Prevalence and associated factors of family planning among students of health training institutes in Juba: A cross sectional descriptive study

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ABSTRACT

Introduction: Family planning (FP) is less prevalent in South Sudan yet information on the subject is scarce and varied from one source to another. This study assessed the prevalence and associated factors in family planning among students at health science training institutes in Juba City.

Method: This was a cross-sectional survey of students' self-reported utilisation of FP methods. Four hundred randomly selected students from five health training institutes (HTIs) in Juba City participated. Data collection was done using a pretested structured questionnaire. IBM SPSS 23 software was used for data analysis. Chi squared tests and regression analyses were performed to determine the associated factors.

Results: Among the 400 participants, the lifetime prevalence of FP methods was 77.3%, of which modern contraceptive use was 22%. FP was more prevalent among participants aged 45-50 (85.7%) and females (80.7%). Eighty-seven percent of divorced couples and 91.3% of traditional believers reported practicing FP. More nursing/midwifery cadres within the professional category reported practicing FP, as well as 90.4% of rural respondents. Eighty-three percent of respondents working in pharmacies said they practice FP, compared to 68.1% of those working in clinics. FP practice was similar among participants who were aware (78.9%) and those who denied being aware (72.5%). Marital status ($p < 0.001$), religion ($p < 0.001$), residence ($p < 0.001$), and place of work ($p = 0.037$) were significantly associated with FP.

Conclusion: The prevalence of family planning among students at Health Training Institutes in Juba City is high compared to national estimates, but the contraceptive overall prevalence rate is still low. It is significantly associated with marital status, religion, residence, and place of work. There is a need to continue the effort.

Key words: Family planning, prevalence, students, health institutes, Juba, South Sudan

Introduction

The World Health Organization (WHO) defines family planning (FP) as the "ability of individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their birth". It involves a wide spectrum of methods ranging from short-term to permanent techniques. The short-term methods include pills, condoms, lactational amenorrhoea, diaphragms, and emergency contraceptive pills while long-term methods encompass injectables, implants, and intra-uterine devices. Permanent methods incorporate female and male sterilisation. Traditionally, it consists of periodic abstinence, withdrawal, and various folk methods such as strings and herbs.[1-3]

Globally, of about 1.9 billion women aged 15-49, 874 million use modern methods, and 92 million use traditional methods. The contraceptive prevalence rate (CPR) among women of reproductive age (WRA) who practice any contraceptive method is 75%. Thirty nine percent of married women use modern contraception.[1-3] For adolescents aged 15 to 19 years, the use of modern contraceptives is 61%, and for those aged 20 to 24 years, it is 66%.[2] Comparatively, women above 30 years old account for more than 75%. The global incidence of unplanned pregnancies among students at higher educational institutes continues to increase yearly despite increased awareness and knowledge of regular modern and emergency contraceptives. Furthermore, in Eastern Africa, from 2015 to 2019, there were 20,900,000 pregnancies annually out of which 9,890,000 were unplanned.[4]

The proportion of need for FP satisfied with modern methods among women aged 15 to 24 years is estimated at 80% in Brazil, 95% Colombia, 52% Ethiopia, 35% Nigeria, 65% Bangladesh and 45% Philippines.[2] Furthermore, CPR is estimated at 30% in Uganda, 58% Kenya, and in Rwanda, it is 64% and 47% in urban and rural settings respectively.[2] A study conducted in Uganda found that out of 4,264 women, only 9.4% (95% CI: 8.6-10.3) were utilizing a modern contraceptive.[5]

In South Sudan, a study among 380 women in Juba City showed that 42.6% used FP methods during their lifetime, and 36% used contraceptive methods in the last three months preceding the study.[6] Lifetime use of contraceptives was positively associated with occupation ($r = 0.115$, $p < 0.05$).[6] Of 1,373 women who accessed Juba Teaching Hospital, Tambura Hospital, and Yei Hospital, 29.4% accepted contraceptives: implants (49%) and injections (45%), oral (4%), and sterilization (2%).[7]

Several factors, such as age, culture, ethnicity, religion, access to contraceptive services, peer pressure, and lack of partner support, might contribute to low utilization of contraceptives. For instance, adolescents are afraid of being seen by the elders taking FP pills.[8] As for religion, CPR is 47.1% among Catholics, 45.8% for Protestants, and 6.3% among Muslims.[6] Strong cultural beliefs, lack of a law empowering women to make informed decisions on FP, and inadequate counselling might account for low CPR in South Sudan.[9] With a maternal mortality ratio of 1,223 per 100,000 live births, and a contraceptive prevalence rate of 4.7%, South Sudan has the worst reproductive health situation in the world.[9,10]

The Government of South Sudan through the Ministry of Health is committed to global FP aspirations such as the FP2030 goals and aims to increase contraceptive prevalence rate to 20% by 2030.[12] In order to contribute meaningfully to this target there is need to generate data to better understand the prevalence and associated factors among the upcoming health professionals who are expected to champion the achievement of these commitments when they get to the field. Therefore, this study assessed the prevalence of FP among students of HTIs in Juba City, South Sudan.

Method

This study was conducted at five HTIs in Juba City, South Sudan Institute of Pharmacy Technicians, Juba Nursing and Midwifery Institute, Juba Health Science Institute, St. Mary's Health Institute, and Juba Institute of Health Science. A cross-sectional design was adopted. The study population comprised all the students at the five HTIs who consented. Both males and females participated equally. The sample was estimated using Cochran's formula at a precision level of 5%, 95% confidence limit and variance of 50%. After calculations and adjustments for non-response, a sample of 400 students was assembled. Data collection was done using a pretested structured questionnaire. The software IBM SPSS 23 was used for data analysis.

Institutional ethical approval was obtained from the South Sudan Institute of Pharmacy Technicians Research Committee via a letter dated 14/07/2023, Central Equatoria State Ministry of Health and Environment, and all five institutes. In addition, every participant provided informed consent, and confidentiality was maintained throughout. Data anonymity was ensured to minimize risk of accidental disclosure and access by any unauthorized third party. Participation was voluntary and

Table 1. Respondents' sociodemographic characteristics, factors associated with family planning

Variables (n = 400)		Ever family planned?		Total n (%)	p value
		Yes, n (%)	No, n (%)		
Age in years	15-24	79 (75.2)	26 (24.8)	105 (26.3)	
	25-34	108 (78.3)	30 (21.7)	138 (34.5)	0.401
	35-44	80 (74.1)	28 (25.9)	108 (27.0)	
	45-50	42 (85.7)	7 (14.3)	49 (12.3)	
Gender	Male	138 (73.4)	50 (26.6)	188 (47.0)	
	Female	171 (80.7)	41 (19.3)	212 (53.0)	0.054
Marital status	Single	38 (51.4)	36 (48.6)	74 (18.5)	
	Married	143 (81.3)	33 (18.7)	176 (44.0)	<0.001*
	Divorced	87 (87.0)	13 (13.0)	100 (25.0)	
	Others	41 (82.0)	9 (18.0)	50 (12.5)	
Religion	Christian	78 (60.3)	52 (39.7)	131 (32.8)	
	Muslim	56 (78.9)	15 (21.1)	71 (17.8)	<0.001*
	Traditional beliefs	73 (91.3)	7 (8.8)	80 (20.0)	
	Others	101 (85.6)	17 (14.4)	118 (29.5)	
Professional category	Clinical medicine	70 (70.7)	29 (29.3)	99 (24.8)	
	Pharmacy	94 (80.3)	23 (19.7)	117 (29.3)	0.094
	Nursing/ midwifery	83 (83.8)	16 (16.2)	99 (24.8)	
	Others	62 (72.9)	23 (27.1)	85 (21.3)	
Residence	Urban	167 (68.7)	76 (31.3)	243 (60.8)	
	Rural	142 (90.4)	15 (9.6)	157 (39.3)	<0.001*
Place of work	Hospital	57 (80.3)	14 (19.7)	71 (17.8)	
	Pharmacy	88 (83.0)	18 (17.0)	106 (26.5)	0.037*
	Clinic	81 (68.1)	38 (31.9)	119 (29.8)	
	Others	83 (79.8)	21 (20.2)	104 (26.0)	
Awareness of FP	Yes	235 (78.9)	63 (21.1)	298 (74.5)	
	No	74 (72.5)	28 (27.5)	102 (25.5)	0.189
Overall prevalence		**309 (77.3)**	**91 (22.7)**	400 (100.0)	

all participants were not penalized for refusal or withdrawal from the study. Training of assistants, pretesting of data collection tools and regular reviews ensured quality.

The software Epidata Manager 4.0.6.0 was used for data entry before exporting to IBM SPSS version 23 for analysis. Chi squared tests and regression analyses were performed to determine associated factors. The prevalence of FP was obtained by dividing the number of participants who reported practicing FP by the total number of participants.

Results

Among the 400 participants, the self-reported lifetime

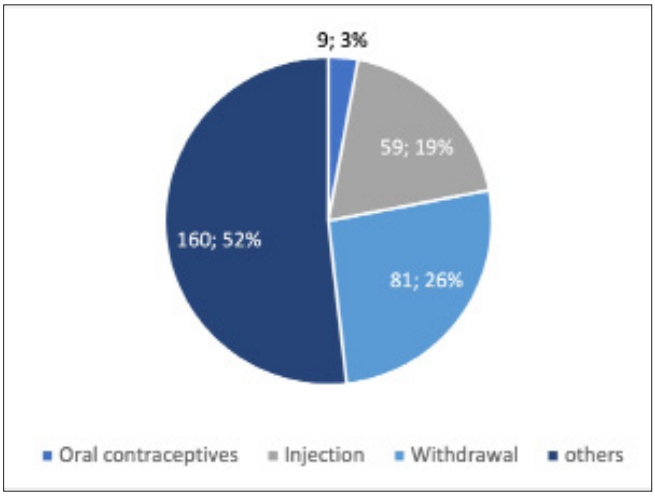

Figure 1: Utilisation of contraceptive methods among students in different health training institutes in Juba

Table 2: Summary of statistical model: Multivariate logistic regression analyses

	Chi-square	df	Sig.
Model	87.989	10	<0.001
Cox & Snell R Square		**Nagelkerke R Square**	
.197		.300	

Table 3: Classification table predicting the overall prevalence of family planning prevalence among health training institutes' students

		Predicted		
Observed		**Have you ever used family planning?**		**Percentage Correct**
		Yes	**No**	
Have you ever used family planning?	**Yes**	289	20	93.5
	No	57	34	37.4
Overall Percentage				80.8

prevalence of FP across all categories was 77.3% (n = 309), and of modern contraceptive use was 22% (n = 68). FP was more prevalent among those aged 25 to 34 years old. The prevalence rate was 80.7% among female participants and 73.4% among their male counterparts. More than four-fifths (87%) of divorced couples reported using FP. Although Christians accounted for about a third of the respondents (32.8%), 91.3% of traditional believers said they were practicing FP (Table 1). For the type of contraceptive methods used, modern oral contraceptives accounted for 3% (n = 9), and injectables, 19% (n = 59) and withdrawal traditional method 26% (n = 81) (Figure 1).

From bivariate analysis, there was a significant association, at a 5% significance level, between FP and marital status ($p < 0.001$), religion ($p < 0.001$), residence ($p < 0.001$), and place of work ($p < 0.037$) (Table 1).

The statistically significant factors at bivariate analysis were entered into a statistical model: multivariate logistic regression. This was to determine the likelihood of the association. A preliminary analysis suggested that the assumption of multicollinearity was met, that is, overall tolerance = 0.965. Furthermore, an inspection of standardized residual values revealed that there were outliers which were kept in the dataset. Therefore, the model was statistically significant, (x^2 (10, N = 400) = 87.989, $p < .001$)), indicating that the model could differentiate respondents who ever family planned from those who never family planned. Consequently, the model clarified between 19.7% (Cox & Snell R^2) and 30% (Nagelkerke R^2) of the variance (Table 2) and correctly predicted that 80.8% of respondents who ever family planned (Table 3). As shown in table 4, marital status, religion, residence, and place of work significantly contributed to the model.

From the odds ratios, for every increase in married participants, there is 31.4% less likelihood of practicing FP. Similarly, for every increase in Muslim devotees, there is 36.9% unlikelihood of practicing FP. Those who work in pharmacies are 1.12 times more likely to have ever family planned while respondents working in clinics are 1.78 times more likely to have ever family planned (Table 4).

Discussion

In this study, the self-reported lifetime prevalence of FP among all categories was 77.3%, and that of contraceptive use was 29%. While this is higher than the 4.7% average estimate for South Sudan,[10] a previous population-based study in Juba City also reported a lifetime contraceptive prevalence rate of 42% but was silent on the overall utilisation of FP.[6] The increased utilisation of FP methods could be attributed to concerted efforts by the Government and partners as enshrined in the Government's Declaration to abide by FP2030 commitments.[12] Nevertheless, further research is needed to confirm the results' validity, given the magnitude of increment from the country estimates and previous studies.

Table 4. Predictors of family planning prevalence among health training institutes' students in Juba: Multivariate logistic regression

Predictor	B	S.E.	Wald	df	p value	OR (95% CI LL, UL)
Marital status						
Single*			19.525	3	< 0.001	
Married	-1.160	0.351	10.921	1	0.001	0.314 (0.158, 0.624)
Divorced	-1.393	0.426	10.680	1	0.001	0.248 (0.108, 0.573)
Others	-1.803	0.502	12.922	1	< 0.001	0.165 (0.062,0.440)
Religion						
Christianity*			22.017	3	< 0.001	
Islam	-0.996	0.396	6.3170	1	0.012	0.369 (0.170,0.803)
Traditional beliefs	-2.014	0.497	16.420	1	< 0.001	0.133 (0.050,0.353)
Others	-1.242	0.361	11.812	1	0.001	0.289 (0.142,0.586)
Residence						
Urban*						
Rural	-1.445	0.337	18.415	1	< 0.001	0.236 (0.122,0.456)
Place of work						
Hospital*			8.573	3	0.036	
Pharmacy	0.112	0.460	0.059	1	0.808	1.118 (0.454,2.754)
Clinic	0.580	0.403	2.078	1	0.149	1.787 (0.812,3.934)
Others	-0.474	0.439	1.163	1	0.281	0.623 (0.263,1.473)
Constant	0.908	0.431	4.435	1	0.035	2.48

*Reference category

Overall, the study found that the traditional methods such as withdrawal were the preferred methods of contraception. This may be explained by the continuing myths around modern FP methods and the uncertainty with which they are viewed. In support of this view, there is reported fear among adolescents regarding being seen by elders as taking FP pills and inadequate counselling of women and girls on FP.[8] The most common modern method of contraception reported is injection, and the least is oral contraceptives. This could suggest that those practicing FP prefer long-lasting techniques instead of methods with more frequent administration.

Our findings show that marital status, religion, residence, and place of work are significantly associated with FP. This is not surprising considering previous studies. For instance, studies have documented that women aged 30-39 years utilise contraceptives more than adolescents (aged 15-19), who have the lowest CPR and highest unmet need for FP.[13] In our study, save for place of work, all the associated factors have an inverse association with FP, as beta coefficient is negative (Table 4). This means for every observed change in the factors, there is unlikelihood of opting for FP among the participants.

Conclusion

The prevalence of family planning among students at Health Training Institutes in Juba City is high compared to national estimates, but the contraceptive overall prevalence rate is still low. It is significantly associated with marital status, religion, residence, and place of work. The study recommends sustained efforts in the provision of FP services including tailored health education and counselling of couples.

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