

# Prevalence, Socio-Demographic and Economic Determinants of Unmet Need for Contraception in Rubavu District, Rwanda.

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## ABSTRACT

Rwanda population growth constitutes a major challenge to its economic development. The gap between women's reproductive intentions and their contraceptive behavior has been reported in Rubavu district. The main purposes of this study are to measure the prevalence of unmet need for contraception and to identify socio-demographic and economic determinants of unmet need for contraception in Rubavu district.

**Material and Methods:** The study subjects were comprised of 270 women, Proportionate stratified sampling method was used to determine the number of women from each health center and systemic sampling method was used to select participants. A cross sectional study with a quantitative approach was conducted among women of reproductive age who visited health facilities for routine immunization of their children.

**Results:** The results showed that 27.8% of participants have unmet need for spacing, and 18.8% have unmet need for

limiting. Women aged 21-29 years are more likely to have unmet need for spacing compared to other group of age (OR=2.626, P=0.019). Women who have one child were more than five times more likely to have unmet need for spacing OR=5.321; P <0.001. Women who have four to five children were more than four times (OR=4.362; P=0.003) and those who have six child and above were more than four times (OR=4.353 P=0.003) more likely to have unmet need for limiting compared to those with one child. Illiterate were 3 times (OR=3.144, P=0.010), Catholic were 2 times more likely to have unmet need for spacing compared to other religion (OR=2.187, P=0.028).

**Conclusion:** unmet need for contraception is high. The likelihood of unmet need increases with age, number of living children, the desire of having a boy and Catholic Church. Campaigns against high unmet need for contraception should be intensified.

**Index terms:** Prevalence, Socio-demographic and economic determinants, unmet need, contraception.

## INTRODUCTION

A woman is considered to have an unmet need for contraception if she is of reproductive age (15-49), she is married, in a union or sexually active, she is fecund, she does not want a child in the next two years and she is not using any form of contraception, either traditional or modern.<sup>[1]</sup> Among women in developing countries, a total of 222 million are estimated to have an unmet need for contraception.<sup>[2]</sup> It has been found to be associated with Unintended pregnancy (including mistimed and unwanted pregnancy), adverse maternal and infant health outcomes.<sup>[3]</sup> While Family planning (FP) has been highlighted in the vision 2020 and the EDPRS II as priority to achieving overall national development and Millennium Development Goal (MDGs), Rwanda population growth constitutes a major challenge to its economic development.<sup>[4]</sup> Some studies showed that unmet need for

spacing is more prevalent than unmet need for limiting. Women with unmet need for both spacing and limiting are more likely to be living in rural areas, have lower level of education, lower level of knowledge about family planning method, have no work other than household chores, and have never been visited by a family planning worker.<sup>[5]</sup> Contraceptive could prevent 218 million unintended pregnancies in developing countries in 2012, and avert 55 million unplanned births, 138 million abortions (of which 40 million are unsafe), 25 million miscarriages and 118,000 maternal deaths.<sup>[2]</sup> Nationally, the current contraceptive prevalence rate (CPR) is only meeting 65.8% of the total demand for contraception.<sup>[6]</sup> While achievements have been gained with modern contraceptive use rising from 10% in 2005 to 47.5% in 2015 with a resultant fall in fertility from 6.1 children per woman to 4.2 children, there remain some challenges nationally and at district levels.<sup>[6]</sup> Rubavu district

which is located in western province and is the mostly populated district in the region (Western Province) with 403,662 inhabitants and high population density in Rwanda (1041/km<sup>2</sup>) out of Kigali city.<sup>[7]</sup> The population growth rate of 3.3 with the family planning prevailing rate of 36%. Available data of 2010 RDHS showed that total fertility rate (TFR) was 5.3 children per woman in 2010 (compared to 4.6 children at national average) and contraceptive prevalence rate was 29.2% (16.8% lower than the national average). Infant mortality was 54 per 1000 live births (27 per 1000 live births higher than the

national average) and under-five mortality was 96 per 1000 live births (20 per 1000 live births higher than the national average).<sup>[8]</sup> Therefore the study will fill an important gap in what is known about Rwanda's reproductive health particularly in Rubavu district, where very little is known about the prevalence of unmet need, socio-demographics and economic characteristics namely, age of participants, number of living children, sex composition of children, desire of having another child/children, education of woman, religion, occupation and wealth quintile.

## MATERIALS AND METHODS

The study was a cross sectional and used quantitative research method. The study population comprised of women of reproductive age of 18-49 years who visited the health centers of Rubavu district for routine immunization of their children. Participants under 21 years and more than 49 years and who declined to participate were excluded from the study. A sample of 270 married women was determined using sample for proportion. Proportionate stratified sampling method was used to determine the number of women from each health center

and systemic sampling method was used to select participants from each stratum. The ethical clearance was obtained from the National Health Research Committee (NHRC) and Institutional Review Board (IRB) of College of Medicine and Health Sciences at the University of Rwanda. After obtaining the permission from the directors of health centers, the interviews started. Data were collected by using semi-structured questionnaire. Upon acceptance to participate, the researcher interviewed the women using the questionnaire. The responses were recorded accordingly.

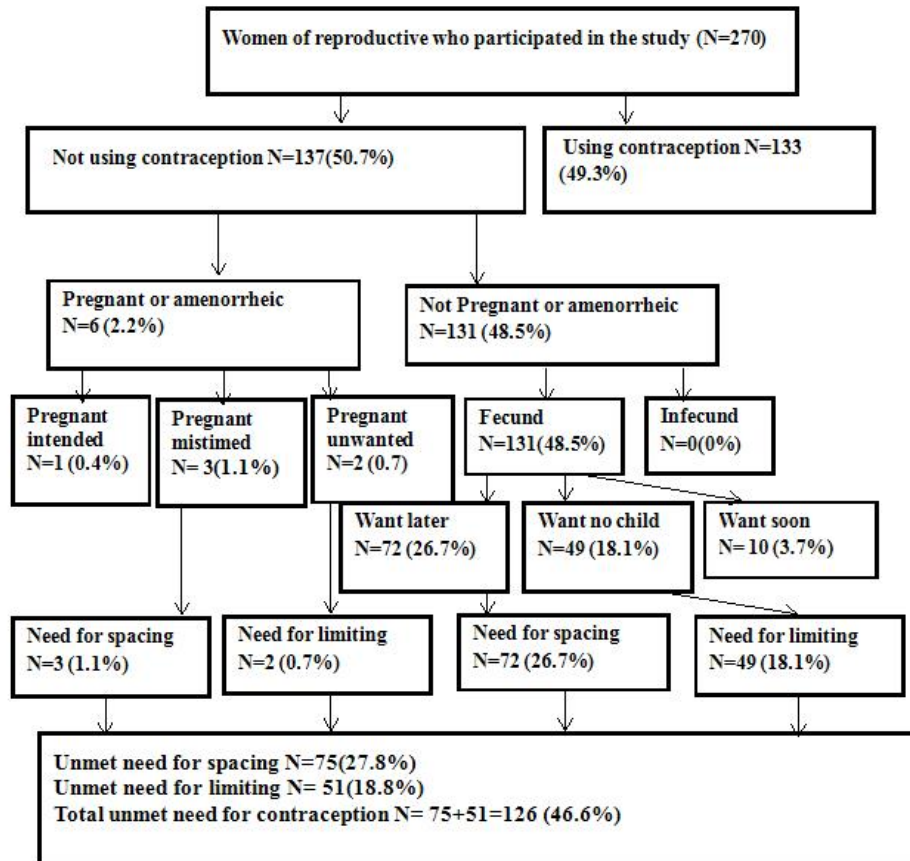
## STATISTICAL ANALYSIS

Data from the written questionnaire were coded and entered into the computer using SPSS 21.0. A descriptive analysis was carried out for each of the variables. The total unmet need is given by unmet need for spacing plus unmet need for limiting. The total unmet need for spacing is made up the proportion of mistimed subsequent pregnancies and that which wanted to have a child later while proportion of currently pregnant women who reported that their current pregnancy was unwanted plus proportion of fecund women that did not want

any more child/children will give the total of unmet need for limiting. To assess the presence and degree of association between the dependent (unmet need) and independent variables (socio-demographic and economic characteristics), chi-square and Fischer exact test were used and statistical significance was defined when p-value was less than 0.05. Odds ratio with 95% Confidence Interval in multiple logistic regression was computed on variables which showed significant association with the dependent variable to identify their independent effects on having unmet need.

**RESULTS**

**Prevalence of unmet for contraception**



**Figure 1: Proportion of women with unmet need for spacing and unmet need for limiting contraception among women of reproductive age in Rubavu district**

Participants were categorized into 2 groups: using contraception (N=133; 49.3%) not using contraception (N=137; 50.7%). Participants who are not using contraception were grouped into pregnant women or amenorrhoeic (N= 6; 2.2%) and not pregnant nor amenorrhoeic (N=131; 48.5%). Those who are pregnant were classified by whether pregnancy was intended (N=1; 0.4%),

mistimed (N=3; 1.1%) or unwanted (N=2 0.7%). Women who reported having mistimed pregnancies were regarded as one component of unmet need for spacing and those with unwanted pregnancies are having unmet need for limiting. Pregnant or amenorrhoeic women were divided into two groups: Fecund (131; 48.5%) and infecund (N=0; 0.0%). The fecund women were grouped into three groups

as want later (N=72; 26.7%), want no child (N=49; 18.1%) and want soon (N=10; 3.7%). Women using no contraception and wanted no more children had unmet need

### **Unmet need for spacing and limiting by socio-demographic and economic variables**

Table 1 describes unmet need for spacing and limiting by socio-demographic characteristics and economics variables of participants. The age ranged from 21-29 is presented in greater proportion with (99)36.7% of respondents. Among this range of age 48 (48.5%) reported having unmet need for spacing ( $P < 0.001$ ) and 7(7.0%) of respondents have unmet need for limiting ( $P < 0.001$ ). Among participants 91(33.7%) were between 30 and 37 years and 19 (20.9%) had unmet need for spacing ( $P=0.071$ ) and 24 (26.3%) had unmet need for limiting ( $P=0.025$ ). Among participants, 80 (29.6%) were between 38 and 46 years old, of them 9(11.2%) had unmet need for spacing, ( $P < 0.001$ ) of them (20)25% had unmet need for limiting, ( $P < 0.096$ ). Respondents were asked the number of living children. The results showed that 69 (25.6%) at the time of the study had 1 child. Of them 50(72.5%) reported unmet need for spacing ( $P < 0.001$ ) and of them 6(8.7%) reported unmet need for limiting ( $P=0.012$ ). Among respondents 98 (36.3%) had two to three children of them 14(14.2%) had unmet need for spacing ( $P < 0.001$ ) and of them 10(10.2%) had unmet need for limiting ( $P < 0.006$ ). Those who had four to five were 64(23.7%) of them (8)12.7% had unmet need for spacing ( $P=0.002$ ) and of them 20(31%) had unmet need for limiting ( $P=0.004$ ). Respondents who reported having six and above children were 39 (14.4%) and 2(5.1%) had unmet need of spacing ( $P=0.001$ ) and 15 (38.4%) had unmet need of limiting ( $P=0.001$ ). The sex composition of children was assessed in this study. Among respondents, 56(20.7%) reported that sons equal to daughters and of them (10)17.8% had unmet need for spacing ( $P=0.063$ ) of them 14(25.0%) had unmet need for limiting ( $P=0.189$ ), who reported that sons are more than daughters were 47 (17.4), of them 8(17.0%) had unmet need for spacing ( $P=0.070$ ) and of them 2(4.2%) had unmet need for limiting ( $P=0.005$ ). Who reported having sons only were 56 (20.7%) of them, 11 (19.6%) had unmet need for spacing ( $P=0.127$ ) of them, 12 (21.4%) had unmet need for limiting ( $P=0.585$ ). Daughters only were 53(19.6%) among them, 24 (45.3%) reported having unmet need for spacing ( $P=0.002$ ) among them, 15 (28.3%) reported having unmet need for limiting ( $P=0.051$ ). Who reported that sons are less than daughters were 58(21.5%) of them 22 (37.9%) had unmet need for spacing ( $P=0.051$ ) and 8 (13.7%) had unmet need for limiting ( $P=0.263$ ). Respondents were asked the highest

for limiting and those who reported want later (after two years) had unmet need for spacing. Thus the total unmet needs for family planning are 46.6%.

level of studies they have completed. Illiterates count 60(22.2%) of participants of them 24(40%) had unmet need for spacing ( $P=0.017$ ), of them 9(15.0%) had unmet need for limiting ( $P=0.383$ ), who have completed primary school were 113 (41.9%) of them 28(24.7%) had unmet need for spacing ( $P=0.351$ ) and 24(21.2%) had unmet need for limiting ( $P=0.403$ ). Secondary school counted 78(28.9%) and of them 19(24.3%) had unmet need for spacing ( $P=0.424$ ) and 17(21.9%) had unmet need for limiting ( $P=0.437$ ). And higher education were 19(7.0%), among those who had higher education 4 (21.0%) had unmet need for spacing ( $P=0.497$ ) and 1 (5.20%) had unmet need for limiting ( $P=0.139$ ). The occupation was asked and results showed that unemployed were 33 (12.2%) of them 7 (21.2%) had unmet need for spacing and 6 (18.1%) had unmet need for limiting ( $P=0.912$ ), business counted 52 (19.3%) and among them 16 (30.7%) had unmet need for spacing ( $P=0.592$ ) and 4 (7.7%) had unmet need for limiting ( $P=0.022$ ), farmers were 151(55.9%) of them 44(29.1%) had unmet need for spacing ( $P=0.574$ ) of them 37(24.5%) had unmet need for limiting ( $P=0.008$ ). Employed counted 34 (12.6%) with 8(23.5%) of unmet need for spacing ( $P=0.554$ ) with 4(11.7%) of unmet need for limiting ( $P=0.256$ ). The religion affiliation was asked. The results showed that Muslims were 29 (10.7%) of them 4(13.8%) had unmet need for spacing ( $P=0.075$ ) and 5(17.2%) had unmet need for limiting ( $P=0.075$ ). Protestant were 81 (30%) with 19(23.4%) of unmet need for spacing ( $P=0.299$ ) with 22 (27.1%) of unmet need for limiting ( $P=0.023$ ). Catholic counted 109 (40.4%) of them 43(39.4%) had unmet need for spacing ( $P < 0.001$ ) and 22(19.2%) had unmet need for limiting ( $P=0.896$ ). Adventist were 51(18.9%) and of them 9(17.6%) had unmet need for spacing ( $P=0.073$ ) and of them 5 (9.8%) had unmet need for limiting ( $P=0.066$ ). The wealth quintile was reported. The lowest were 30(11.1%), of them 11(36.65) had unmet need for spacing ( $P=0.249$ ) and 5(16.6%) had unmet need for limiting ( $P=0.0742$ ), the second were 95(35.2%) among them 29(30.5%) had unmet need for spacing ( $P=0.458$ ) and 21(22.1%) had unmet need for limiting ( $P=0.320$ ), Middle were 133(49.3%) and among them 30 (22.5%) had unmet need for spacing ( $P=0.059$ ) among them 24 (18.0%) had unmet need for limiting ( $P=0.727$ ), the fourth were 12 (4.4%) and of them, 6(50.0%) had unmet need for spacing ( $P=0.079$ ) and 1(8.3%) had unmet need for limiting ( $P=0.339$ ).

**Table 1: Socio-demographic and economic characteristics of participants and unmet need for spacing**

Variables	Frequency	Percent	Unmet need		P-value	Unmet need		p-value
			for spacing Yes	No		for limiting Yes	No	
<b>Age(N=270)</b>								
Between 21 -29	99	36.7	48	51	< 0.001	7	92	<0.001
Between 30 -39	91	33.7	19	72	0.071	24	67	0.025
Between 40 -49	80	29.6	9	71	<0.001	20	60	0.096
<b>Number of living Children(N=270)</b>								
One	69	25.6	50	19	< 0.001	6	63	0.012
Two-three	98	36.3	14	84	< 0.001	10	88	0.006
Four –five	64	23.7	8	56	0.002	20	44	0.004
Six and above	39	14.4	2	37	0.001	15	24	0.001
<b>Sex composition of children(N=270)</b>								
Sons equal to daughters	56	20.7	10	46	0.063	4	42	0.189
Sons > daughters	47	17.4	8	39	0.070	2	45	0.005
Sons only	56	20.7	11	45	0.127	12	44	0.585
Daughters only	53	19.6	24	29	0.002	15	38	0.051
Sons < daughters	58	21.5	22	36	0.051	8	50	0.262
<b>Education(N=270)</b>								
Illiterate	60	22.2	24	36	0.017	9	51	0.383
Primary	113	41.9	28	85	0.351	24	89	0.403
Secondary	78	28.9	19	59	0.424	17	61	0.437
Higher	19	7.0	4	15	0.497	1	18	0.139
<b>Occupation(N=270)</b>								
Unemployed	33	12.2	7	26	0.369	6	27	0.912
Business	52	19.3	16	36	0.592	4	48	0.022
Farmer	151	55.9	44	107	0.574	37	114	0.008
Employed	34	12.6	8	26	0.554	4	30	0.256
<b>Religion(N=270)</b>								
Muslim	29	10.7	4	25	0.075	5	24	0.810
Protestant	81	30.0	19	62	0.299	22	59	0.023
Catholic	109	40.4	43	66	<0.001	21	88	0.896
Adventist	51	18.9	9	42	0.073	5	46	0.066
<b>Wealth quintile(N=270)</b>								
Lowest	30	11.1	11	19	0.249	5	25	0.742
Second	95	35.2	29	66	0.458	21	74	0.320
Middle	133	49.3	30	103	0.059	24	109	0.727
Fourth	12	4.4	6	6	0.079	1	11	0.339

**Multiple logistic regression of socio-demographic and economic determinants of unmet need for spacing and limiting birth among women of reproductive age in Rubavu district**

In table 2, variables which show significant association with the dependent variable in tables one and two were recruited to estimate the likelihood of unmet need for spacing and limiting birth.

According to this study, women aged between 21-29 years old are more likely to have un met need for spacing compared to other group of age(OR=2.626,CI=1.169–5.897P=0.019). In the multiple logistic regression the Odd

of having unmet need for spacing seems to reduce. Women who reported to have one child were more than 5 times to have unmet need for spacing relative to those with more than one OR=5.321, CI=2.219–12.757P=0.001). According to the results of this study, the odd of having unmet need for spacing reduces with the number of living children. Women who reported that to have six and above had a 81.5% reduction in the odd of having unmet need for spacing relative to those with less than six children. The sex composition of children is not statistically significant (OR=1.227; CI=0.503–2.993; P=0.065). Women with no education were shown to be associated with unmet for spacing relative two those with primary, secondary and higher education (OR=3.144,CI=1.309 7.553,P=0.010.Catholic affiliation were more than two times, more likely to have unmet need for spacing compared

to other religion affiliation (OR=2.187, CI=1.083–4.414 P=0.029).

According to the results from this study, the odd of having unmet need for limiting seems to be reduce with age. The results of the same study revealed that the odd of having unmet need for limiting increases with the number of living children. Women who have four to five children were more than four times more likely to have unmet need for limiting (OR=4.362 CI=1.661–11.455 ;P= 0.003), those who have six and above were more than four times more likely to

have unmet need for limiting compared to those with one child (OR=4.353 CI=1.787-10.606; P= 0.001). Women who reported that sons are more than daughters, have a 89.9% reduction in the odd of having unmet need for limiting (OR=0.102; CI=0.022–0.466; P= 0.003). Protestant are two times more likely to have unmet need for limiting (OR=2.026; CI=1.000–4.103; P= 0.050). Business and Farmer were not statistically associated with unmet need for limiting (OR=0.588; CI=0.160–2.166; P= 0.425). (OR=1.796; CI=0.754–4.283; P= 0.186).

**Table 2: Multiple logistic regression of socio-demographic and economic determinants of unmet need for spacing and limiting birth among women of reproductive age in Rubavu district**

Variables	Unmet need for spacing			Unmet need for limiting		
	AOR	95%CI	P-value	AOR	95%CI	P-value
<b>Age</b>						
Between 21 -29	2.626	1.169–5.897	0.019	0.365	0.132–1.011	0.053
Between 30 -39	—	—	—	1.329	0.616–2.864	0.468
Between 40 -49	0.538	0.200–1.443	0.218	—	—	—
<b>Number of living Children</b>						
One	5.321	2.219–12.757	<0.001	1.084	0.369–3.181	0.883
Two-three	0.508	0.232–1.110	0.089	1.591	0.607–4.172	0.345
Four –five	0.437	0.181–1.054	0.065	4.362	1.661–11.455	0.003
Six and above	0.185	0.054-1.0.634	0.007	4.353	1.787-10.606	0.001
<b>Composition of</b>						
Daughters only	1.227	0.503–2.993	0.065	—	—	—
Sons > daughters	—	—	—	0.102	0.022–0.466	0.003
<b>Education</b>						
Illiterate	3.144	1.309–7.553	0.010	—	—	—
<b>Religion</b>						
Catholic	2.187	1.083–4.414	0.029	—	—	—
Protestant	—	—	—	2.026	1.000–4.103	0.050
<b>Occupation</b>						
Business	—	—	—	0.588	0.160–2.166	0.425
Farmer	—	—	—	1.796	0.754–4.283	0.186

sex

## DISCUSSION

The results showed that the unmet of spacing is 27.8% and that of limiting 18.8% that give the total unmet need of 46.6%. The results are lower than the results of the study conducted from which Using Westoff model the total unmet need was estimated as 44.8%.<sup>[9]</sup> In the study conducted by Malini and Narayanan in India to assess unmet need for family planning among married women of reproductive age group in urban Tamil Nadu, The prevalence was 39% in the study area.<sup>[10]</sup> The results are higher than the results of the Rwanda Demographic and Health Survey of 2010 (RDHS) which showed that unmet need in Rubavu district was 36%.<sup>[11]</sup> This difference is probably due to that as the study setting was a rural area, it has been shown that unmet need for contraception is higher in rural areas than urban areas

and participants were only married women who are ready for childbearing which may be the explanation of high unmet need for family planning. According to the results, unmet need for spacing was identified among women of law age and unmet need for limiting decreases with age. This may due to the fact that women need any more children. The results of the study showed that the likelihood of unmet need of limiting increases with age which is not statistically significant. The reason may be that as long as the age of women increases the desired family size is reached and they are not ready for childbearing. The results are supported by the results of the study conducted by Adebowale and Palamulen in Burkina Faso which showed that odds ratios associated with unmet need for modern contraceptive were high for married women of advanced aged.<sup>[12]</sup> And the results of another study conducted in Ethiopia showed that

the age group of 40 and above were more likely to have unmet need for FP compared to age groups of 30-34 years.<sup>[13]</sup> In this study, the likelihood of unmet need increases with the number of living children. Women who have one child reported unmet need for spacing and unmet need for limiting was reported by women who have four and above children. The reason may be the reach of the desired family size. The results from this study are supported by the results of the study conducted in Burkina Faso where the likelihood of unmet need for modern contraceptive increases consistently as the number of living children increases. For instance, women who have at least 5 living children were approximately 8 times more likely to have unmet need for modern contraceptive than those who do not have any living children.<sup>[12]</sup> Several studies showed that education is an important factor in increasing contraceptive knowledge and the desire to limit or space births. In this study only women with no education affect unmet need for spacing as women are not exposed on family planning media which are different from the study conducted by Gabapamang in Botswana where married women with primary education were 3 times to have unmet need (OR=2.901; p=0.040) and married women.<sup>[14]</sup> The difference may due to that today in Rwanda women are empowered through community health workers campaign and better access to health facilities and information about contraceptive methods. Sex composition may make couple to decide the use of contraceptive methods. The odd of unmet need for spacing increases among women who reported to have daughter only and decreases among women who reported that sons are more than daughter. This may due to that Rwanda is one of the parts of the world where normative preference for sons is prevailing. This was evidenced by the study conducted by Gibson and Hindin where the pressure from in-laws to have children soon after marriage has been reported.<sup>[15]</sup> In the study conducted in Eastern Sudan with the main purpose of assessing factors affecting unmet need for contraception the results revealed that women education < secondary level (OR=7.8; CI=5.6; P=0.00).<sup>[9]</sup> Catholic have unmet need for contraception which is similar to the results of the study conducted in Nigeria, which showed that participants who were non-Catholic Christians were less likely to have unmet need for limiting than the Catholic Christians (p<0.001).<sup>[16]</sup> This is because the Christian religion particularly prohibits using contraceptives for spacing and limiting birth. The results showed that occupation is not associated with unmet need for contraception which is different from the study conducted in Westoff et al in Rwanda where women who were currently working (OR=1.435; p<0.001) had higher odds of unmet need for modern contraceptive than those who are not working.<sup>[11]</sup> In Ethiopia the study conducted to assess determinants of unmet need showed that Housewife/farmers were 6.81 (AOR = 6.81, 95 % CI: 1.91-24.29) times

more likely to have unmet need for FP compared to those who were employed.<sup>[17]</sup>

## CONCLUSION

Among participants, unmet need for contraception remains high. The likelihood of unmet need for spacing is high in low age, and increases with low number of living children, sex composition and Catholic based faith. Campaigns against Sociodemographic determinants unmet need for contraception should be intensified.

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