How are condoms used in a family planning setting: evidence from Zimbabwe

*T L MAGWALI, **M J STEINER, **H TOMS, ***JM BROWN

Abstract

Objectives: *(To determine the level and consistency of condom use among family planning clients at three family planning clinics in Zimbabwe.)*

Design: A prospective cross sectional study.

Setting: The study was carried out at three Zimbabwe National Family Planning Council clinics.

Subjects: We interviewed 899 consecutive women seeking family planning services at these three clinics using a structured questionnaire.

Main Outcome Measures: The prevalence of condom use among this population of family planning clients and the factors predicting condom use were the main outcome measures. We define dual method use (DMU) as the use of condoms in conjunction with another highly effective contraceptive and dual purpose use (DPU) as the use of condoms for both pregnancy and STI/HIV prevention. We measured self-reported condom use during the last 30 days prior to each interview.

Results: The prevalence of condom use among this population of family planning clients was 38%. Of all the study participants, 32% were DMU clients while 5% were DPU clients. Fifty eight percent of the DMU clients and 89% of the DPU clients clients reported consistent condom use respectively. Logistic regression analysis showed that young age and reporting high risk sexual behaviour were predictors of condom use.

Conclusions: The level of condom use among this population of family plannig clients is too low for a country with such a high HIV prevalence. Condom users were more likely to report DMU than DPU. Those reporting DPU were more likely to report consistent condom use.

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Introduction

Zimbabwe has a high prevalence of human immunodeficiency virus (HIV) infection and acquired immune deficiency syndrome (AIDS). The prevalence of HIV infection among adults aged between 15 and 24 years in Zimbabwe is now estimated to be 18% among women and 5% among men.[1] Sexually transmitted infections (STI) continue to be an important public health problem in the country.[2]

The prevalence of HIV among family planning clients is especially high. A recent study among family planning clients in Harare (the capital city) showed an HIV prevalence of 41%.[3] family planning clients can protect themselves from HIV and STI through the correct and consistent use of condoms together with their usual method of family planning.[4,5] They can also protect themselves through the use of condoms to protect against both pregnancy and infection.[4] Which of these two strategies provides the best "dual protection" against pregnancy and HIV/STI is

*University of Zimbabwe
Department of Obsterics and Gynaecology
P O Box A 178, Avondale
Harare, Zimbabwe
Telephone: (263) 091 217 915 (Mobile) (263) (4) 794272
(Departmental office)
(e-mail: tmagwali@zol.co.zw)
** Family Health International
PO Box 13950
Research Triangle park
NC 27709
USA
***University of Zimbabwe - University of California San Francisco
15 Phillips Avenue
Belgravia, Harare
Zimabawe

* Correspondence to:
Dr T L Magwali
University of Zimbabwe
Department of Obsterics and Gynaecology
P O Box A 178, Avondale
Harare, Zimbabwe
Telephone: (263) 091 217 915 (Mobile) (263) (4) 794272
(Departmental office)
(e-mail: tmagwali@zol.co.zw)

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currently not known.[4] Factors that need to be considered are the prevalence of HIV, the woman's view of the relative importance of preventing HIV versus pregnancy, and the ability to use condoms correctly and consistently.[4] The use of condoms together with another highly effective method of contraception can be referred to as Dual Method Use (DMU) whilst the use of condoms to protect against both pregnancy and infection (without the use of any other method of contraception) can be referred to as Dual Purpose Use (DPU).

Zimbabwe has a well organized family planning service delivery system and the organization mandated to provide family planning services to the public sector is the Zimbabwe National Family Planning Council (ZNFPC). At 54%, the contraceptive prevalence rate (CPR) is among the highest in the East, Central and Southern African region.[6] Efforts to reduce the spread of HIV and STI among family planning clients are, therefore, likely to make a significant contribution to the national effort.

Family planning programmes in the developing world have to differing extents integrated STI and HIV counselling and diagnostic services into their package of services offered. Potential challenges to such integrated services include the fact that providers of family planning services have at times reported being uncomfortable with discussing sexuality issues with clients. In a study done among providers of family planning in Lusaka Zambia, 19% expressed discomfort with discussing sexuality issues with clients.[7] Adeokun *et al.*, however, demonstrated in Nigeria that intensive training of providers increased the proportion of clients who were given STI/HIV counselling.[8]

As part of efforts to integrate STI/HIV services into family planning, baseline data (amongst other things) on what steps clients are taking to protect themselves from HIV and other STIs are required. We conducted a study to determine the prevalence and consistency of condom use among family planning clients at three family planning clinics in Zimbabwe and to determine the characteristics that predicted condom use. Among the condom users, we also explored the factors that predicted DMU as opposed to DPU. Studies on this subject have been few in our sub-region.

To our knowledge, no study had been done to obtain detailed condom use information among family planning clients in Zimbabwe. We conducted this study as a first step towards wider operational research to promote the use of condoms among family planning clients in Zimbabwe.

Materials and Methods

The study was a cross sectional survey conducted among family planning clients at three family planning clinics in the country. The three are all ZNFPC clinics and are located in the cities of Chinhoyi, Bulawayo and Gweru.

The prevalence and consistency of DMU and DPU among the family planning clients was determined for the 30 day period prior to each interview. Those clients who reported using a condom during all the acts of intercourse over this 30 day period were defined as consistent users. In addition, we aimed to determine the client characteristics that predicted condom use.

Three research midwives were recruited to carry out the interviews. The study instrument was a structured questionnaire with questions designed to assess socio-demographic characteristics, STI/HIV knowledge, self-determined risk for STI/HIV infection, sexual behaviour and contraceptive method use. Data collection commenced in February 2001 and ended in September 2001. Consecutive women presenting at these three family planning clinics were approached and invited to participate in the study. Eligible women had to be between 18 and 49 years old, have been on a method of contraception for the three months prior to the interview, have had sexual intercourse at least twice over this same period, be willing to answer questions on contraceptive use and sexual behaviour and willing to give informed consent.

Ethical Considerations.

The Medical Research Council of Zimbabwe and the Protection of Human Subjects Committee of Family Health International both approved the study.

Statistical Methods.

Univariable statistics were calculated to describe demographic characteristics, risky sexual behaviour and condom use of study participants at each of the three clinics. In addition, bivariable and multivariable analyses were performed using the logistic regression model adjusted for clustering on clinic. In the bivariable analysis, unadjusted odds ratios and 95% confidence intervals are reported for DMU, DPU and condom use. The adjusted odds ratios and 95% confidence intervals given from the multivariable analysis were adjusted for age, marital status, number of partners, new partners and treatment for STI because these covariates were associated with condom use in the bivariable analysis.

Results

Socio-demographic Characteristics and Sexual Behaviour.

Nine hundred and fifteen women were interviewed in the study. Of these, 899 were included in the analysis (98%). The other 2% were not suitable for analysis due to one or more violations of the study inclusion criteria that were noted on their completed questionnaires.

The demographic characteristics of the study population are summarized in Table I. The mean age of the women was 31 years. Ninety percent of the women were over 21 years of age and 81% said they were in union (either married or cohabiting with a male). Fifty five percent had received less than 10 years of education while 50% were either housewives or were unemployed. The most commonly used contraceptive in the past 30 days were injectables (50%), condoms (38%) and oral contraceptives (37%).

Table 1: Number and percent of study participants by clinic and selected socio-demographic characteristics.

Covariates	CLINIC 1 (n=294) n	%	2 (n=305) n	%	3 (n=300) n	%	Total (n=899) n	%	p value[1]
Demographic Characterristics									
Age (years)									
<=21	36	12.2	29	9.5	21	7.0	86	9.6	
>21	228	87.8	276	90.5	279	93.0	813	90.4	0.09
Marriage									
In union	221	76.0	273	89.5	229	76.3	723	80.7	
Not in union	70	24.0	32	10.5	71	23.7	173	19.3	<.0001
Education (years)									
<=10	194	66.0	161	52.8	140	46.7	495	55.1	
>10	100	34.0	144	47.2	160	53.3	404	44.9	<.0001
Occupation									
Housewife/ Unemployed/others	184	62.6	99	32.6	166	55.3	449	50.0	
Unskilled/skilled Workers	44	15.0	36	11.8	57	19.0	137	15.3	
Managerial/self-Employed	66	22.4	169	55.6	77	25.7	312	34.7	<.0001
Contraceptives Used in last 30 days									
Traditional methods									
Rhythm	2	0.7	1	0.3	1	0.3	4	0.4	0.76
Traditional	2	0.7	0	0.0	0	0.0	2	0.2	N/A[2]
Withdrawal	15	5.1	12	3.9	5	1.7	32	3.6	0.007
Mordern methods									
Oral Contraceptives	83	28.3	95	31.2	155	51.7	333	37.0	<.0001
Injectables	153	52.0	198	64.9	96	32.0	447	49.7	<.0001
IUD	38	12.9	13	4.3	9	3.0	60	6.7	<.0001

[1]p value for the Mantel-Haenszel Chi-square test for general association between clinics.
[2]p value not available due to 0 cell counts.

Seven percent reported more than one sexual partner over the preceding 30 days and 47% thought their partner had other sexual partners. Nine percent said that they had had a new partner over the preceding 30 days while 91% said they had not. Nineteen percent reported that they had been treated for an STI over the preceding one year.

Condom Use.

The detailed pattern of condom use was analysed for the whole study population and by clinic (Table 11). As mentioned earlier, over one third of participants (37.6%) reported condom use in the past 30 days. Of the whole study population, 32.4% were DMU clients while 5.2% were DPU clients. Of the 291 DMU clients, 58% said that

Table 11: Condom use by clinic.

Condom Use	CLINIC 1 n	%	2 n	%	3 n	%	Total n	%	p value[1]
Condom use	142	48.3	65	21.3	13	43.7	338	37.6	
Dual Method Use	129	43.9	63	20.6	99	33.0	291	32.4	
Dual protection Use	13	4.4	2	0.7	32	10.7	47	5.2	
No Condom Used	152	51.7	240	78.7	169	56.3	561	62.4	
Total	**294**	**100.0**	**305**	**100.0**	**300**	**100.0**	**899**	**100.0**	**<.0001**
Among Dual Method Users:									
Consistent condom use	77	59.7	37	58.7	56	56.6	170	58.4	
Inconsistent condom use	52	40.3	26	41.3	43	43.4	121	41.6	
Total	**129**	**100.0**	**63**	**100.0**	**99**	**100.0**	**291**	**100.0**	**0.03**
Among Dual Protection Users									
Consistent condom use	12	92.3	2	100.0	2	87.1	41	89.1	
Inconsistent condom use	1	7.7	0	0.0	4	12.9	5	10.9	
Total	**13**	**100.0**	**2**	**100.0**	**31**	**100.0**	**46[2]**	**100.0**	**0.35**

[1] p value for the Mantel-Haenszel Chi-square test for general association between clinics.
[2] One dual protection user is missing due to missing response to this question on the questionnaire.

they had used condoms consistently while 89% of the 47 DPU clients said that they had used condoms consistently. Bivariable logistic regression models for condom use versus non use and DMU versus DPU adjust for clustering on clinic were done. Unadjusted odds ratios (OR) and 95% confidence intervals (CI) are shown (Table III). Less than 21 years of ages, not being in union with a s man, having had more than one sexual partner over the preceding 30 days, having had a new partner over 30 days and reporing treatment for an STD over the preceding one year were all found to be significant predictors of condom use. The only significant predictor DMU as opposed to DPU was age less than 21 years.

Table III: Condom use versus non-use and dual protection versus dual method use. Odds rations (OR) and 95% confidence intervals (CI) from the Simple[a] Logistic Regression Model adjusted for clustering on clinic.

Covariate	Condom Use vs Non-condom Use OR	(95% CI)	Dual Protection Use vs Dual Method Use OR	(95% CI)
Age				
<=21	1.7	(1.4,1.9)	0.4	(0.3,06)
<=21	1.0	1.0		
Marital status				
Not in union	4.8	(3.6,6,4)	1.6	(0.3.9.8)
In union	1.0	1.0		
Number of partners in the last 30 days				
>1	9.9	(2.4,41.1)	1.4	(0.3,6.4)
<=1	1.0	1.0		
New partner in the last 30 days				
Yes	5.7	(3.1,10.4)	1.0	(0.2,4.1)
Treatment for STI in the last 12 months				
Yes	2.1	(1.5,2.9)	1.0	(0.3,3.7)
No/Don't know	1.0	1.0		

Models using one covariate at time.

Multivariable logistic regression models for condoms use versus non use and DPU adjusted for clustering on clinic were done. Adjusted odds ratios (OR) and 95% confidence intervals (CI) are shown (Table IV). In the multivariable logistic regression models only age less that 21 years, not being in union with a man and reporting more than one sexual partner over the preceding 30 days remained as significant predictors of condoms use versus non-use. The small number of DPU clients (N=47) led o wide confidence intervals in theses logistic regression models and findings should be interpreted with necessary caution

Discussion

Some of the selected socio-demographic characteristics and sexual behaviours were signficantly different for clinic 2 (Bulawayo) compared to the other two clinics. For example, less than 1% of participants in clinic 2 reported more than one partner in the past 30 days while 14% and 8% of participants in clinics 1 and 3, respectively, reported such behaviour. Similar rends for these clinics were observed with other risky sexual behavior, including partner having other partners, new partners in the last 30 days and treatment for STI in the last 12 months. In addition, few women in clinic 2 (21%) said that they had used condoms compared to the other two clinics (clinic 1= 48%; clinic 3=44%).Clinic 1 and 3 are located close to busy market places and bus termini. Such places tend to be frequented by young and single women. Clinic 2 is in the environment of a major tertiary institution. These different environments might explain the difference seen.

Table IV: Condom use versus non use and dual protection versus dual method use. Odds Raios (OR) and 95% confidence intervals (CI) from the Multivariable Logistic Regression Model adjusted for clustering on clinic, age, marital status, number of partners, new partners and treatment for STI.

Covariate	Condom Use vs Non-condom Use OR	(95% CI)	Dual Protection Use vs Dual Method Use OR	(95% CI)
Age				
<21	1.6	(1.1,2.3	0.4	(0.3,0.6)
>21	1.0	1.0		
Marital status				
Not in union	3.1	(2.5,4.0)	1.7	(0.4,7.3)
In union				
Number of partners in the last 30 days				
>1	2.6	(17,4.0)	2.6	(0.8,8.1)
<=	1.0	1.0		
New partner in the last 30 days				
Yes	1.7	(0.5,5.7)	0.4	(0.1,1.2)
No	1.0	1.0		
Treatment for STI in the last 12 months				
Yes	1.3	(0.6,2.7)	0.8	(0.3,2.6)
No/Don't know	1.0	1.0		

The prevalence of DPU that we found is marginally higher than 2% reported in the last Zimbabwean Demographic and Health Survey (DHS).[9] The prevale .e of DMU that we found in this study is substantially higher than that found in similar studies done in the region. A similar study done in Kenya found a prevalence of DMU of 13% with only 4% of the total study population being consistent condom users.[7] The Kenya study included two family planning clinics and a community based distribution (CBD) site. In South Africa, the prevalence of condom use among women attending public health facilities was found o be 6%.[10] The South African study looked at condom use for the most recent act of intercourse.

While encouraging, he levels of condom use that we found in this study are sill with such a high HIV prevalence. Effective methods of promoting the use of condoms by family planning clients will clients will have to

be found through further research. Any such future work should include providers of family planning and men for if to have a significant impact.

The finding that younger women and women who engage in high risk sexual behaviour are more likely to use condoms is consistent with he findings of Bankole, *et al.* and Sangi-Haghpeykar, et al. in the United States. Bankole, *et al.* looked at determinants of trends in condom use in the United States. Bankole, *et al.* looked at determinants of rends in condom use in the United States between 1985 and 1998. 11 In their study, they found that younger age and having more than one sexual partner predicted condom use. Sangi-Haghpeykar, *et al.* came up with similar findings among women undergoing planned tubal ligation in the United States. 12 It is encouraging that women who report high risk sexual behaviour seem to be taking measures o protect themselves from STI and HIV infection. This might suggest that health education messages being given at health institutions and in the general media are being taken up. Given the high HIV prevalence in the country, it is most likely that the majority of non-condom users have not correctly assessed their risk. As a recent United Nations (UN) report shows, most people in the worst affected countries have heard if HIV/AIDS but a significant proportion believe that they are not at risk of getting infected. 13 Research in other parts of the world has shown, though, that women might have the knowledge but still fail to take protective measures due to unbalanced gender dynamics in their relationships. 14

Older women in our study were more likely to be DPU clients compared to younger women. This is different from what has been found in other parts of the world. In the USA, younger women tend more to be DPU clients. 15 A possible explanation for this findings is that we had relatively fewer women under the age of 21 years in our study population. It is also possible that some of the older women prefer to use the condom to protect against both pregnancy and STI/HIV.

Although the majority of condom users report DMU, it is the DPU clients who report more consistent condom use. It is possible that DPU clients find it less difficult to be consistent condom users since they have to rely on this method for protection from both pregnancy and infection. This finding is consistent with work done in other parts of

Africa. A study done among commercial sex workers in Ethiopia, for example, found that those who relied on the condom for protection from both pregnancy and STI were likely to be more consistent condom users 16 Providers of family planning should promote the DPU strategy in those clients who are willing to use I since correct and consistent DPU will give good protection against both pregnancy and infection. 17

Limitation of our study include its cross sectional design, reliance on retrospective self-reported condom use information and its convenience sampling. Despite these limitations the study provides potentially useful and detailed condom use information from a country with one of the highest HIV prevalence rates.

Although our study was carried out four years ago, providers of family planning and policy makers might find the results useful for mapping out further strategies to increase condom use among family planning clients. The results of our study can also be used to help initiate wider operational research to increase condom use among family planning clients. The ZNFPC has since started training its providers in STI/HIV counseling but high staff turnover rates might prevent this raining having the desired impact on clients. There are many potential barriers to providing integrated services but prevention counseling is an important first step and is relatively easier to introduce compared to STI/HIV diagnostic and treatment service.

Conclusions

The prevalence of DMU and DPU among family planning clients at these three clinics is higher than that reported for other countries in the region but is far too low for a county with such a high prevalence of HIV. Our cross sectional study provided detailed descriptive information about condom use but cannot provide empiric evidence on how best to promote condom use in this setting. However, we hope the information will be used to design condom promotion interventions with rigorous evaluation components.

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REVIEW ARTICLE

Pathogenesis of hyperparahyroidism in renal osteodystrophy

CU ODENIGBO, **OC OGUEJIOFOR,M ODIKE**

Introduction

As early as 1883, Lucas identified a relationship between bone disease and chronic renal failure.[1] About 60 years later, in 1943, the renal osteodystrophy was coined.[2]

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Renal osteodystrophy embodies a group of bone changes seen in patients with advanced renal failure. These include:

Ostitis fibrosa cystica and osteosclerosis: These are increased bone turnover states (increased osteoblastic activity) due to secondary hyperparathyroidism.

Osteomalacia: This is a low bone turnover state. Here is increased volume of unmineralised bone (osteoid). This is in most causes due to aluminum deposition in the bone. In osteomalacia, the mineralisation lag time is prolonged (greater that 100 days, in comparison to less than 35 days in normal subjects and those with pure osteitis fibrosa).[3]

Adynamic bone disease: This is another low bone turnover state that became evident less than two decades ago and is increasing in prevalence. Unlike osteomalacia, the volume of osteoid in this condition is not increased. It peritoneal dialysis patients and is almost as common as ostietis fibrosa cystica in haemodialysis

**Department of Medicine*
Federal Medical Centre (FMC) Asaba
Delta State, Nigeria
***Depaartmen of Medicine*
Nnamdi Azikiwe University Teaching Hospital (NAUTH)
PMB 5025, Nnei
Anambra State, Nigeria
****Department of Histopathology*
Ambrosw Alli University, Ekpoma
Edo, State, Nigeria

Correspondence and reprint requires to:
Dr Ogonna C Oguejifor
PO Box 1125, Nnewi, Anambra State
e-mail: cogobrusi@yahoo.com