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MALE SEXUAL BEHAVIOUR DURING WIFE'S PREGNANCY AND POSTPARTUM ABSTINENCE PERIOD IN OYO STATE, NIGERIA

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Summary. The traditional proscription against sex for women during pregnancy, and particularly in the postpartum period, in south-west Nigeria leaves many men without sexual access to their wives for extended periods of time. This practice raises the question whether men abstain or seek other sexual partners. A community-based study was conducted using 3204 married men from randomly selected local government areas of the state. These men had wives who had delivered a baby in the 36 months prior to the study. Information was obtained on their sexual practices before and during pregnancy and the postpartum period. Male sexual networking was not absent outside the pregnancy and the postpartum periods. However, during pregnancy, a higher percentage of men (43·7%) had other partners compared with the period outside pregnancy and postpartum (42·1%). The difference was not significant ($p>0·05$). Similarly, in the postpartum abstinence period, more men (48%) had other sexual partners when compared with the period outside pregnancy and postpartum (42·1%; $p<0·001$). Sexual networking with non-regular and multiple partners was also more commonly observed in the postpartum period than in pregnancy (11·9% vs 10·4%; $p<0·05$). Significantly more rural than urban men had multiple sexual partners when their wife was pregnant ($p=0·01$) or in postpartum abstinence ($p<0·05$). Condom use with regular partners was largely absent, and consistent condom use with extramarital partners was very low among urban and rural men (6·3% vs 1·7%). The vast majority of men were having unprotected vaginal sex. Logistic regression analysis showed that polygamous men, those under 30 years in the urban area, and men with low or no education were more likely to have sex with other women when their wife was pregnant. During a wife's postpartum abstinence period, men in higher status occupations, younger urban men (<49 years), those with more children, the polygamous, and men with a first wife under 40 years in urban area were

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more likely to have other partners. In light of the heterosexual mode of HIV transmission in Nigeria, there is a dire need to design and implement an intervention programme targeted at married men, which takes into consideration cultural practices. This will hopefully help check the course of the disease in a country thought to be on the verge of an HIV epidemic.

Introduction

Human Immunodeficiency Virus (HIV) continues to spread around the world and by the end of 1999 over 33 million people were infected with HIV globally. Despite the fact that more is known now than ever before about the pandemic, 2·6 million people have died from diseases related to HIV and AIDS in 1999, a higher global total than in any year since the onset of the pandemic. Close to 70% of the global total of HIV-positive people live in sub-Saharan Africa and in this region about half of all infected adults are women. Women are relatively more heavily infected compared with men in Africa, where heterosexual transmission is the major route, than in other regions of the world where the virus is frequently spread through male-to-male sex and intravenous drug use (UNAIDS/WHO, 1998, 1999; Woodman, 1999).

The first AIDS case in Nigeria was reported in 1986. The HIV rate has climbed to the present-day level of 5·4%, a relatively low figure by the standards of the continent. Even so, national surveillance researchers have described the increase as substantial, and even suggested the presence of a rural HIV epidemic (Esu-Williams *et al*., 1997; Federal Ministry of Health, 1999; Akinsete, 1999).

Though conventional family structures and mores exist, stipulating that married men and women should not have sexual contacts outside their unions, there is evidence suggesting the existence of sexual networking of men in south-western Nigeria (Orubuloye, Caldwell & Caldwell, 1991; Oyeneye & Kawonise, 1993; Esu-Williams *et al*., 1997; Caldwell, Orubuloye & Caldwell, 1997). It is not clear, however, to what extent traditional African sexual practices have contributed to current sexual networking of men as the traditional proscription against sex for women during pregnancy and breast-feeding leaves many married men with no sexual access to their wives for extended periods (Matthews, 1950; Esu-Williams *et al*., 1997; Akinsete, 1999). This practice raises the question whether men abstain during these periods or seek extramarital sexual relations. There is a general consensus that further studies of male sexual networking need to be conducted to enhance the understanding of the practice, to develop policies aimed at preventing sexually transmitted infections, and to define targets for new interventions (Viadno & Earp, 2000).

Against this background, a cross-sectional, community-based study was conducted to obtain baseline data on male sexuality and networking in Oyo State, south-west Nigeria. The study analysed sexual networking of monogamous and polygamous men in urban and rural south-west Nigeria, focusing on men's sexual behaviour during their wife's pregnancy and postpartum abstinence period. Findings from the present analysis will be used to design an intervention against sexually transmitted infections, including HIV. This work builds on the premise that previous interventions have successfully reduced and reversed the rate of new HIV infections (UNAIDS/WHO, 1998).

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The specific hypotheses of the study were: (1) Sexual networking occurs among married men in monogamous and polygamous unions; (2) Traditional female proscriptions in pregnancy and the postpartum period contribute to male sexual networking.

Materials and methods

Inhabitants of Oyo State are predominantly Yoruba in ethnic origin, one of the three major ethnic groups in the country. Oyo State, with a population of over 4 million, has 33 local government areas. The state has every type of educational institution and Ibadan, the capital, is one of the oldest state capitals in Nigeria. A large proportion of the people is involved in subsistent farming with secondary attachments to trade and craft. The institution of marriage is highly regarded by both traditional and modern families and polygyny is practised by about 38% of families in south-west Nigeria (Federal Office of Statistics, 1992).

Data were collected over a period of five calendar months from April to August 1999, using a multistage cluster design. The local government areas served as clusters. The areas were stratified into urban and rural, and 50% of the local government areas from each of the strata were randomly selected for the study. Purposeful sampling of men in the randomly selected areas was carried out and efforts were made to ensure socioeconomic representation in the participants enrolled. A total of 3204 married men were enrolled and interviewed by trained interviewers. A questionnaire was used with a set of pre-coded, open- and closed-ended questions designed in English and translated into the indigenous language, and back-translated into English to ensure that the original meaning was retained. This questionnaire was developed after analysis of focus group discussions carried out in three locations in Oyo State. The questionnaire was standardized following a pre-test using a local government area that was not part of the study. Questions were asked in a conversational style and in order to encourage frank revelation about sensitive matters, names were not recorded and respondents were assured that their answers would remain anonymous. The study was restricted to include married men who had a wife that had delivered a baby in the 36 months prior to the study. Marriage was defined as customary, church/civil, Muslim law and mutual consent of both families. Socioeconomic class was classified into higher and lower, based on a modification of the Registrar General classification for England and Wales. This was dependent on the man's occupation within the community and not a classification of individuals (Registrar General, 1968). The higher socioeconomic class included professionals, top civil servants and technical and skilled workers. The lower class included the partially skilled and the unskilled. Male sexual networking was defined as sexual relations with two or more women, either serially or concurrently, within a specified period (Orubuloye *et al.*, 1991; Havanon, Bennet & Knodel, 1993).

Results

Table 1 shows the background characteristics of respondents by place of residence and type of marriage. Monogamous marriages were predominant in both the urban

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Table 1. Characteristics of respondents by place of residence and type of marriage

Characteristics	Urban			Rural		
	Monogamous (n=1555)	Polygamous (n=446)	p-value	Monogamous (n=678)	Polygamous (n=524)	p-value
Type of marriage (%)	77·7	22·3	<0·0001	56·4	43·6	<0·0001
Mean number of wives (± SD)	1·0	2·3 (± 0·7)		1·0	2·6 (± 3·8)	
Median age at first marriage (years)	27	26	>0·05	25	25	>0·05
Mean number of children (± SD)	2·7 (± 1·5)	6·0 (± 2·9)	<0·001	2·9 (± 1·6)	6·7 (± 3·6)	<0·001
Age group (%)						
15–19	1·0	0·2		1·0	0	
20–29	25·4	4·5		30·8	25·9	
30–39	48·0	35·9		40·4	32·4	
40–49	19·9	37·0		5·3	17·7	
50–59	6·1	17·9		1·8	11·2	
60–69	0·5	3·8		0·3	4·8	
70+	0	0·7		0	0	
Education (%)						
Nil formal	2·0	9·2	<0·0001	22·7	45·8	<0·0001
Primary	21·7	39·2	<0·0001	38·3	38·2	>0·05
Secondary	48·1	39·9	<0·01	31·9	14·6	<0·0001
Post-secondary/ no university	15·1	6·9	<0·0001	4·9	1·1	<0·001
University	12·0	3·6	<0·0001	1·9	0	—
Missing	1·0	1·1		0·3	0	—
Religion (%)						
Christianity	45·1	22·3	<0·0001	26·5	13·3	<0·0001
Islam	54·3	75·3	<0·0001	71·7	80·8	<0·0001
Traditional/other	0·6	1·1	>0·05	1·8	5·9	<0·001

and rural locations (p<0·0001), though polygamy was more prevalent in the rural area. There was no urban/rural difference in the mean number of wives of polygamists (p>0·05). No urban/rural difference was observed in the number of children of monogamists, but rural polygamists had significantly more children than urban polygamists (p<0·01).

Urban men were generally better educated than rural men. More polygamous men had no formal education in both the rural and urban areas compared with monogamous men (p<0·0001). Though polygamy was seen in both Christianity and Islam, significantly more Christians were monogamous in both the rural and urban areas (p<0·0001). The predominant religion in rural areas was Islam.

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Table 2. Sexual partners during wife's last pregnancy by place of residence

Sexual partners	Urban			Rural		
	Monogamous[a] %	Polygamous %	*p*-value	Monogamous[a] %	Polygamous %	*p*-value
Pregnant wife only	65·1 (995)	41·4 (183)	<0·0001	62·7 (420)	34·7 (180)	<0·0001
Other partners						
Regular[b]	75·1 (401)	82·2 (213)	<0·05	63·2 (158)	82·9 (281)	<0·0001
Non-regular[c]	21·7 (116)	8·9 (23)	>0·05	29·6 (74)	7·7 (26)	<0·05
Multiple[d]	3·2 (17)	8·9 (23)	>0·05	7·2 (18)	9·4 (32)	>0·05
All other partners	34·9 (534)	58·6 (259)	<0·0001	37·3 (250)	65·3 (339)	<0·0001
All partners	100 (1529)	100 (442)		100 (675)	100 (519)	

[a]Sample size is presented in parentheses.
[b]Regular includes another wife and steady girlfriend.
[c]Non-regular includes commercial sex worker, new girlfriend and casual contact.
[d]Had two or more partners including regular and non-regular partners.

Pregnancy period

More urban (82·5%, 1650) than rural men (60·3%, 726) reported having sex with their pregnant wife in the last pregnancy ($p<0·0001$; results not shown). Before pregnancy, the mean frequency of monthly sexual contact was $9·3 \pm 5·9$ in the urban area, and during pregnancy this declined to $5·7 \pm 4·3$ per month. The difference was significant ($p<0·0001$).

In the rural area, the mean frequency of monthly sexual contact before pregnancy was $11·3 \pm 6·5$, and this dropped to $6·7 \pm 5·3$ during pregnancy ($p<0·0001$). Frequency of sexual contact was also higher in the rural area before and during pregnancy when compared with the urban area ($p<0·0001$ and $p<0·0001$, respectively).

Sexual networking during pregnancy

Table 2 shows the pattern of sexual networking during a wife's pregnancy. Significantly more monogamous than polygamous men had sex with their pregnant wives only in both locations. When all non-regular and multiple partners (considered as high-risk) were merged together for each category of men, there was no significant

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difference in the proportion of men with these high-risk partners for polygamous men in both locations ($p>0·05$). There was also no difference in the proportion of men with these high-risk partners for urban polygamous and rural monogamous men ($p>0·05$). Rural polygamous men, however, had significantly fewer high-risk partners than urban monogamous men ($p<0·01$). Urban polygamous men also had fewer high-risk (non-regular and multiple) sexual partners than urban monogamous men ($p<0·05$). The regular partners of monogamous men were steady girlfriends, while the regular partners of polygamous men were other wives and steady girlfriends. Significantly more polygamous men when compared with monogamous men had multiple sexual partners in this period ($p<0·001$). In general, more men had other sexual partners when the wife was pregnant (43·7%) compared with the period outside pregnancy (42·1%). The difference, however, was not statistically significant ($p>0·05$).

Postpartum period

The median duration of postpartum abstinence among urban monogamous and polygamous men was 6 months and 12 months, respectively. It was 18 months for rural monogamous and 24 months for rural polygamous men.

Sexual networking in the postpartum period

Table 3 shows sexual partners in the last postpartum abstinence period. More monogamous than polygamous men abstained from sex in the two locations in this period. There was no difference in the percentage of men with high-risk (non-regular and multiple) partners among the urban monogamous and polygamous men ($p>0·05$), among the monogamous men in the two locations ($p>0·05$), and among the rural monogamous and urban polygamous men ($p>0·05$). Significantly more polygamous men in the urban location had high-risk partners than their rural counterpart ($p<0·05$). In addition, significantly more men (48%) in both locations had other sexual partners in the postpartum period when compared with the period outside postpartum (42·1%; $p<0·001$). Sexual networking with non-regular and multiple partners was more prevalent in the postpartum period than in pregnancy (11·9% vs 10·4%; $p<0·01$). Significantly more polygamous (9·2%) than monogamous (4·3%) men had multiple partners in this period ($p<0·001$).

The focus group discussions indicated that condom use with regular partners was largely absent. In addition, consistent condom use with extramarital partners was also very low among urban and rural men (6·3% vs 1·7%). The vast majority of men were having unprotected vaginal sex.

Multiple regression analysis

In order to determine to what extent variations in sexual behaviour can be explained by differences in social and demographic characteristics of married men, multiple logistic regression analyses were performed on the variables studied. In the preliminary analysis, multiple logistic analyses were carried out, differentiating the men in both locations by type of marriage. There were generally no significant

Table 3. Sexual partners during wife's last postpartum abstinence period by residence and type of marriage

	Urban			Rural		
Sexual partners	Monogamous[a] %	Polygamous %	*p*-value	Monogamous[a] %	Polygamous %	*p*-value
No partner	59·6 (913)	34·2 (151)	<0·0001	58·6 (395)	33·1 (174)	<0·0001
Other partners						
Regular[b]	73·3 (454)	76·6 (222)	>0·05	69·5 (194)	83·5 (293)	<0·0001
Non-regular[c]	23·6 (146)	14·1 (41)	>0·05	23·3 (65)	7·4 (26)	>0·05
Multiple[d]	3·1 (19)	9·3 (27)	>0·05	7·2 (20)	9·1 (32)	>0·05
All other partners	40·4 (619)	65·8 (290)	<0·0001	41·4 (279)	66·9 (351)	<0·0001
All partners	100 (1532)	100 (441)		100 (674)	100 (525)	

[a]Sample size is presented in parentheses.
[b]Regular includes another wife and steady girlfriend.
[c]Non-regular includes commercial sex worker, new girlfriend and casual contact.
[d]Had two or more partners including regular and non-regular partners.

differences in the behaviour pattern by type of marriage in the two locations; hence the data are presented by location only.

Sex with pregnant wife. The odds of having sex with a pregnant wife depended on the age of the man, younger men in the urban location being more likely than older men (50 and above) to have sex with their pregnant wife. Urban men with secondary education were also more likely to have sex in this period. Having sex with other women reduced the chances of men having sex with their pregnant wife in the rural area (Table 4).

Sex with another women when wife was pregnant. The odds of having sex with another women when a wife was pregnant depended on the age and level of education of the man in the urban area, those under 30 years and men with lower education (nil, primary and secondary) being more likely to have sex with other women in this period. Polygamy in both the urban and rural locations also significantly increased the likelihood of having sex with someone else. Men who had sex with their pregnant wife

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Table 4. Adjusted odds ratio of having sex with pregnant wife

Variables	Urban		Rural	
	OR (95% CI)	*p*-value	OR (95% CI)	*p*-value
Age (years)			ns	
<30	1·8 (1·2–2·7)	<0·01		
30–39	2·4 (1·8–3·5)	<0·0001		
40–49	1·9 (1·2–2·8)	<0·001		
50+	1·0			
Educational level			ns	
Nil formal	0·7 (0·4–1·4)	>0·05		
Primary	1·1 (0·7–1·7)	>0·05		
Secondary	1·8 (1·2–2·8)	<0·01		
Post-secondary	1·0			
Having sex with other women	ns			
Yes			0·03 (0·02–0·04)	<0·0001
No			1·0	
Total predictions correct	0·72		0·74	

ns, variable not significant at the 5% level.
The following variables were not significant: occupation, type of marriage, religion, age at marriage, number of children and age of the wife.

were less likely to have sex with someone else in the same period. Having a steady girlfriend reduced the likelihood of going to other women in both locations (Table 5).

Sex with others in the postpartum period. In the urban location, a young age and a wife who was under 40 years of age was predictive of having sex with someone else in the postpartum abstinence period. Polygamy increased the likelihood of men having sex with someone else, and men with higher status occupations, and urban men with more children were more likely to have someone else while their wife was abstaining (Table 6).

Discussion

HIV/AIDS remains one of the most severe emerging diseases of the twenty-first century. This infection, like other sexually transmitted infections, is driven by individual behaviours. These behaviours may in turn be driven by poverty, by unequal relationships between men and women or by cultural and religious norms that leave people with little control over their exposure to the AIDS virus (UNAIDS, 1999). Cultural situations that create the vulnerability to HIV infection have not been adequately studied, and an understanding of these is important for proper control of the disease.

Table 5. Adjusted odds ratio of having sex with someone else when wife is pregnant

	Urban			Rural		
Variables	OR	(95% CI)	*p*-value	OR	(95% CI)	*p*-value
Age (years)				ns		
<30	1·8	(1·1–2·9)	<0·05			
30–39	1·5	(0·9–2·3)	>0·05			
40–49	1·4	(0·9–2·3)	>0·05			
50+	1·0					
Educational level				ns		
Nil formal	1·8	(1·05–3·2)	<0·05			
Primary	1·5	(1·09–1·9)	<0·05			
Secondary	1·1	(1·5–1·9)	<0·05			
Post-secondary	1·0					
Number of wives						
Monogamous	1·0			1·0		
Polygamous	2·2	(1·8–2·8)	<0·0001	2·2	(1·7–2·7)	<0·0001
Having sex with pregnant wife						
Yes	0·8	(0·7–0·9)	<0·01	0·8	(0·7–0·9)	<0·01
No	1·0			1·0		
Having steady girlfriend						
Yes	0·14	(0·11–0·18)	<0·0001	0·16	(0·1–0·23)	<0·0001
No	1·0			1·0		
Total predictions correct	0·63			0·60		

ns, variable not significant at the 5% level.
The following variables were not significant: age at marriage, occupation, number of children, religion and age of his wife.

Extramarital sexual activity by women is generally frowned upon in Nigeria. On the other hand, for men such activity is considered legitimate and justified if their wives are pregnant or breast-feeding (Orubuloye *et al.*, 1991; Orubuloye, 1997). Double sexual standards are also seen in other countries where monogamy is the norm. This means that for many heterosexual women, the sexual practices of their male partners are likely to be the primary source of infection with HIV or other sexually transmitted diseases (Soskolne *et al.*, 1991; Caldwell *et al.*, 1993; Choi, Catania & Dolcini, 1994; Kapiga *et al.*, 1994; Viadno & Earp, 2000).

Polygyny on the scale still found in Nigeria has been sustained by many factors, among which is the proscription against sexual relations in pregnancy and while

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Table 6. Adjusted odds ratio of having sex with someone else when wife is in postpartum abstinence period

Variables	Urban			Rural		
	OR	(95% CI)	*p*-value	OR	(95% CI)	*p*-value
Occupation						
Lower	1·0			1·0		
Higher	1·2	(1·03–1·4)	<0·05	1·6	(1·07–2·5)	<0·05
Number of children						
0–3	1·0			ns		
>3	1·1	(1·06–1·2)	<0·0001			
Number of wives						
Monogamous	1·0			1·0		
Polygamous	1·9	(1·5–2·4)	<0·0001	1·9	(1·5–2·4)	<0·0001
Age (years)				ns		
<30	7·7	(3·7–16·2)	<0·0001			
30–39	3·6	(1·9–7·1)	<0·0001			
40–49	2·9	(1·6–5·3)	<0·0001			
50+	1·0					
Age of first wife (years)						
15–19	1·1	(2·1–3·8)	<0·05			
20–29	6·2	(1·6–23·5)	<0·01			
30–39	4·1	(1·9–8·4)	<0·0001			
40–49	1·0					
Total predictions correct	0·55			0·54		

ns, variable not significant at the 5% level.
The following variables were not significant: education, religion, age of youngest wife and age at marriage.

breast-feeding. The substantial delay of male first marriage is also thought to contribute to sexual networking. From the data presented, though rural men marry a little earlier than urban men, the majority do not marry until their mid-twenties. This creates a situation where adult men are single and sexually active.

Sexual networking was found to occur during pregnancy among both monogamous and polygamous men. Networking was, however, found to be significantly higher in the postpartum period, not only among monogamous but also among polygamous men, suggesting also that reduced and absent marital coitus may be contributory to male sexual networking in this community. Prolonged postpartum abstinence is thought to allow breast-feeding to continue, as it is widely believed that semen poisons breast milk and kills the baby (Matthew, 1950; Page & Lesthaege,

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1981). In a community where male continence is deemed unnatural, and even hazardous to their health, it is not surprising to find high levels of sexual networking in these periods. Family planning education and availability of family planning services in both rural and urban areas could help to reduce sexual networking during postpartum abstinence. This would allow marital coitus to resume earlier while preventing unwanted pregnancy. A multivariate analysis explored the association between the risk of having sex with other women when a wife is pregnant, controlling for demographic and socioeconomic characteristics. Lower educational status in the urban area was associated with increased sexual networking during pregnancy.

Higher education appears to be protective, as better educated men are likely to be better informed about the HIV epidemic and its dangers. Having steady girlfriends was a phenomenon seen in both monogamous and polygamous marriages, and the majority of extramarital partners were steady girlfriends. Some of these steady girlfriends later become another wife. Having steady girlfriends appears to protect men from going to non-regular, high-risk partners. The odds of having someone else, when a wife was in the postpartum abstinence period and unavailable, was dependent on the occupational status of the man in rural areas, where men of higher occupational status were more likely to network. This may be because these men have higher earning power and use their higher disposable income to support sexual networking. These men are also likely to have many children, since wealth is occasionally perceived, in rural areas, in terms of number of children.

Urban men with wives under 40 years were also more likely to seek other women for sex in the postpartum period. Plausible explanations for this include the fact that urban men acquire additional wives much later than rural men, and the postpartum period is a time when men do acquire other women. A cursory look at the data would suggest that polygamy protects against indiscriminate sexual behaviour in the culturally proscribed periods, but the converse may in fact be true. While both polygamous and monogamous men had extramarital partners in these periods, monogamous men were more likely to have only one sexual partner (i.e. the wife) when she was pregnant and also abstain with their wife in the postpartum period, adjusting by practising shorter abstinence duration. Polygamous men, when compared with monogamous men, in each location were more likely to have concurrent partners (the other wife/wives), and from the data presented were more likely to be in high-risk multiple partnerships. These partners included regular and non-regular partners. Partner mixing (with long-term regular partners such as wives and steady girlfriends) and short-term partners (casual and commercial sex workers), in the absence of protected sex, are known to amplify HIV spread. Partner mixing was generally worse in polygamous marriages.

In situations where the steady girlfriend or polygamous wife does not live with the man, it is not uncommon to find these women having other sexual partners, thereby increasing their risk of acquiring infections that can be carried back home to their husband. For instance, Orubuloye *et al.* (1991) found that rural polygamous wives were two and a half times as likely to seek outside partners as were monogamous wives, while in the urban area, they were one and a half times as likely to do so. The authors noted further that younger wives were most likely to have extramarital affairs.

In conclusion, married men sexually network in urban and rural parts of Oyo State, Nigeria. The present analysis confirms that there is some association between the culturally proscribed female abstinence period and male extramarital affairs. Networking is more widespread in the postpartum period than in the period of pregnancy, when some marital coitus still takes place. Sexual networking with multiple partners is more prevalent in rural than urban areas. The common network pattern was a combination of regular and non-regular partners with the regular partners being in the majority. Steady girlfriends form the single largest group of regular extramarital partners. In light of these findings, intervention programmes are urgently needed to address the traditional and cultural practices that foster high-risk behaviour in married men in Nigeria.

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