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Research Article

Women's socio-demographic and cultural factors influencing unmet need for family planning in rural areas of The Gambia: Evidence from a population-based analytical cross-sectional study

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Abstract: Background: Reproductive health is a critical component of overall health and development. Unmet contraceptive needs are one of the regularly cited measures of the efficacy of family planning (FP) initiatives. This study set out to determine the magnitude and associated factors of unmet need for FP among women of reproductive-aged (15-49 years) in the provincial areas of The Gambia. **Methods**: The study used a community-based cross-sectional analytical design. A multistage sampling strategy, comprising simple random and cluster sampling, was utilized to obtain a sample of 643 childbearing women (15-49 years) from rural Gambia's sampled clusters. Data collection was conducted using pre-tested structured interview questionnaires. The association was examined using chi-square/fisher's exact test with a significance level of $p<0.05$. Binary logistic regression analysis was performed to examine the effect of sociodemographic and cultural determinants on unmet FP need, with corresponding computed adjusted odds ratios (aOR). IBM SPSS version 24 was used for data entry and analysis. **Results:** The unmet need for FP among the study participants was 25.2%; unmet need for spacing and unmet need for limiting was 17.4% and 7.8%, respectively. The total demand for FP was 59.4%, while the satisfaction of demand for FP was 57.6%. The significant predictors of unmet need for FP were woman's age at first pregnancy (aOR=0.899, p=0.033), LGA of origin (aOR=0.240, p=0.001) and frequency of using contraceptives (aOR=1.587, p=0.032). **Conclusion:** The present study demonstrated a high unmet need for FP among rural women in The Gambia, with the most often cited reason for non-use being fear of side effects. Hence, it is necessary to concentrate FP services for rural populations, stressing education regarding contraceptive side effects, service quality, and gender equality. Additionally, the study suggests that male participation and religious leaders' involvement in FP programs be strengthened and mainstreamed, as well as the establishment of a communication program that specifically promotes inter-spousal communication.

Keywords: Unmet Need, Rural Areas, Gambia, Family Planning, Reproductive-Age Women

1. Background

Unmet need is used to track progress and gauge the need of the population for family planning (FP) services [1]. Millions of women of childbearing age in underdeveloped nations want to delay or limit pregnancy [2]. Globally, 1.1 billion women require FP; 842 million utilize it presently, whereas 270 million do not [3, 4]. In 2019, the current global estimate for FP satisfaction using modern methods was 75.7%. Nonetheless, less than half of the FP need was satisfied in Africa's middle belt [3]. Unmet needs can lead to unplanned pregnancy with severe implications [6]. Induced abortion is used by 50 million women globally, resulting in substantial maternal morbidity and mortality [7]. Using FP services and spacing births are two ways to prevent these deaths [8]. In general, 39 per 1000 women aged 15-49 have an induced abortion each year (73,3 million) [9]. About 3/10 of all pregnancies and 6/10 of unwanted pregnancies resulted in induced abortions, with over 75% occurring in Africa [9]. Thus, the largest risk of death from unsafe abortion was found in Africa [10]. Globally, most women become sexually active before the age of 20 [11], and in Sub-Saharan Africa (SSA), 75% have intercourse by that age [12]. These sexually active women are at increased risk of unwanted pregnancy, sexually transmitted infections (STIs), including human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) [13, 14]. Unmet FP needs account for a large proportion of married women of reproductive age in poor countries [15]. Many sexually active couples avoid pregnancy, however, they are not utilizing any form of contraception, and hence have an unmet need for FP [16-18]. Supply constraints or financial expenses are sometimes viewed as unfulfilled needs for FP services [2].

Globally, rates of unintended and early pregnancies, illegal abortions, maternal fatalities and injuries, and STIs such as HIV and AIDS are extremely high among women, particularly adolescents [15]. The risks of morbidity and mortality associated with unsafe abortions are considerable for women of all ages in the majority of underdeveloped countries [10]. Current figures of unmet need show that the number of women with unmet needs varies by country, with the worst rates in SSA and slightly lower rates in Asia, where current FP use is high [15, 19]. By preventing unexpected (mistimed and unwanted) conceptions, FP has numerous health benefits [20-22]. These benefits include decreased HIV transmission to newborns [23]; decreased maternal mortality and morbidity [24], decreased neonatal, infant, and childhood mortality [25, 26]; decreased reliance on often illegal abortions, and increased educational and employment opportunities for women (and men) who delay childbearing [24].

Recently, The Gambia National Indicators for FP satisfaction with modern contraception was 37.6% in 2017 [27] and 43.9% in 2019 [28], while rural areas had 40.3% satisfied for FP with a lower cumulative marginal difference of 5.2% as compared to urban areas [28]. At the level of Local Government Areas (LGAs), the lowest demands for *FP satisfied* were Basse (22.5%), Mansakonko (37.9%), and Kuntaur (39.9%), which is slightly more than 2015 and 2017 statistics [27-29]. These LGAs are also considered the lowest in terms of FP services uptake in the country [30]. Rural women had a somewhat higher unmet need for FP (25%) than urban women (24%) [28]. At the LGA level, Basse has the worst unmet need for FP (30%) while Janjanbureh has the least (18%) [28]. The regional variability could be attributed to the multiplicity of socioeconomic and socio-cultural determinants such as religion, ethnicity, cultural practices, patriarchal societies in nature, female education, and FP delivery mechanisms [31, 32]. The Gambia has a Total Fertility Rate (TFR) of 4.8, General fertility rate (GFR) of 149 per 1000 women age 15-49, Maternal mortality ratio (MMR) 289 (confidence interval: 204-375), and Pregnancy-related mortality ratio (PRMR) of 320 (CI: 231-409) per 100,000 live births with slight variations in rural areas [28]. Only 18.9% of currently married women use any contraception method, while 17.1% use any modern methods and 1.8% for traditional methods [28]. The prevalence of contraceptive use in The Gambia is still very low [27, 28, 31, 32]. Furthermore, about one-

fourth of married women (24.2%) have an unmet need for FP with spacing 18.6% and limiting at 5.6% [28]. Furthermore, fulfilling the unmet need for FP will prevent undesired or mistimed pregnancies and decrease the frequency and severity of unsafe abortions [33]. Post-abortion care (PAC), particularly contraceptive education, is a critical method for preventing future unwanted pregnancies and minimizing the impact of unsafe abortions. It has been shown to considerably reduce maternal mortality and possibly prevent high-risk babies [34].

Even though the unmet need for FP in women of reproductive age has been the focus of numerous studies over past years, there are limited studies on the determinants of unmet need for FP among rural women in The Gambia. Thus, this study aimed to determine the prevalence and associated factors for unmet need for FP among women at community level in the context of the rural Gambian population.

2. Methods

2.1. Study design and population

A community-based analytical cross-sectional study design was conducted from December 2016 to January 2017. The study focused on examining the prevalence and understanding of socioeconomic, cultural, and proximate factors influencing unmet needs for FP. Structured questionnaires were administered to women of reproductive age (15-49 years old) across the four provincial LGAs in The Gambia.

2.2. Study setting

The study was conducted in Kerewan, Kuntaur, Janjanbureh, and Basse. The Basse LGA is headed by a Governor. It has 239,916 residents and a 2.77 percent growth rate [35]. It has 115,960 female residents (48.3%) [35]. It has seven districts and its inhabitants mostly farm and trade. In total, there are nine health centers (eight minor and one large) [35]. The Kerewan LGA has a population of 221,054 [36]. It has a 51.8% female population (116,123) and a 6.3 percent fertility rate [36]. This LGA contains seven districts, and farming and business are prominent occupations. With one tertiary hospital, one major and 12 minor health centers [36]. The Janjanburreh LGA has a population of 126,910. It has a 51.9% female population (65,909) and a 7% fertility rate [36]. The LGA contains five districts, and farming and business are the main occupations. Bansang General Hospital is the main referral hospital [36]. Kuntaur LGA has 99,108 residents [36]. Women make up 52.3 percent (51,875) of the population [36]. This LGA contains five districts, and farming and business are prominent occupations. The LGA contains one major and four minor hospitals. This is the main regional referral hospital [36].

2.3. Measurement of study variables

2.3.1. Outcome variables

The study's outcome variable was unmet need for FP. The unmet need for FP has been defined as the proportion of women in a partnership or married who wish to halt or delay pregnancy but do not use any type of contraception [37-39]. Westoff and Bradley [17, 39] were used to calculate the unmet need for FP.

According to the revised Westoff model, unmet need for FP refers to the percentage of all fertile married women who do not utilize an effective form of contraception despite their desire to avoid pregnancy. Simultaneously, it encompassed pregnant women whose pregnancy or birth were unintended or untimely [17]. Women who are not using an adequate method of contraception and desired to wait at least two years or who desired no additional children were classified as having an unmet need for spacing or limiting. The idea of unmet need was applied in this study to women of reproductive age who are married or in a partnership, and it was calculated using the Westoff model [17]. The total demand for FP was determined as the sum of unmet needs and the percentage of women

who used contraception. The percentage of overall demand for FP services satisfied at any point in time by current contraceptive use is referred to as the satisfaction of demand for FP services [37]. Thus, as established by Westoff [17], satisfaction of demand for FP equals contraceptive prevalence rate (CPR)/(CPR + unmet need) 100.

The women surveyed were separated between those who used contraceptives and those who did not. Non-users were then classified as pregnant or amenorrheic women or as not pregnant or amenorrheic at the time of the survey. Pregnant or amenorrheic women were further classified into three groups: those whose pregnancy was planned, mistimed, or unwanted at the time of the study. Those classified as mistimed and undesired pregnancies were considered a subset of the total unmet need. The other subgroup includes non-users who were neither pregnant nor amenorrheic. These women were first classified as fecund or infecund, with fecund women further classified according to their reproductive desire. Women who desired another child immediately were eliminated from the unmet need category, but those who desired to wait at least two years or who desired no additional children were classed as having an unmet need, as illustrated in Figure 1 [17, 39].

2.3.2. Independent variables

The independent variables for socio-demographics included age, residence, educational level, occupation, marital status, income, age at first pregnancy, parity, religion, ethnicity, partner's education, partner's occupation, and mother's education, and father's education. Furthermore, the variables for socio-cultural & proximate factors include but are not limited to society's support and traditional belief against FP.

2.4. Eligibility criteria

This study comprises women (15-49 years old), married or unmarried, and of any ethnic group or national origin who were present during the research and accepted to enroll. Women who refused to partake in the research due to health/mental conditions that made obtaining explicit consent or conducting the interview impossible, or who are not reproductively competent, including those who have undergone surgical procedures such as hysterectomy or tubal ligation, were excluded from the study.

2.5. Sample size and sampling technique

The sample size for this research was derived using Abramson and Gahlinger's 2002 formula for estimating single proportions [40].

$$n = \frac{p(1-p)\times Z_{\alpha}^{2}}{d^{2}} \times 2 \quad (1)$$

This sample size formula was used: n is the minimum sample size, Z_{α}^{2} is the standard normal deviate, equals to 1.96 at 95% confidence level, p is the proportion of the target population to have specific characteristics (25% unmet need for FP [36]), and d^{2} is the degree of desired accuracy at 0.05 with a design effect of 2:

$$= (0.25 \times 0.75 \times (1.96)^{2})/(0.05)^{2} \times 2 = 576.$$

To compensate for the low response rate and unfinished questionnaires, 10% of the sample size was augmented, bringing the total to 634 participants. The study participants were chosen using a multistage sampling strategy that included simple random sampling to identify districts within a region, random sampling to identify Primary Health Care (PHC) circuits, cluster sampling to identify eligible participants within communities.

2.5. Data collection procedure

A pre-tested, structured questionnaire was used to interview a representative sample of 634 women of reproductive age (15 - 49) in the four LGAs. The questionnaire elicited information on their socio-demographic, cultural, and related characteristics; the unmet need for FP was also investigated. The data collection was conducted in major local languages (Mandinka, Fula, Wolof, and Serahule) in The Gambia. The researcher was actively engaged in the collecting, cross-checking, cleaning, and analysis of data. Prior to data collection, the instruments were pre-tested on women (15-49) from provinces that were not selected for the study. To determine reliability, the Cronbach's Alpha test (0.89) was used. Each completed questionnaire was re-checked immediately following the interview to rectify incorrect responses and to determine the questionnaire's appropriateness, content accuracy, and completeness, as well as the time required to complete the questionnaire. The structured questionnaire was assessed to establish its suitability for the study by screening for any ambiguities and inaccuracies.

2.6. Data analysis plan

In this study, data analysis was performed using IBM SPSS version 24. The data were first examined for the frequency distributions of the socio-demographic, socio-cultural, and related variables among the participants and further used cross-tabulation analyses using chi-square or Fisher's exact test value for each predictor variable with the outcome variable in order to establish statistically significant associations. Univariate analysis of all independent variables associated with unmet need for FP at $p<0.20$ in univariate analysis were subsequently included in a binary logistic regression model. This model was used to estimate the adjusted odds ratio (aOR), a 95% confidence interval and a p-value <0.05 were used to determine statistically significant associations.

2.7. Ethical Considerations

The study participants' privacy and anonymity were preserved throughout the duration of the research. The College of Medical Sciences Research Ethics Committee at the University of Benin granted ethical approval. Additional ethical permission was acquired from the Director of Health Services of The Gambia's Ministry of Health, the Scientific Committee of the University of the Gambia (RePubliC), and the MRC/Gambia Government Joint Ethics Committee. Women (signed or thumb-printed) gave written consent, as did parents of those aged 15 to 17.

3. Results

3.1. Prevalence of Unmet Need for FP

Among the 564 women who were currently married or in the union, 371 (65.8%) were non-users of FP, while 193 (34.2%) were current users of FP, as shown in Figure 1. The prevalence of unmet need for FP was 142 (25.2%) at the time of interview in the study areas of rural Gambia. The unmet need for spacing was higher 98 (17.4%) than the unmet need for limiting 44 (7.8%) among the women. The total demand for FP was 335 (59.4%), and the satisfaction of demand for FP was 57.6%.

As shown in Table 1, about 422 (74.8%) of the reproductive age women in union/married had no unmet need for family planning since they desired to have children soon, using FP as expected or having intended pregnancies.

Table 1. Distribution of types of unmet need for FP among participants

Variables	n (%)
Total unmet need*	
No unmet need	422 。(74.8)
Unmet need for spacing	98 (17.4)
Unmet need for limiting	44 (7.8)
unmet need (spacing and/or limiting)	142 (25.2)
Total demand for FP	335 (59.4)

** multiple responses*

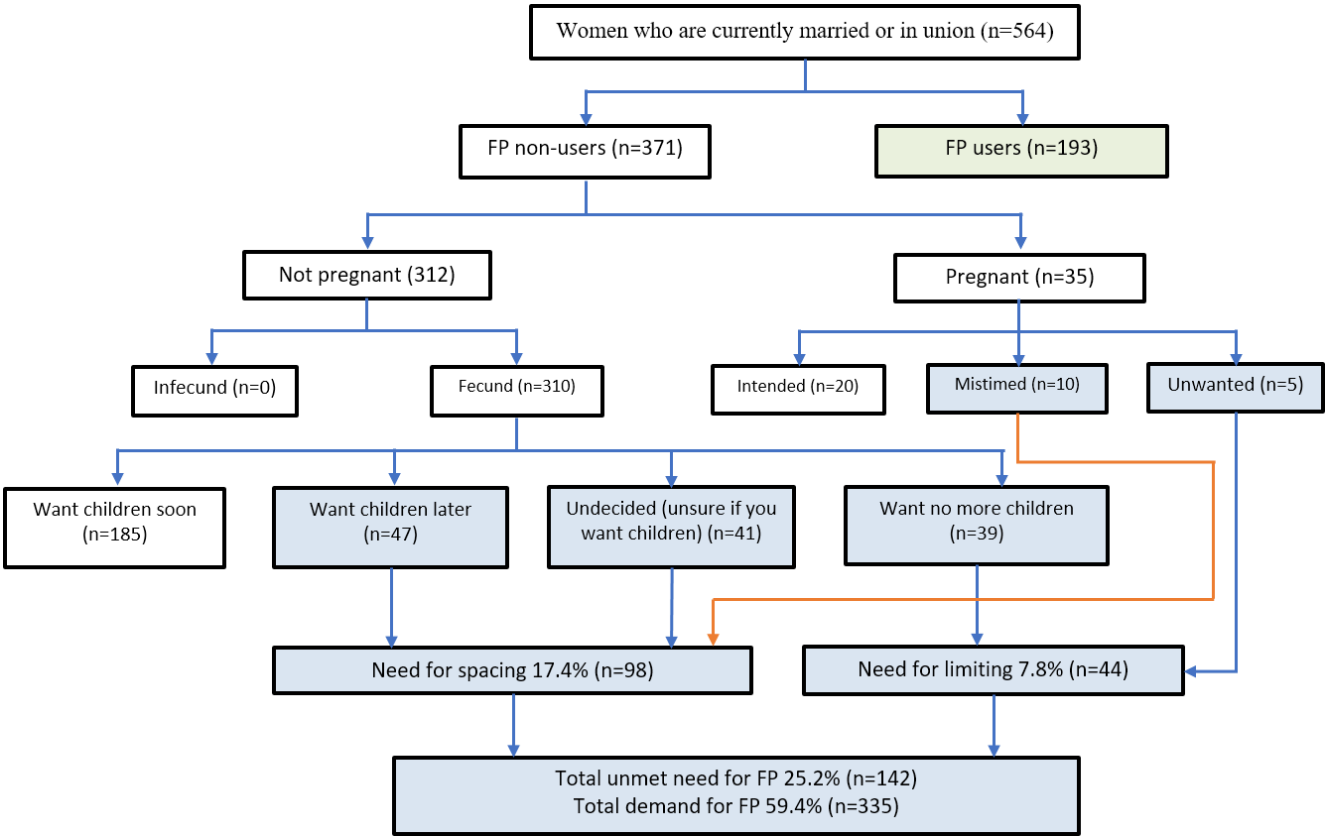

Figure 1. Algorithm to Estimate Total Unmet Need for FP

The proportion of unmet need for FP was highest among married/in-union women in the age group of 20 - 24 years (37.3%); Basse LGA (47.9%); Kulari community (24.6%); women with Arabic education (31.0%); Farmers (34.5%); income level less than D2000 (39 US Dollars) at 63.8%; parity 0 - 4 (80.6%); women age at first pregnancy in the age group of 12 - 18 (91.0%); Mandinka ethnic group (37.3%) and Muslims (95.8%) as shown in Table 2.

Table 2. Socio-demographic profile and unmet need for FP among participants

	Unmet need for FP		Total unmet need n (%)
variables	Spacing n (%)	Limiting n (%)	
Age of women in years			
15 - 19	16 (11.3)	2 (1.4)	18 (12.7)
20 - 24	34 (23.9)	19 (13.4)	53 (37.3)
25 - 29	32 (22.5)	15 (10.6)	47 (33.1)
30 - 34	8 (5.6)	4 (2.8)	12 (8.5)

35 - 39	3 (2.1)	3 (2.1)	6 (4.2)
40 - 44	4 (2.8)	1 (0.7)	5 (3.5)
45 - 49	1 (0.7)	0 (0.0)	1 (0.7)
Mean age (standard deviation): 26.8 (6.5)			
Local Government Areas			
Kerewan	27 (19.0)	5 (3.5)	32 (22.5)
Kuntaur	9 (6.3)	4 (2.8)	13 (9.2)
Janjanbureh	15 (10.6)	14 (9.9)	29 (20.4)
Basse	47 (33.1)	21 (14.8)	68 (47.9)
Communities			
Kerewan	15 (10.6)	2 (1.4)	17 (12.0)
Farafenni	12 (8.5)	3 (2.1)	15 (10.6)
Chamen	2 (1.4)	0 (0.0)	2 (1.4)
Kuntaur	8 (5.6)	4 (2.8)	12 (8.5)
Janjanbureh	3 (2.1)	1 (0.7)	4 (2.8)
Bansang	12 (8.5)	13 (9.2)	25 (17.6)
Kulari	25 (17.6)	10 (7.0)	35 (24.6)
Basse	21 (14.8)	11 (7.7)	32 (22.5)
Educational level			
Never attended school	25 (17.6)	17 (12.0)	42 (29.6)
Arabic education	35 (24.6)	9 (6.3)	44 (31.0)
Primary education	17 (12.0)	6 (4.2)	23 (16.2)
Secondary education	17 (12.0)	11 (7.7)	28 (19.7)
Tertiary education	4 (2.8)	1 (0.7)	5 (3.5)
Occupation			
Exclusively housewife	30 (21.1)	18 (12.7)	48 (33.8)
Self-employed	4 (2.8)	2 (1.4)	6 (4.2)
Farming	33 (23.2)	16 (11.3)	49 (34.5)
Student	4 (2.8)	0 (0.0)	4 (2.8)
Trading	16 (11.3)	6 (4.2)	22 (15.5)
Civil servant	10 (7.0)	2 (1.4)	12 (8.5)
Muslim Religious Teacher	1 (0.7)	0 (0.0)	1 (0.7)
Monthly income			
Less than D2000	61 (43.3)	29 (20.6)	90 (63.8)
D2001 - D4000	26 (18.4)	9 (6.4)	35 (24.8)
>D4000	11 (7.8)	6 (3.6)	16 (11.4)
Parity			
0 - 4	78 (58.2)	30 (22.4)	108 (80.6)
5 - 8	12 (9.0)	11 (8.2)	23 (17.2)
9+	2 (1.5)	1 (0.7)	3 (2.2)
Mean age (standard deviation): 3.6 (2.2)			
Age at first pregnancy			
12 - 18	82 (61.2)	40 (29.9)	122 (91.0)
19 - 24	4 (3.0)	0 (0.0)	4 (3.0)
25 - 30	6 (4.5)	2 (1.5)	8 (6.0)
Mean age (standard deviation): 18.5 (2.8)			
Ethnicity of the Respondents			
Mandinka	36 (25.4)	17 (12.0)	53 (37.3)
Fula	27 (19.0)	14 (9.9)	41 (28.9)
Sarahule	19 (13.4)	10 (7.0)	29 (20.4)
Wollof	8 (5.6)	3 (2.1)	11 (7.7)
Serere	7 (4.9)	0 (0.0)	7 (4.9)

Aku	1 (0.7)	0 (0.0)	1 (0.7)
Religion			
Muslim	94 (66.2)	42 (29.6)	136 (95.8)
Christian	3 (2.1)	0 (0.0)	3 (2.1)
Traditional African Religion	1 (0.7)	2 (1.4)	3 (2.1)

3.2. Socio-demographic factors associated with unmet need for FP among participants

Table 3 summarizes the analysis of socio-demographic factors influencing the unmet need for FP. The majority of the women with unmet need for FP were found in the age group 20 - 24 years old with 53 (30.6%) compared to those in the age group 25 - 29 years old with 47 (28.1%). The unmet need for FP was higher in Basse LGA 68 (33.0%), followed by Janjanbureh LGA 29 (26.4%), while Kuntaur LGA recorded the lowest 13 (16.5%). These differences were statistically significant (χ^2=13.476, df=3, p=0.004). The same pattern was observed from the level of LGAs to specific communities within the selected LGAs. Kulari, Bansang, and Basse recorded 35 (37.6%), 25 (29.8%), and 32 (29.1%) respectively as the highest at the community level. According to the results of Fisher's exact test, these differences were statistically significant (p=0.021). The majority of unmet need for FP was found in the younger age group as opposed to older age groups. The monthly income level of women was found to be statistically significant (χ^2=7.199, df=2, p=0.027). Women who earned less than or equal to D2000 had a high unmet need for FP compared to those who earned more than D2000 (39 US Dollars) in a month. The results of Fisher's exact test revealed a statistically significant association between unmet need for FP and other socio-demographic variables such as parity (p=0.040), religion (p=0.049), partners' occupation (p=0.003).

Table 3. Prevalence of unmet need for FP by Socio-demographic factors among participants

Variables	Unmet need for Family planning				
	Yes (n=142)	No (n=422)	Total (n=564)	Chi-square	p-value
	n (%)	n (%)	n (%)		
Age of women in years					
15 - 19	18 (29.5)	43 (70.5)	61 (100.0)		0.021ǂ*
20 - 24	53 (30.6)	120 (69.4)	173 (100.0)		
25 - 29	47 (28.1)	120 (71.9)	167 (100.0)		
30 - 34	12 (15.4)	66 (84.6)	78 (100.0)		
35 - 39	6 (11.5)	46 (88.5)	52 (100.0)		
40 - 44	5 (17.9)	23 (82.1)	28 (100.0)		
45 - 49	1 (20.0)	4 (80.0)	5 (100.0)		
Local Government Areas					
Kerewan	32 (18.9)	137 (81.1)	169 (100.0)	13.476	0.004*
Kuntaur	13 (16.5)	66 (83.5)	79 (100.0)		
Janjanbureh	29 (26.4)	81 (73.6)	110 (100.0)		
Basse	68 (33.0)	138 (67.0)	206 (100.0)		
Communities					
Kerewan	17 (21.3)	63 (78.8)	80 (100.0)		0.012ǂ*
Farafenni	15 (16.9)	74 (83.1)	89 (100.0)		
Chamen	2 (11.1)	16 (88.9)	18 (100.0)		
Kuntaur	12 (18.8)	52 (81.3)	64 (100.0)		
Janjanbureh	4 (15.4)	22 (84.6)	26 (100.0)		
Bansang	25 (29.8)	59 (70.2)	84 (100.0)		
Kulari	35 (37.6)	58 (62.4)	93 (100.0)		
Basse	32 (29.1)	78 (70.9)	110 (100.0)		

Educational level					
Never attended school	42 (28.2)	107 (71.8)	149 (100.0)	4.877	0.300
Arabic education	44 (28.9)	108 (71.1)	152 (100.0)		
Primary education	23 (20.4)	90 (79.6)	113 (100.0)		
Secondary education	28 (20.9)	106 (79.1)	134 (100.0)		
Tertiary education	5 (31.3)	11 (68.8)	16 (100.0)		
Can read and write					
Yes	48 (21.1)	179 (78.9)	227 (100.0)	3.278	0.070
No	94 (27.9)	243 (72.1)	337 (100.0)		
Occupation					
Exclusively housewife	48 (21.4)	176 (78.6)	224 (100.0)		0.318†
Self-employed	6 (26.1)	17 (73.9)	23 (100.0)		
Farming	49 (30.2)	113 (69.8)	162 (100.0)		
Student	4 (2.3)	5 (55.6)	9 (100.0)		
Trading	22 (22.0)	78 (78.0)	100 (100.0)		
Civil servant	12 (28.6)	30 (71.4)	42 (100.0)		
Muslim Religious Teacher	1 (25.0)	3 (75.0)	4 (100.0)		
Monthly income (n=557)					
Less than D2000	90 (29.0)	220 (71.0)	310 (100.0)	7.199	0.027*
D2001 - D4000	35 (24.0)	111 (76.0)	146 (100.0)		
More than D4000	16 (15.8)	85 (84.2)	101 (100.0)		
Age at first pregnancy (n=535)					
12 - 18	122 (24.6)	374 (75.4)	496 (100.0)		0.061†
19 - 24	4 (17.4)	19 (82.6)	23 (100.0)		
25 - 30	8 (50.0)	8 (50.0)	16 (100.0)		
Parity (n=535)					
0 - 4	108 (27.8)	280 (72.2)	388 (100.0)		0.040†*
5 - 8	23 (17.2)	111 (82.8)	134 (100.0)		
9+	3 (23.1)	10 (76.9)	13 (100.0)		
Religion					
Muslim	136 (24.6)	416 (75.4)	552 (100.0)		0.049†*
Christian	3 (37.5)	5 (62.5)	8 (100.0)		
Traditional African religion	3 (75.0)	1 (25.0)	4 (100.0)		
Ethnicity of the Respondents					
Mandinka	53 (20.5)	205 (79.5)	258 (100.0)		0.055†
Fula	41 (28.9)	101 (71.1)	142 (100.0)		
Sarahule	29 (37.7)	48 (62.3)	77 (100.0)		
Wolof	11 (21.2)	41 (78.8)	52 (100.0)		
Manjago	0 (0.0)	1 (100.0)	1 (100.0)		
Serere	7 (28.0)	18 (72.0)	25 (100.0)		
Aku	1 (11.1)	8 (88.9)	9 (100.0)		
Father's educational level					
Never attended school	59 (28.0)	152 (72.0)	211 (100.0)		0.691†
Arabic education	73 (23.1)	243 (76.9)	316 (100.0)		
Primary education	2 (22.2)	7 (77.8)	9 (100.0)		
Secondary education	6 (31.6)	13 (68.4)	19 (100.0)		
Tertiary education	2 (22.2)	7 (77.8)	9 (100.0)		
Mother's educational level					
Never attended school	81 (27.4)	215 (72.6)	296 (100.0)		0.538†
Arabic education	55 (23.8)	176 (76.2)	231 (100.0)		
Primary education	5 (17.2)	24 (82.8)	29 (100.0)		
Secondary education	1 (12.5)	7 (87.5)	8 (100.0)		

Partners' educational level					
Never attended school	43 (28.9)	106 (71.1)	149 (100.0)	8.767	0.067
Arabic education	60 (28.2)	153 (71.8)	213 (100.0)		
Primary education	5 (16.7)	25 (83.3)	30 (100.0)		
Secondary education	26 (24.1)	82 (75.9)	108 (100.0)		
Tertiary education	8 (12.5)	56 (87.5)	64 (100.0)		
Partners' occupation					
Civil servant	17 (14.4)	101 (856)	118 (100.0)		0.003†*
Farming	54 (30.5)	123 (69.5)	177 (100.0)		
Self-employed	20 (22.2)	70 (77.8)	90 (100.0)		
Students	3 (50.0)	3 (50.0)	6 (100.0)		
Trading	32 (32.0)	68 (68.0)	100 (100.0)		
Retired	1 (100.0)	0 (0.0)	1 (100.0)		
Travelled abroad	15 (20.8)	57 (79.2)	72 (100.0)		

**** =Statistical significance at p<0.05***

† Fisher's exact test

3.3.Socio-demographic predictors of unmet need for FP among participants

As shown in Table 4, the variables in the model accounted for between 10.0% - 14.8% of the variation observed in the outcome variable (unmet need for FP). With an increase in the age of having their first child, women were less likely, by an odds of 0.899, to have an unmet need for FP, which was statistically significant (p=0.033, 95% CI = 0.815 - 0.992). The likelihood of women from Kerewan LGA decreased significantly by an odds of 0.413 to have an unmet need for FP compared to those women from Basse LGA (statistically significant, p=0.001, 95% CI=0.240 - 0.711). Women from Kuntaur LGA were less likely by an odds of 0.391 to have an unmet need for FP compared to those women from Basse LGA (statistically significant, p=0.017, 95% CI= 0.508 - 1.585).

Table 4. Influence of participants' socio-demographic factors on unmet need for FP among participants

Predictors	B (regression coefficient)	Adjusted Odds Ratio (aOR)	95% C.I. for aOR		P-value
			Lower	Upper	
Age of women	0.004	1.004	0.943	1.068	0.910
Monthly income	-0.131	0.877	0.761	1.011	0.071
Parity	-0.158	0.854	0.715	1.019	0.080
Religion					
Muslims	-2.341	0.096	0.008	1.189	0.068
Christians	-1.416	0.243	0.011	5.221	0.366
Traditional African Religion (*Ref)*	1				
Age having your first child	-0.106	0.899	0.815	0.992	0.033*
Local Government Areas					
Kerewan	-0.885	0.413	0.240	0.711	0.001*
Kuntaur	-0.938	0.391	0.181	0.844	0.017*
Janjanbureh	-0.109	0.897	0.508	1.585	0.708
Basse (*Ref*)	1				

Ref=Reference category; R2=10.0% - 14.8%, CI= Confidence Interval;*Statistical significance p<0.05

3.4. Socio-cultural and proximate factors associated unmet need for FP among study participants

The study revealed statistically significant associations between unmet need for FP and the following socio-cultural and proximate factors: partner support on the use of contraception (χ^2=18.087, df=2, p<0.001), who decide on the uptake of contraception (χ^2=20.944, df=4, p<0.001), knowledge about contraceptives (χ^2=24.558, df=1, p<0.001), heard of contraceptives (χ^2=8.199, df=1, p=0.004), perception that contraceptives are affordable (χ^2=46.446, df=1, p<0.001), used contraceptives before (χ^2=58.735, df=1, p<0.001), getting contraceptives when due (χ^2=50.173, df=1, p<0.001), discuss FP with partner (χ^2=15.522, df=1, p<0.001), and those who ever informed their partners for using contraceptives (χ^2=13.508, df=1, p<0.001) as shown in Table 5. Furthermore, the Fisher's exact test revealed statistical significance for other variables such as been sexually active (p=0.038), the frequency of using contraceptives (p<0.001), and what they do when they do not have contraceptives from clinics (p<0.001).

Table 5. Prevalence of unmet need for FP by Socio-cultural and proximate factors among participants

Socio-cultural and proximate factors	Unmet need for Family planning			Chi-square	p-value
	Yes (n=142)	No (n=422)	Total (N=564)		
	n (%)	n (%)	n (%)		
Societies support on use of contraceptive methods					
Yes	57 (23.8)	183 (76.3)	240 (100.0)	2.332	0.312
No	72 (27.9)	186 (72.1)	258 (100.0)		
I don't know	13 (19.7)	53 (80.3)	66 (100.0)		
Traditional /cultural beliefs against contraceptive usage					
Yes	81 (24.1)	255 (75.9)	336 (100.0)	1.134	0.567
No	48 (28.1)	123 (71.9)	171 (100.0)		
I don't know	13 (22.8)	44 (77.2)	57 (100.0)		
Partner support on the use of contraceptive methods					
Yes	22 (13.3)	143 (86.7)	165 (100.0)	18.087	<0.001*
No	75 (28.7)	186 (71.3)	261 (100.0)		
I don't know	45 (32.6)	93 (67.4)	138 (100.0)		
Who decides on contraceptive uptake (n=438)					
Partner alone	39 (26.5)	108 (73.5)	147 (100.0)	20.944	<0.001*
Wife alone	18 (15.3)	100 (84.7)	118 (100.0)		
Both wife and partner	14 (11.2)	111 (88.8)	125 (100.0)		
Healthcare providers	7 (33.3)	14 (66.7)	21 (100.0)		
Not using contraceptives	11 (40.7)	16 (59.3)	27 (100.0)		
Contraceptives harmful or has side effects (n=438)					
Yes	48 (18.6)	210 (81.4)	258 (100.0)		0.274†
No	41 (23.4)	134 (76.6)	175 (100.0)		
I don't know	0 (0.0)	5 (100.0)	5 (100.0)		
Contraceptives are beneficial (n=438)					
Yes	81 (20.4)	316 (79.6)	397 (100.0)	0.018	0.893
No	8 (19.5)	33 (80.5)	41 (100.0)		
Know about Contraceptives					
Yes	89 (20.3)	349 (79.7)	438 (100.0)	24.558	<0.001*
No	53 (42.1)	73 (57.9)	126 (100.0)		
Heard of Contraceptives					
Yes	130 (24.1)	410 (75.9)	540 (100.0)	8.199	0.004*
No	12 (50.0)	12 (50.0)	24 (100.0)		

Contraceptives are affordable					
Yes	41 (136)	261 (86.4)	302 (100.0)	46.446	<0.001*
No	101 (38.5)	161 (61.5)	262 (100.0)		
Sexually active					
Yes	138 (24.7)	420 (75.3)	558 (100.0)		0.038†*
No	4 (66.7)	2 (33.3)	6 (100.0)		
Frequency of sex					
Every time (everyday)	0 (0.0)	11 (100.0)	11 (100.0)		0.062†
Most times (>once per week)	78 (23.7)	251 (76.3)	329 (100.0)		
Occasionally (at least twice per month)	33 (26.4)	92 (73.6)	125 (100.0)		
Rarely	28 (29.8)	66 (70.2)	94 (100.0)		
Never	3 (60.0)	2 (40.0)	5 (100.0)		
Used contraceptive before					
Yes	30 (10.9)	246 (89.1)	276 (100.0)	58.735	<0.001*
No	112 (38.9)	176 (61.1)	288(100.0)		
Frequency of using contraceptives					
Every time	1 (12.5)	7 (87.5)	8 (100.0)		<0.001†*
Most times	3 (7.5)	37 (92.5)	40 (100.0)		
Occasionally	6 (4.5)	127 (95.5)	133 (100.0)		
Rarely	19 (21.6)	69 (78.4)	88 (100.0)		
Never	113 (38.3)	182 (61.7)	295 (100.0)		
Getting contraceptives when due					
Yes	20 (9.0)	201 (91.0)	221 (100.0)	50.173	<0.001*
No	122 (35.6)	221 (64.4)	343 (100.0)		
Discuss FP with partner					
Yes	37 (16.4)	189 (83.6)	226 (100.0)	15.522	<0.001*
No	105 (31.1)	233 (68.9)	338 (100.0)		
Reasons for not discussing with partners (n=338)					
He does not approve of it	40 (29.9)	94 (70.1)	134 (100.0)	7.028	0.071
It is against cultural norms	36 (39.1)	56 (60.9)	92 (100.0)		
He will regard me as a player	6 (15.8)	32 (84.2)	38 (100.0)		
It's against my religious beliefs	23 (31.1)	51 (68.9)	74 (100.0)		
Preference of FP service provider					
Female service providers for women	63 (27.9)	163 (72.1)	226 (100.0)		0.361†
Male service providers for men	13 (19.4)	54 (80.6)	67 (100.0)		
Community Based Distributors	0 (0.0)	5 (100.0)	5 (100.0)		
No sex preference	66 (24.8)	200 (75.2)	266 (100.0)		
Person to contact about contraceptives					
Husband/partner	22 (33.3)	44 (66.7)	66 (100.0)		0.478†
Relatives	11 (31.4)	24 (68.6)	35 (100.0)		
Male friends	1 (10.0)	9 (90.0)	10 (100.0)		
Female friends	26 (23.4)	85 (76.6)	111 (100.0)		
Healthcare providers	80 (24.1)	252 (75.9)	332 (100.0)		
my parents (mother)	2 (20.0)	8 (80.0)	10 (100.0)		
Who decides on the number of children to have					
Husband/partner	58 (27.9)	150 (72.1)	208 (100.0)		0.088†
Myself	42 (23.0)	141 (77.0)	183 (100.0)		
Family/close relatives	1 (12.5)	7 (87.5)	8 (100.0)		
Parents	8 (57.1)	6 (42.9)	14 (100.0)		
Not in any relationship/marriage	2 (18.2)	9 (81.8)	11 (100.0)		
God decides	31 (22.1)	109 (77.9)	140 (100.0)		
Ever informed your partner of using contraceptives					

Yes	32 (16.1)	167 (83.9)	199 (100.0)	13.508	<0.001*
No	110 (30.1)	255 (69.9)	365 (100.0)		
What you do when you don't have Contraceptives from clinics					
Purchase from the pharmacy	31 (15.7)	167 (84.3)	198 (100.0)		<0.001†*
Use of alternative methods	1 (3.4)	28 (96.6)	29 (100.0)		
Do not use any methods	74 (35.6)	134 (64.4)	208 (100.0)		
Asked my partner to use protection	2 (28.6)	5 (71.4)	7 (100.0)		
I wait for new supplies	34 (28.1)	87 (71.9)	121 (100.0)		

Statistically significant

† Fisher's Exact test

3.5. Socio-cultural and proximate predictors of unmet need for FP among participants

Women who reported that contraceptives are affordable were less likely by an odds of 0.633 to have an unmet need for FP, as indicated in Table 6. This was not statistically significant (p=0.093, 95% CI= 0.371 - 1.079). With an increase in the frequency of using contraceptives, women were more likely by an odds of 1.587 to have an unmet need for FP (statistically significant, p=0.032, 95% CI= 1.041 - 2.419).

Table 6. Influence of participants' socio-cultural and proximate factors on unmet need for FP among participants

Predictors	B (regression coefficient)	Adjusted Odds Ratio (aOR)	95% C.I. for OR		p-value
			Lower	Upper	
Are contraceptives affordable?					
Yes	-0.457	0.633	0.371	1.079	0.093
No (*Ref*)	1				
Frequency of sex in a month	0.158	1.172	0.923	1.488	0.194
Frequency of using contraceptives	0.462	1.587	1.041	2.419	0.032*
Use contraceptives before to delay or avoid pregnancy					
Yes	-0.396	0.673	0.320	1.414	0.296
No (*Ref*)	1				
Do you get contraceptives when due?					
Yes	-0.424	0.655	0.303	1.414	0.281
No (*Ref*)	1				

Ref=Reference category; R2=13.2% - 19.5%, CI= Confidence Interval; *statistical significance p<0.05

4. Discussion

This study shows there is an unmet need for FP in The Gambia. Compared to other FP studies in the region, the mean age of participants was similar to studies done in the Gambia [32, 41] and Nigeria [42, 43] while the larger proportion of the women were found within their peak age of reproduction. About two-thirds of women had up to secondary education levels and are in contrast with a study done in Osun State, Nigeria which showed a lower education level [44]. It has also been demonstrated that the increase in educational level has an inverse influence on the parity of these women. The high parities seen in Gambian women could be explained as a result of the Islamic faith being the predominant religion in rural communities of The Gambia. In addition, rivalry and competition in most polygamous settings might influence high parity rates as each woman tries to outnumber her counterpart in terms of the number of living children she has, the

woman's ability to bear children is seen as a stabilizing influence on her marriage, and in some Gambian cultures, men have to prove their virility by the number of children they have. Male child preference for the couple is also a significant contributory factor for high parity, which was not within the scope of this study. Overall, similar findings were reported in a study conducted in the Gambia [31, 32] and Nigeria, where a higher proportion of participants were married [43, 45].

In the majority of SSA countries, including The Gambia, the impact of unmet need on reproduction through a period of time can be enormous, even though the extent of unmet need is minor at any given moment in time. According to this analysis, the total unmet need for FP among in-union/married women in rural Gambia is 26.0%, with 17.9% expressing an unmet need for spacing births and 8.1 percent expressing a desire to limit births. Notably, the traditional definition of unmet need excludes women who are currently using contraceptives but require a technique that is more effective, safer, or more appropriate for their context [46]. However, Bhattacharya et al. discovered that 42% of unmet needs were for limiters and 26% for spacers [47], while Saini et al. showed that 26% of unmet needs were for spacing and 19% for limiting among women in Kolkata, India, respectively [48]. Additionally, the current study indicates that the unmet need for spacing and birth limitation is greater in rural parts of The Gambia than in urban ones. Fear of side effects, child sex preference, and expense have all been noted as barriers to poor, rural women accessing FP services. These were similar to other researchers indicating that the most frequently mentioned reasons for not using contraceptives were the husband's objection and fear of negative effects [31, 49, 50]. Similarly to the results of this study, revealed that if a woman has previously discussed contraceptives, has been exposed to mass media about FP, or approves of FP, her use of contraceptive methods increases as shown in other studies done in SSA [41, 51, 52].

In this study, about one in every four women had an unmet need for FP, which is slightly below the reported prevalence in Mumbai, India at 40.6% [53] and slightly above reported prevalence in Nigeria at 20% [54], Gambia DHS 2013 at 24.9% [7] and Gambia DHS 2019-20 at 24.2% [28], in South India at 16.7% [55], and in Nagpur, India at 22.1% [56]. Furthermore, the prevalence for spacing (moderately higher) and limiting of births were slightly higher than the study conducted in Ethiopia at 16.2%, with spacing at 10.2% and limiting births at 6.0% [57]. This agrees with other studies in The Gambia, where a relatively lower proportion of women had an unmet need for both spacing and limiting of births [7, 28, 32, 58, 59]. Compared with the Gambia DHS 2013, there is a decrease in the unmet need for spacing, while limiting increases. These variations could well be explained by cultural and religious differences. Fear of adverse effects, child sex preference, and religious restrictions were all significant barriers to FP use in these settings. It further justifies the significant role of male involvement and spousal communication, especially in rural settings, regarding the unmet need for FP.

This research reveals that as women age, their likelihood of having an unmet need for FP reduces, and the same is true for the unmet need to limiting childbirths. These may be the result of women usually desiring to delay their first pregnancies; there is a greater desire to have FP at an early age when the availability of FP services is limited. Thus, young adults are destined to face a greater risk of unmet contraceptive and pregnancy needs. In this regard, those aged 15-29 years had the highest proportion of unmet need for spacing births, followed by those aged 15-29 years for limiting fertility. Additionally, it was suggested that when a woman's age advances, she will naturally approach her intended family size [60]. Likewise, women over 50 are likely not fertile, have a lower coital frequency and hence may not require contraception to control reproduction. This substantial unmet need among adolescents is also substantiated by a study conducted in Nepal's eastern area [61]. Similarly, an Indian study found that the greatest unmet requirements were among those aged 15-19 years (39%), dropping gradually until the ages of 35-39 [62]. According to this study, women in The Gambia who had their first pregnancy before the

age of 18 had a greater rate of unmet needs, however, it was not statistically significant. Generally, there is still a lack of enforcement and execution of child marriage legal restrictions in The Gambia.

The place of residence by LGA has been found to be a predictor of unmet needs in The Gambia. The unmet need was higher in Basse LGA than in the remaining rural LGAs in this study. The lower unmet needs in other rural LGAs might be due to better health-seeking behavior, higher education status, more accurate sources of information regarding FP, less negative cultural influence towards FP services, and availability of either general or district hospitals in those selected rural LGAs. This effect on unmet needs is supported by similar studies in Nepal and Ethiopia, with higher unmet needs in rural areas than other related areas [63, 64]. This study and studies conducted in comparable regions have similar reasons to explain why rural areas lag behind different opportunities in education, access to quality healthcare services, information, and wealth [31, 65, 66]. There were high unmet needs among Muslims relative to other religions, which could be attributed to more religious prohibitions for FP, especially when married. Women in The Gambia rely heavily on men for their basic necessities and sustenance, and as a result, they are unable to make decisions about whether to have sex, when to become expectant, or when to use contraception. Women who do not adhere to cultural norms are not only treated with contempt, but they are also at risk of STIs, abuse, and assault [67].

The findings of this study are consistent with previous research in SSA, where the number of women disclosed having sex for economic purposes, such as financial help, and poverty drove them to engage in transactional sex with elderly men to meet basic needs, despite increased risk of unintended pregnancy [67-70]. Moreover, these findings indicate that women's inability to defend themselves against coerced sex could be attributable to both gender and power relations and disparities, particularly in rural contexts [71].

This study demonstrates that women's number of living children is negatively proportional to their unmet need for spacing and limiting. As a result, it is likely that women will continue to have more children as long as they do not use contraception, despite their wish to restrict and space these deliveries. Similarly, women in rural areas who were just housewives and farmers showed a larger total unmet need for FP compared to urban women. Thus, a major finding is that women who work, especially those who trade, are less likely to have an unmet demand for FP, including spacing childbirths. Women who work are more likely to actively seek contraception in order to space their births and provide ample time for job-related activities. Nevertheless, there was a progressive decline in unmet needs as income increased in this study. It is argued that wealthy people have more resources, are more educated, and have the power to make their own choices [48]. Until recently, The Gambia's rural, agrarian economy did not always provide these logical incentives for increased parental investment in fewer children. Most rural villages lack access to education beyond the elementary level, and out-migration for women seeking employment or education was not a frequent option. However, as population density has increased in these places, the reliance on out-migration and off-farm employment as a strategy has increased as well.

Limitations of the Study

The study was limited to the determination of unmet need for FP, total demand for FP services, and the contribution of factors influencing the unmet need for FP only. The study did not go as far to examine the effect of health system determinants on unmet FP needs. The information gathered was self-reported, therefore the claim's legitimacy may not be easily verified. The incorrectly filled questionnaire was minimized by adopting an interview administered approach to questionnaire administration.

Conclusion

Unmet need was greatest among younger women, Muslims, women lacking education, higher parity, and those with low monthly income. The primary determinants of unmet demand for FP (spacing and limiting births) are women's age at first pregnancy and LGA of origin. Certainly, the program should investigate ways to increase the quality of care provided to acceptors. Leaders from the community should be more actively involved in the initiative. The service providers should place a higher premium on longer-acting interventions to meet the unmet needs of high-parity women. The FP program in The Gambia should step up its efforts in rural parts of the country to improve access to and availability of reproductive health services. Young married women (younger than 24 years of age) demand special consideration due to their high level of unmet need and fertility. Future research should also examine the sociocultural elements that contribute to women's unmet need for FP in rural contexts.

Declarations

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Availability of data

The datasets are available upon request from the corresponding author.

Authors' contributions

AB designed the project, conducted fieldwork, analyzed data, wrote results and the original manuscript. It was reviewed by AB, ECI, AOA, and EMR. This manuscript was approved by all authors. AB had the final responsibility to submit for publication.

Competing interests

Not declared

Ethics approval and consent to participate

The study protocol was approved by University of Benin's Research Ethics Committee, College of Medical Sciences (Ref:CMS/REC/01/COL.3/006) and University of The Gambia's Research and Publication Committee (Ref: #R017 040). All methods were performed in accordance with the relevant guidelines and regulations. Written informed consent was obtained from participants (signed or thumb-printed), including parents of those between 15 to 17 years old.

Consent for publication

Not applicable

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