parents/Relatives	18	11.7
<b>Specific LARC's known</b>		
Copper T	109	70.8
Depo Provera	56	36.4
Noristerat	34	22.1
Implanon	22	14.3
Mirena	16	10.4
Jadelle	13	8.4
Nuva Ring	1	0.6

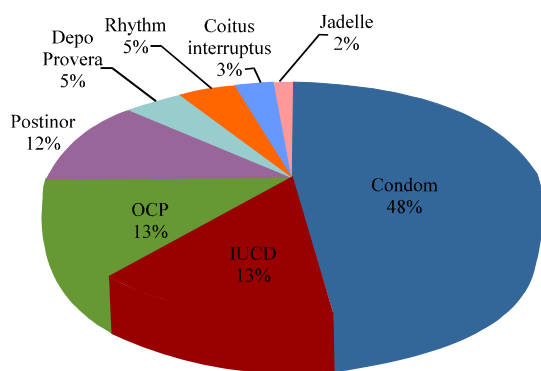


Fig. 1: Types of LARC's used by sexually active respondents

Over half (53.8%) of participants with a past history of induced abortion were aware of LARCs in contrast to 40.7% of respondents who had never had an induced abortion. However, this was not statistically significant ( $p > 0.05$ ).

Amongst the Christians, the Catholics appeared significantly more aware about LARCs than all the other denominations ( $p < 0.05$ ). Only 7 (5.2%) of the sexually active respondents had ever visited a family planning clinic for contraceptive advice.

University undergraduates had for long been considered to be a cohort of fairly well enlightened and averagely young individuals. Their knowledge of various aspects of reproductive health had been vastly studied in both developed and developing countries (Harper and Ellertson, 1995; Orji *et al.*, 2005a, b; Ebuehi *et al.*, 2006; Adeyinka *et al.*, 2009; Abasiattai *et al.*, 2010; Olugbenga-Bello *et al.*, 2010).

The majority of respondents in this study (84.9%) were in their teens and twenties. A few other similar studies from Nigeria had noted that university students studied were usually within that age range (Aziken *et al.*, 2003; Akani *et al.*, 2008). The optimal reproductive age range among whom the need for contraception is highest coincides with the cohort of respondents in this study. The respondents were fairly equally distributed among the different educational levels in the university but with the majority being in the 200 level (1st or 2nd year of university depending on mode of entry). Most of the respondents were not married. This is not unexpected. There was also a preponderance of Christians. Due cognisance is taken of the possible confounding or bias effect of a predominant religion in a survey of this nature. A previous study of factors associated with the knowledge, practice and perception of contraception however did not show that religious factors were significant (Omo-Aghoja *et al.*, 2009).

A study of the awareness and use of any contraceptive method should necessarily be situated within the context of sexual activity in the study group. There is an increasing worry about the rather early age of sexual debut among young people (Wellings *et al.*, 2007; Hindin and Fatusi, 2009). In this study, 37.2% of respondents reported being sexually active. This was similar to the findings in Nigerian undergraduates of 43 and 34.5% (Aziken *et al.*, 2003; Eke and Alabi-Isama, 2011) but <56.1% (Ebuehi *et al.*, 2006) and 85.3% (Akani *et al.*, 2008) reported by others. These variations are possibly due to study group selection and environmental factors imparting on attitude to liberal sexual intercourse. The respondents' knowledge of emergency contraception (Postinor) in this study was relatively low compared to

the findings of other researchers (Baiden *et al.*, 2002; Aziken *et al.*, 2003; Ikeme *et al.*, 2005; Abasiattai *et al.*, 2007). It was however, higher than the finding from a university based cross sectional study conducted at the University of Gondar, North West Ethiopia in which only 18.8% of undergraduates knew about emergency contraception (Kebede, 2006).

Only about half of the respondents in this study had heard about LARC's. This was however, more impressive than 17.9% of adolescent secondary school students in Eastern Nigeria who had ever heard about LARC's (Eke and Alabi-Isama, 2011). It is most likely that the difference is due to the relatively younger age and reduced exposure of secondary school students compared to university undergraduates. Of more concern however is that in this study even among the sexually active respondents there was a very low level of awareness about LARC's. This observation needs to be considered within the context of conflicting reports about the level of awareness of contraception in general by Nigerian female undergraduates. A 2005 study from Ile Ife, Nigeria reported a high level of awareness (Orji *et al.*, 2005b). Among a mixed group of female undergraduates of both the Polytechnic and the University of Ibadan, it was concluded that majority of them were not knowledgeable about contraception (Adeyinka *et al.*, 2009) while a latter study of only University of Ibadan female undergraduates (Cadmus and Owoaje, 2010) reported a high level of awareness of contraception. In general however, several studies in the six geopolitical zones in Nigeria indicate that contraceptive knowledge and awareness, especially among female students aged between 15 and 24 years is very high (Monjok *et al.*, 2011). It is however, interesting that even in a developed world country like the United States of America, awareness of LARC's in a rural Midwestern State was quite low (Spies *et al.*, 2010). In Nigeria, low awareness of LARC's in particular can be rationalised based on the fact that some components of this group of contraceptive methods were relatively recently introduced.

Awareness of LARC's was recorded in more than half of the respondents who had previous induced abortions. It is thought that the experience of an induced abortion probably made some of them actively seek information about better and more reliable ways of preventing unwanted pregnancies.

An aggregated compilation of sources of contraceptive information in the six geopolitical zones of Nigeria showed that information was most frequently obtained from friends and siblings and least frequently from seminars, lectures and health workers (Amazigo *et al.*, 1997; Okpani and Okpani, 2000;

Abiodun and Balogun, 2009). However among the undergraduates in this study, information on contraception in general and LARC's in particular was most often obtained from lectures and seminars. In researchers opinion this disparity may be due to the higher exposure of undergraduates to discourses of an intellectual nature by virtue of being in an academic environment. The positive side of this observation lies in the potential and possibilities of an enhanced access to contraceptive information for this category of citizens through the organisation of more awareness workshops and seminars on the university campuses. Since, it appears that university undergraduates tend to attend intellectual discourses on reproductive health matters such a scale up of the number of reproductive health workshops, seminars and lectures is likely to yield positive results.

In this study, a wide gap was observed between the knowledge and awareness of LARC's and its actual use by the sexually active respondents. The high level of contraceptive awareness and low level of usage has been previously established (Obisesan *et al.*, 1998; Okonofua *et al.*, 1999). The lack of knowledge about provider centres, adequate information about the benefits of LARC's as well as fear of possible side effects were the common reasons given by the respondents for not using LARC's. This contrasts with the findings in a similar study among adolescent females in secondary schools in which religious and cultural reasons were predominant for non use of LARC's (Eke and Alabi-Isama, 2011). However, the fear of potential side effects of a relatively new method of contraception was also highlighted in other studies (Tanfer *et al.*, 2000; Spies *et al.*, 2010). The foregoing poses a serious challenge to the issue of contraceptive uptake among female undergraduates in Nigeria. In this study only 5.2% of the sexually active respondents had ever visited a family planning clinic for contraceptive advice or utilisation. This was not surprising. It has been suggested that the poor contribution of health workers to dissemination of contraceptive information is worrisome (Monjok *et al.*, 2011). As a matter of fact, more reliable information should emanate from health workers at the family planning clinics but in Nigeria, the family planning clinics are not young women or adolescent friendly (Abiodun and Balogun, 2009). It is thought that the main reason for this state of affairs is rooted in the cultural fabric of Nigerian society where many still regard family planning services as the exclusive preserve of married people (Amazigo *et al.*, 1997; Okpani and Okpani, 2000; Otoide *et al.*, 2001; Abiodun and Balogun, 2009) and as such young people seen patronising them are considered prematurely

sexually exposed or even promiscuous. Thus, the strong case made for the establishment of adolescent friendly clinics where young people can go for counselling and obtain contraceptives of their choice under good cover. It is however, interesting to note that a high proportion of practitioners in the United Kingdom endorsed the role of LARC's in preventing unwanted pregnancy, especially among young people yet less than half of them prescribed them (Wellings *et al.*, 2007). Also, discussions on sex and contraception with young people are still considered inappropriate in Nigeria even among health workers (Otoide *et al.*, 2001; Abiodun and Balogun, 2009). The question of where contraceptive commodities are obtained in Nigeria has been well studied (Ladipo, 2005) and is allied to the foregoing. It is suggested that since, LARC's require health provider intervention and are predominantly obtained from the clinic setting, its poor uptake among the female undergraduates studied begins to make sense.

A case is therefore emerging for the incorporation of youth friendly Reproductive Health Advisory Units in the existing university health centres. This is a novel idea which may have a positive yield given the high quantum of sexual activity recorded among university undergraduates in Nigeria (Aziken *et al.* 2003; Ebuehi *et al.*, 2006; Akani *et al.*, 2008; Adeyinka *et al.*, 2009; Cadmus and Owoaje, 2010). It will involve the placement of nurses trained in the application of LARC's and other contraceptive methods in such units. In a university setting, the stigma or shame associated with young people attending the traditional family planning clinics will be substantially reduced.

The relative reliability, safety, efficacy, efficiency and maintenance free attributes of LARC's should normally recommend these methods to the academically busy but sexually active female undergraduates. Its relatively low uptake among the undergraduates studied can certainly be remedied. A scale up of concerted and coordinated efforts by non-governmental organisations to generate awareness on the benefits of contraception in general and LARC's in particular is recommended in university campuses. In addition, university health centres should incorporate youth friendly reproductive health units which will among other functions give and apply contraceptive advice and methods, especially LARC's. These will go a long way in stemming the tide of high numbers of unwanted pregnancies among university undergraduates and necessarily therefore reduce the recourse to unsafe abortion.

## CONCLUSION

Awareness and use of LARCs among sexually active female undergraduates are low. The prevalent use of

condoms may be partly responsible for this. It is suggested that youth friendly reproductive health units be incorporated into university health centres. They will among other functions give and apply contraceptive advice and methods, especially LARCs. Also, large scale awareness programmes should be mounted in Nigerian tertiary institutions to reverse this trend.

## ACKNOWLEDGEMENT

The researchers wish to acknowledge the assistance of the four 500 level medical students of the Lagos State University College of Medicine who administered the questionnaires.

## REFERENCES

- Abasiattai, A.M., A.J. Umoiyoho, E.A. Bassey, S.J. Etuk and E.J. Udoma, 2007. Misconception of emergency contraception among tertiary school students in Akwa Ibom State, South-South, Nigeria. *Niger. J. Clin. Pract.*, 10: 30-34.
- Abasiattai, A.M., E.J. Udoma and E. Ukeme, 2010. Depot medroxyprogesterone injectable contraception at the University of Uyo Teaching Hospital, Uyo. *Ann. Afr. Med.*, 9: 81-85.
- Abiodun, O.M. and O.R. Balogun, 2009. Sexual activity and contraceptive use among young female students of tertiary educational institutions in Ilorin, Nigeria. *Contraception*, 79: 146-149.
- Adeyinka, D.A., O. Oladimeji, E.F. Adeyinka, I.T. Adekanbi, Y. Falope and C. Aimakhu, 2009. Contraceptive knowledge and practice: A survey of under graduates in Ibadan, Nigeria. *Int. J. Adolesc. Med. Health*, 21: 405-411.
- Akani, C.I., C.E. Enyindah and S. Babatunde, 2008. Emergency contraception: Knowledge and perception of female undergraduates in the niger delta of Nigeria. *Ghana Med. J.*, 42: 68-70.
- Amazigo, U., J. Kaufman and D.S. Obikeze, 1997. Sexual activity and contraceptive knowledge and use among in-school adolescents in Nigeria. *Int. Family Plan. Perspect.*, 23: 28-33.
- Aziken, M.E., P.I. Okonta and A.B.A. Ande, 2003. Knowledge and perception of emergency contraception among female Nigerian undergraduates. *Int. Family Plann. Perspect.*, 29: 84-87.
- Baiden, F., E. Awini and C. Clerk, 2002. Perception of university students in Ghana about emergency contraception. *Contraception*, 66: 23-26.

- Blanc, A.K., A.O. Tsui, T.N. Croft and J.L. Trevitt, 2009. Patterns and trends in adolescents contraceptive use and discontinuation in developing countries and comparisons with adult women. *Int. Perspect. Sexual Reproductive Health*, 35: 63-71.
- Cadmus, E.O. and E.T. Owoaje, 2010. Patterns of contraceptive use among female undergraduates in the university of Ibadan, Nigeria. *Int. J. Health*, Vol. 10.
- Cleland, J.G., R.P. Ndugwa and E.M. Zulu, 2011. Family planning in sub Saharan Africa: Progress or stagnation. *Bull World Health Organ.*, 89: 137-143.
- Ebuehi, O.M., E.E. Ekanem and O.A. Ebuehi, 2006. Knowledge and practice of emergency contraception among female undergraduates in the University of Lagos, Nigeria. *East Afr. Med. J.*, 83: 90-95.
- Eke, A.C. and L. Alabi-Isama, 2011. Long-acting reversible contraception (LARC) use among adolescent females in secondary institutions in Nnewi, Nigeria. *J. Obstet. Gynaecol.*, 31: 164-168.
- Fabamwo, A.O. and O.I. Akinola, 2008. Sexuality and contraceptive use among female medical students in Southwest Nigeria. *Sexual Health Matters*, 9: 30-33.
- Grimes, D.A., J. Benson, S. Singh, M. Romero, B. Ganatra, F.E. Okonofua and I.H. Shah, 2006. Unsafe abortion: The preventable pandemic. *Lancet*, 368: 1908-1919.
- Harper, C.C. and C.E. Ellertson, 1995. The emergency contraceptive pill: A survey of knowledge and attitudes among students at Princeton University. *Am. J. Obstet. Gynecol.*, 173: 1438-1445.
- Hindin, M.J. and A.O. Fatusi, 2009. Adolescent sexual and reproductive health in developing countries: An overview of trends and interventions. *Inter. Perspect. Sexual Reproductive Health*, 35: 58-62.
- Ikeme, A.C., H.U. Ezegwui and A.C. Uzodimma, 2005. Knowledge attitude and use of emergency contraception among female undergraduates in Eastern Nigeria. *J. Obstet. Gynaecol.*, 25: 491-493.
- Kebede, Y., 2006. Emergency contraception: Knowledge and practice of Gondar University students, Northwest Ethiopia. *Ethiop. Med. J.*, 44: 221-230.
- Ladipo, O.A., 2005. Where do people in Nigeria get their contraception? *PLoS Med.*, 2: e366-e366.
- Monjok, E., A. Smesny, J.E. Ekabua and E.J. Essien, 2011. Contraceptive practices in Nigeria: Literature review and recommendation for future policy decisions. *Open Access J. Contraception*, 1: 9-22.
- Obisesan, K.A., A.A. Adeyemo, B.O. Fakokunde, 1998. Awareness and use of family planning methods among married women in Ibadan, Nigeria. *East Afr. Med. J.*, 75: 135-138.
- Okonofua, F.E., C. Odimegwu, H. Ajabor, P.H. Daru and A. Johnson, 1999. Assessing the prevalence and determinants of unwanted pregnancy and induced abortion in Nigeria. *Stud. Fam. Plann*, 30: 67-77.
- Okpani, A.O. and J.U. Okpani, 2000. Sexual activity and contraceptive use among female adolescents a report from Port Harcourt, Nigeria. *Afr. J. Reprod. Health*, 4: 40-47.
- Olugbenga-Bello, A.I., D.A. Adekanle, E.O. Ojofeitimi and A.A. Adeomi, 2010. Barrier contraception among adolescents and young adults in a tertiary institution in Southwestern Nigeria: A cross-sectional descriptive study. *Int. J. Adolesc. Med. Health*, 22: 321-329.
- Omo-Aghoja, L.O., V.W. Omo-Aghoja, C.O. Aghoja, F.E. Okonofua and O. Aghedo, 2009. Factors associated with the knowledge, practice and perceptions of contraception in rural Southern Nigeria. *Ghana Med. J.*, 43: 115-121.
- Orji, E.O. and U. Onwudiegwu, 2002. Prevalence and determinants of contraceptive practice in a defined Nigerian population. *J. Obstet. Gynaecol.*, 22: 540-543.
- Orji, E.O., B.A. Fajewonyomi and S.A. Adetunji, 2005a. Influence of discipline of study on contraceptive usage among undergraduates in Southwest Nigeria. *Eur. J. Contracept Reprod. Health Care*, 10: 244-248.
- Orji, E.O., C.A. Adegbenro and A.W. Olalekan, 2005b. Prevalence of sexual activity and family planning use among undergraduates in Southwest Nigeria. *Eur. J. Contracept. Reprod. Health Care*, 10: 255-260.
- Otoide, V.O., F. Oronsaye and F.E. Okonofua, 2001. Why Nigerian adolescents seek abortion rather than contraception: Evidence from focus-group discussions. *Int. Family Plann Perspect.*, 27: 77-81.
- Spies, E.L., N.M. Askelson, E. Gelman and M. Losch, 2010. Young womens knowledge, attitudes and behaviors related to long-acting reversible contraceptives. *Womens Health Issues*, 20: 394-399.
- Tanfer, K., S. Wierzbicki and B. Payn, 2000. Why are US women not using long-acting contraceptives? *Family Plann Perspect.*, 32: 176-183.
- Wellings, K., Z. Zhihong, A. Krentel, G. Barrett and A. Glasier, 2007. Attitudes towards long-acting reversible methods of contraception in general practice in the UK. *Contraception*, 76: 208-214.