

Factors Influencing the Uptake of Short Term Contraceptives Among Women in Afghanistan: Further Analysis of Afghanistan Demographic and Health Survey 2015 (A Cross Sectional Study)

Ahmad Siyar Noormal (✉ siyarnoormal@gmail.com)

Heidelberg Institute of Global Health

Volker Winkler

Heidelberg Institute of Global Health

Ali Maisam Eshraqi

Kabul Medical University

Andreas Deckert

Heidelberg Institute of Global Health

Iftekhar Sadaat

Ministry of Public Health

Peter Dambach

Heidelberg Institute of Global Health

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Abstract

Objective: The aim of this study is to assess factors that influence the uptake of short term contraceptives among married women aged between 15-49 years in Afghanistan.

Method: The cross sectional Afghanistan 2015 Demographic and Health Survey provided the dataset for this analysis. We included 22,974 women and applied multivariable logistic regression to investigate the influencing factors for the uptake of short term contraceptives.

Results: 95% of Afghan women knew at least one type of contraception but only 16% were using short term contraceptives. Short term contraceptive use was most prevalent among women in the age group between 30 and 40 who were educated, employed, and rich. Most of users were living in the western parts of Afghanistan and belong to Baluch and Pashtun ethnic groups. Media exposure and women empowerment were also positively associated with the use of short term contraceptives. However, we did not find an association with living in urban or rural settings.

Conclusion: FP in Afghanistan requires multisectorial efforts, tailored to the needs of women stemming from low and middle socioeconomic status. Health promotion 5 activities, empowering women, strengthening education, and training of FP service providers on effective counseling are good options to address the issue.

Background

According to the World Health Organization, 'Family Planning (FP) allows people to attain their desired number of children and determine the spacing of pregnancies. It is achieved through use of contraceptive methods and the treatment of infertility'. FP is an effective approach to reduce maternal and child mortality(1, 2) and studies have shown, that contraceptives prevent about one third of pregnancy related deaths, and 44% of neonatal deaths(3).

Globally, about 12 % of married women have an unmet need for contraception and most of them are living in low and middle income countries (4). Recent data showed that in 2017 out of 206 million pregnancies in developing countries, around 43% of them were unintended. According to WHO, around 214 million women of reproductive age, who want to avoid pregnancy are not using any method of contraception(5). This unmet need for contraception results in millions of unwanted pregnancies(5). Studies showed that promotion of contraceptives in developing countries over the past 2 decades has avoided up to 40 % of maternal deaths simply by reducing the number of unwanted pregnancies(6).

According to recent data(7), the pregnancy related mortality ratio in Afghanistan was 1,291 per 100,000 live births in 2017, however some contradicting figures show lower numbers 638 (8), which still stands among the highest in the world(7). Traditionally, Afghans prefer large families, and even though the fertility rate has been declining during the last years from 7.4 in 2000, to 4.5 in 2017, the total fertility rate is still considered high compared to its South Asian neighbors.(9) Afghan stakeholders and policymakers

consider FP as an effective approach to tackle maternal and child mortality, and therefore initiated several programs to promote FP in Afghanistan.

Over the past decade, there was an increase in the prevalence of contraceptive use from 7% in 2003 over 11% in 2012 to a still low 23% in 2015.(10) Bearing the high fertility rate in Afghanistan in mind, this rate is considered low compared to other countries all over the world.(11) The report of AfDHS in 2015 showed that 95% of married women and 92% of married men know at least one method of FP.(7) Despite this high level of awareness, the prevalence of contraception utilization was 23%, which were composed of more than 15 % short term contraceptives, 3% traditional methods, and less than 4% intrauterine devices, fertilization and implants.(7)

Contraceptives may either be classified as modern and traditional methods, or according to the duration of their effectiveness as long term, short term, and permanent contraceptives. Recently, another study analyzed the factors which influence the uptake and unmet need of modern contraceptives in Afghanistan, and found parity, education, ethnicity, media exposure, and wealth index to be determinants of modern contraceptive uptake.(12) Since oral contraceptives, injectables, and male condoms, which are classified as short term methods,(13) were the most widely known and practiced methods among both women and men, our analysis explicitly focuses on barriers to short term contraceptives and investigates if it differs from what it is already known about modern and other types of contraception.

Hypothesis

Use of short term contraceptive methods in Afghanistan is influenced by women's sociodemographic characteristics, exposure to FP Information, and women's empowerment.

Methodology

We used the nationally representative Afghanistan Demographic and Health Survey 2015 (AfDHS) dataset. Data collection was carried out between July 15, 2015 and February 23, 2016. The AfDHS 2015 used an updated version of the Household Listing Frame as sampling frame(14), which included information of 25,974 enumeration areas (EAs). The required number of households was estimated for each EA using location (province, and district) and type of residence (urban or rural).(7)

The stratified two stage random sample design resulted in representative estimates of demographic and health indicators. Details on the data collection process can be found elsewhere.(7) All ever married women between the age of 15–49 years who were permanent residents of the selected households or visitors who stayed in the households the night before the survey were eligible for the survey. Participant have agreed to take part in the survey and signed the consent form. Since pregnant women will definitely

not utilize contraception and including them in the analysis could increase the discriminatory power of the analysis, women who were pregnant at the time of survey were excluded for this analysis.

A total of 29,461 women out of 30,434 eligible women (response rate 96.8%) were interviewed in the survey. Out of these, we excluded 6,514 women (22.1%) who were pregnant at the time of data collection, hence, remained with a total of 22,947 women (Fig. 1).

The survey protocol was approved by the Inner City Fund (ICF) Institutional Review Board and the Ministry of Public Health of Afghanistan. The data from this survey are openly available under <https://dhsprogram.com/data/available-datasets.cfm>.

The outcome for this analysis was the current use of short term contraceptives as binary indicator. As potential explanatory variables we considered: age, education, wealth index, occupation, place of residence, ethnicity, region, media exposure, and women empowerment. Media exposure was created from the questions that asked the women if they had heard of FP messages from TV, radio, or magazines. Based on this the participants were categorized as 'exposed to FP information' if they affirmed to at least one of these questions. The binary variable women empowerment was created based on questions on the woman's involvement in household decisions on income, purchases, family visits, and their health. Women were categorized 'empowered' if they were involved in at least in one of these decisions.

For the descriptive analysis we used Pearson's Chi square tests to assess the existence of an association between the use of short term contraceptives and the explanatory variables. Then we used logistic regression to estimate odds ratios for the independent variables.

Since the dataset was huge, and all the variables were found to be significant at level of 95% confidence interval, we decided for more strict criteria to minimize the risk of chance and set the statistical significance to $\alpha = 0.01$ and calculated 99% of confidence intervals with robust standard errors. Stata version 12 IC was used for analyses.

Results

Overall use of short term contraceptives was quite low: Among the total of 22,947 participants, only 17% used short term contraceptives; however, almost 92% had knowledge of at least one short term method of contraception.

Sociodemographic distribution and use of short term contraceptives

Table 1 shows that the majority (20.3%) of the participants (non pregnant women) in this survey were between 25–29 years old, followed by the age group of 20–24 (18%). Over 85% of women were illiterate,

and around 87% of the participants were unemployed. Almost three quarters of the participants belonged to Pashtun and Tajik ethnic groups. Three quarter (74.4%) of the women were living in rural areas. The number of women who did not have access to FP information was almost twice as high as of those who had access. Moreover, more than 63% of women were involved in at least one of the household decisions, thus, were considered to be empowered.

Table 1

Socio-Demographic characteristics of women tested against the outcome short-term contraceptive Use.

Variables	Total Number of women	Use of short-term contraceptives		p-value
		Number	Percentage	
Age of mother				< 0.0001
15–19	1,189 (5.18%)	84	7.1%	
20–24	4,270 (18.6%)	584	13.7%	
25–29	4,656 (20.3%)	881	18.9%	
30–34	3,414 (14.9%)	712	20.9%	
35–39	3,495 (15.2%)	739	21.1%	
40–44	2,903 (12.7%)	562	19.4%	
45–49	3,020 (13.2%)	332	11.0%	
Education level				< 0.0001
No Education	19,690 (85.8%)	3,200	16.3%	
Primary	1,519 (6.6%)	322	21.2%	
Secondary	1,345 (5.9%)	280	20.8%	
Higher Education	393 (1.7%)	92	23.4%	
Wealth Index				< 0.0001
Poorest	4,342 (18.9%)	646	14.9%	
Poorer	5,041 (22.0%)	673	13.4%	
Middle	4,917 (21.4%)	716	14.6%	
Richer	4,974 (21.7%)	912	18.3%	
Richest	3,673 (16.0%)	947	25.8%	
Women Occupation				< 0.0001
Employed	2,858 (12.4%)	400	14.0%	
Unemployed	20,070 (87.5%)	3,492	17.4%	
Missing	19 (0.1%)			
Place of Residence				< 0.0001
Rural	17,073 (74.4%)	2,582	15.1%	

Variables	Total Number of women	Use of short-term contraceptives		p-value
		Number	Percentage	
Urban	5,874 (25.6%)	1,312	22.3%	
Ethnicity				< 0.0001
Pashtun	9,531 (41.5%)	1,656	17.4%	
Tajik	7,141 (31.1%)	1,432	20.1%	
Hazara	2,258 (9.8%)	428	19.0%	
Uzbek	1,604 (7.0%)	175	10.9%	
Turkmen	474 (2.1%)	33	7.0%	
Nooristani	877 (3.8%)	9	1.0%	
Baloch	291 (1.3%)	74	25.4%	
Pashai	405 (1.8%)	28	6.9%	
Other	325 (1.4%)	56	17.2%	
Missing	41 (0.2%)	1,656		
Region				< 0.0001
Central	3,991 (17.4%)	806	20.2%	
North Eastern	2,562 (11.2%)	296	11.6%	
North Western	3,157 (13.8%)	330	10.5%	
Eastern	2,980 (13.0%)	239	8.0%	
Western	3,439 (15.0%)	1,040	30.2%	
South Eastern	3,531 (15.4%)	424	12.0%	
South Western	3,287 (14.3%)	759	23.1%	
Access to Family Planning Information				< 0.0001
Yes	8,451 (36.8%)	1,895	22.4%	
No	14,411 (62.8%)	1,989	13.8%	
Missing	85 (0.4%)			
Women Empowerment				< 0.0001
Empowered	14,058 (61.3%)	2,596	18.5%	
Not Empowered	8,023 (35.0%)	1,292	16.0%	

Variables	Total Number of women	Use of short-term contraceptives		p-value
		Number	Percentage	
Missing	866 (3.8%)			
Total	22,947 (100%)	3,894		

Multivariable logistic regression analysis

The result from multiple logistic regression revealed an association between all the predicting factors and use of short term contraception. The only factors which was not significantly (p value = 0.58) associated was the place of residence and we did not find any significant difference in the use of short term contraception among women living in urban and rural settings (Table 2).

Table 2

Crude and adjusted odds ratios and the corresponding confidence intervals of contraceptive use regressed on the predictor variables (link function: logit)

Variables	Bivariate Model		Full Model		P-Value
	Crude Odds ratio	95% Confidence Interval (CI)	Adjusted Odds ratio	95% Confidence Interval (CI)	
Women age group					< 0.001
15–19	0.62	0.48–0.79	0.47	0.33–0.65	
20–24	1.28	1.11–1.48	1.09	0.89–1.33	
25–29	1.89	1.65–2.16	1.76	1.46–2.12	
30–34	2.13	1.85–2.46	2.00	1.64–2.42	
35–39	2.17	1.89–2.50	1.98	1.63–2.40	
40–44	1.94	1.68–2.25	1.86	1.52–2.27	
45–49	(1) Reference		(1) Reference	0.33–0.65	
Education level					0.002
No Education	(1) Reference		(1) Reference		
Primary	1.39	1.29–1.58	1.28	1.06–1.55	
Secondary	1.35	1.18–1.55	1.19	0.97–1.46	
High School	1.58	1.24–1.99	1.01	0.70–1.45	
Ethnicity					< 0.001
Pashtun	(1) Reference		(1) Reference		
Tajik	1.19	1.10–1.29	0.95	0.83–1.08	
Hazara	1.11	0.99–1.25	0.93	0.78–1.12	
Uzbek	0.58	0.49–0.69	0.90	0.68–1.18	
Turkmen	0.36	0.25–0.51	0.55	0.33–0.92	
Nooristani	0.05	0.02–0.09	0.10	0.04–0.23	
Balooch	1.62	1.24–2.12	1.30	0.88–1.92	
Pashai	0.35	0.24–0.52	0.49	0.29–0.83	

	Bivariate Model		Full Model		
Other	0.99	0.74–1.33	1.00	0.65–1.54	
Wealth Index					< 0.001
Poorest	(1) Reference		(1) Reference		
Poorer	0.88	0.78–0.99	1.14	0.97–1.35	
Middle	0.98	0.87–1.09	1.32	1.11–1.56	
Richer	1.28	1.15–1.43	1.59	1.34–1.89	
Richest	1.99	1.78–2.22	2.05	1.64–2.55	
Women Occupation					< 0.001
Unemployed	(1) Reference		(1) Reference		
Employed	0.77	0.69–0.86	1.3	1.10–1.57	
Place of residence					
Urban	(1) Reference		(1) Reference		
Rural	0.62	0.57–0.67	1.03	0.89–1.20	
Region					< 0.001
Central	(1) Reference		(1) Reference		
North Eastern	0.52	0.45–0.59	0.55	0.45–0.68	
North Western	0.46	0.40–0.53	0.50	0.40–0.62	
Eastern	0.34	0.29–0.40	0.49	0.39–0.61	
Western	1.71	1.54–1.90	2.17	1.85–2.53	
South Eastern	0.54	0.47–0.61	0.53	0.43–0.64	
South Western	1.19	1.06–1.33	1.23	1.03–1.47	
Media Exposure					< 0.001
Do not have access to FP information	(1) Reference		(1) Reference		

	Bivariate Model		Full Model	
Have access to FP information	1.81	1.68–1.94	1.43	1.29–1.59
Women Empowerment				< 0.001
Not Empowered	(1) Reference		(1) Reference	
Empowered	1.18	1.10–1.27	1.18	1.05–1.31

As shown in Table 2, the chance of using contraceptives was lowest in the youngest age group, compared to the oldest, and increased with age up to 30–39 years, while it decreased again afterwards. Women in the age group of {30–40} were nearly 4 times more likely to use short term contraceptives compared to young women and 2 times more than those at older ages. Education level was also significantly associated with the use of short term contraceptives. Women who had primary education were more likely to adhere to the use of contraceptives compared to illiterate women however the association with secondary and higher education is not significant. An increase in the wealth index was also significantly associated with the uptake of short term contraceptive use. Employed women were more likely to use short term contraceptives compared to unemployed women. Region of residence equally played an important role in the uptake of contraceptives in Afghanistan (Table 2). Regarding ethnicity, only Balooch women did use short term contraceptives significantly more often compared to other ethnic groups, while Turkman and Pashai women had the lowest ratios. The usage of short term contraceptives was very high among women in the western region compared to the other 6 regions. Women living in the North Eastern, North Western, Eastern, and South Eastern regions were least likely to use short term contraceptives compared to those living in the central region. Access to FP information also showed a strong association with short term contraceptive uptake. Women who have had access to FP information were 1.4 times more likely to use short term contraceptives compared to those who did not have access. Empowered women were almost 1.2 times more likely to use short term contraceptives compared to those who were not empowered.

Discussion

The dataset was huge and all the predictors were significant in the univariate model except place of residence, therefore we performed the full model analysis. However we first decided to make the final model through the backward elimination method, but since the data was hardly changing with that, we included all the variables in the final model.

Our results highlight that most of the sociodemographic characteristics of a woman (age, literacy, marital status, wealth, ethnicity, region, access to FP information and women empowerment) were significantly associated with the uptake of short term contraceptive which is in line with our hypothesis. These results mostly follow the findings of several studies in the region and all over the world (16–20), however the

place of residence did not make a significant difference which was not similar to what was already known in the region (15).

Similar to several studies in the region and other developing countries,(17, 18, 21) our study revealed that age of women was associated with the uptake of contraceptives. In our study, the prevalence of short term contraceptive uptake was higher among women aged between 30–40 years old while women younger than 20 years had the lowest rate. This could be due to several reasons: they are newly married and do not want to avoid pregnancy; these women are less aware of the methods; reproductive health is still a taboo and thus, young women feel ashamed to talk about such issues and to seek FP services.

Similar to other studies conducted in the region (22, 23) our study found a strong association between employment and use of short term contraception. We found that women who were working outside the home, regardless of the type of occupation, were more likely to use contraceptives.

Ethnicity and region also play a role in the usage of contraception. Women living in the western parts of country were more likely to use contraceptives compared to those who are living in the eastern and central parts. Similarly, the prevalence of short term contraceptives is very low among Nooristani women who are living in the eastern parts of the country. The basic conception for this variation could be the geography and security issues which could restricts the provision of health service in these regions.

Access to FP information is an important factor for contraceptive uptake. In the DHS survey women were already considered as knowledgeable only if they were able to name at least one method of FP. Having stated in the DHS survey to know about contraceptives does not necessarily mean that knowledge about its correct application is prevalent nor does it determine actual use. What we looked at in our study was their exposure to FP information which we assumed, increased their knowledge about the methods, the benefits, side effects and further aspects of FP. This finding is similar to other studies which have been conducted in the region and in other developing countries.(24–26) Moreover if we look towards other aspects there could be discrepancies between knowledge and empowerment. The strong cultural anchor of having big families plays an important role which puts women under the pressure to bear as many children as possible and not use contraceptives, even they have the knowledge.

In our study we only looked at media exposure, and due to a huge amount of missing values in the dataset, we did not include other channels (exposure at the health facility and information through community health workers). We found a significant association between media exposure and short term contraceptive uptake and we think that if we would have been able to include other channels into our analysis, the association might have become stronger. In the women empowerment category, we categorized women as empowered if they had answered positive to at least one of those four questions. This was a conservative approach and if we had used stricter criteria, then the effect would have been much stronger and the influence of real empowerment most probably much higher.

Barriers of contraception uptake:

Poor access to contraception, insufficient information about free provision of FP services, fear of side effects, insecurity, cultural and religious disagreements, and gender issues are considered potential barriers for contraception uptake in Afghanistan.

Since we only conducted a quantitative analysis, we identified some of the potential barriers, but there might be some underpinning factors and barriers which need investigation using qualitative research methods with women of reproductive age.

Recommendations

FP is a wide area which requires a multisectoral collaboration and approach to promote in the society. Community based provisions and the use of community health workers (CHWs) to educate both men and women and provide FP services is recommended. Mass media should be used to promote and advocate for FP. Since Afghanistan is a religious country, one of the effective approaches to advocate for the promotion of FP would be to use religious leaders in the society. Inclusion of FP methods as clinical attachments or part of the medical and nursing curriculum, and conducting regular trainings for service providers on proper counseling are also known to be effective approaches for contraceptive promotion. Improving logistics and supply chain management specifically in the eastern parts of the country would be an important action.

We also suggest to conduct qualitative research on non use and discontinuation of methods to find out why women do not use or stop using contraceptives. Conducting FGDs and In-depth interviews not only with women but also with husbands and in laws about different aspects of FP such as expectations of the society, decision making regarding FP, and level of knowledge on contraception, is highly recommended.

The above mentioned recommendations could serve the Afghan policymakers to develop and implement interventions based on empirical evidence which may contribute to the improvement of the health sector, especially the field of mother and child health.

Strengths and limitations

Using DHS data provides us with a trustworthy source and good data quality compared to many single studies. However, in the original study it was assumed that security issues might not have allowed to cover all the selected areas, therefore 101 reserve clusters were selected for replacement and later on 70 clusters, replaced the areas which were identified insecure. At the end the AfDHS was unable to collect data from Zabul province in the south eastern region because it was inaccessible for security reasons. Taking this into account, our results could have looked differently if the initially selected cluster had been used.

The large sample size of 22,974 participants provides a solid basis for statistically robust uni and multivariable analyses. Since the dataset was huge and all the variables were significant, conservatively we used a very strict confidence interval of 99%, which is considered a strength of the study. On the other

hand, the cross sectional design of the study restricts the establishment of causal relationships between outcome and exposure. Moreover, some of the potential influencing factors such as number of children, distance from the health facility, number of ANC visits were not included in this study which might have introduced some residual confounding to this analysis. Also, men were not included in this analysis.

Additionally, the dataset had 44 (0.2%) missing values for ethnicity, 19 (0.1%) missing values for occupation, access to FP information had 85 (0,4%) missing values and the women empowerment variable had 866 (3.8%) missing values. Regarding the women empowerment variable, most probably the questions were too sensitive to be answered by all which resulted in information bias. Since these missing values were counting less than 5 % of our sample size, we did the complete case analysis.

Conclusion

Our findings reveal that knowledge of short term contraceptives was 92% among all ever married women, while only 16% of women were using these methods. Lack in access to FP services is a potential barrier for the use of short term contraceptives, which itself is driven by security, geography, wealth, awareness and even women's age. From the findings of our study we can extract the following implications which might be helpful for the government if considered during their interventions in the area of maternal and child health: 1) more efforts are needed to increase the FP awareness and knowledge among men and women; 2) intersectoral collaboration (between health, education, women affairs, religious affair etc.) should be increased to provide opportunities for the women to improve their education level; 3) work with other agencies to improve the employment opportunities for women; 4) and implement interventions such as campaigns at the community level to empower women.

Abbreviations

FP Family Planning

DHS Demographic and Health Survey

FGD Focus Group Discussion

WHO World Health Organization

ICF Inner City Fund

CHW Community Health Workers

Declarations

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Declaration of interest

The authors report no conflicts of interest.

Details of ethical approval

Since we used the secondary data from DHS, we did not need ethical clearance for this analysis as this survey was already approved by the IRB of Afghan Ministry of Public Health. Participant have agreed to take part in the survey and signed the consent form.

Data Sharing

We used the Afghanistan DHS 2015 dataset which is openly available under <https://dhsprogram.com/data/available-datasets.cfm>.

Consent for publication

Not applicable

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Author Contributions

SN and PD, conceived and planned the research. SN developed the theory, designed the model and the computational framework, analyzed the data, and wrote the manuscript with close coordination of PD and VW. VW contributed to the analysis of the data and advised and supervised the whole process of data analysis. IS contributed in developing the idea of research, data cleaning process, and data analysis. AD contributed to data analysis and critically provided feedback on the revision of the manuscript. AME provided critical feedback and helped shape the research, analysis and data interpretation. All authors approved the version to be published.

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Figures

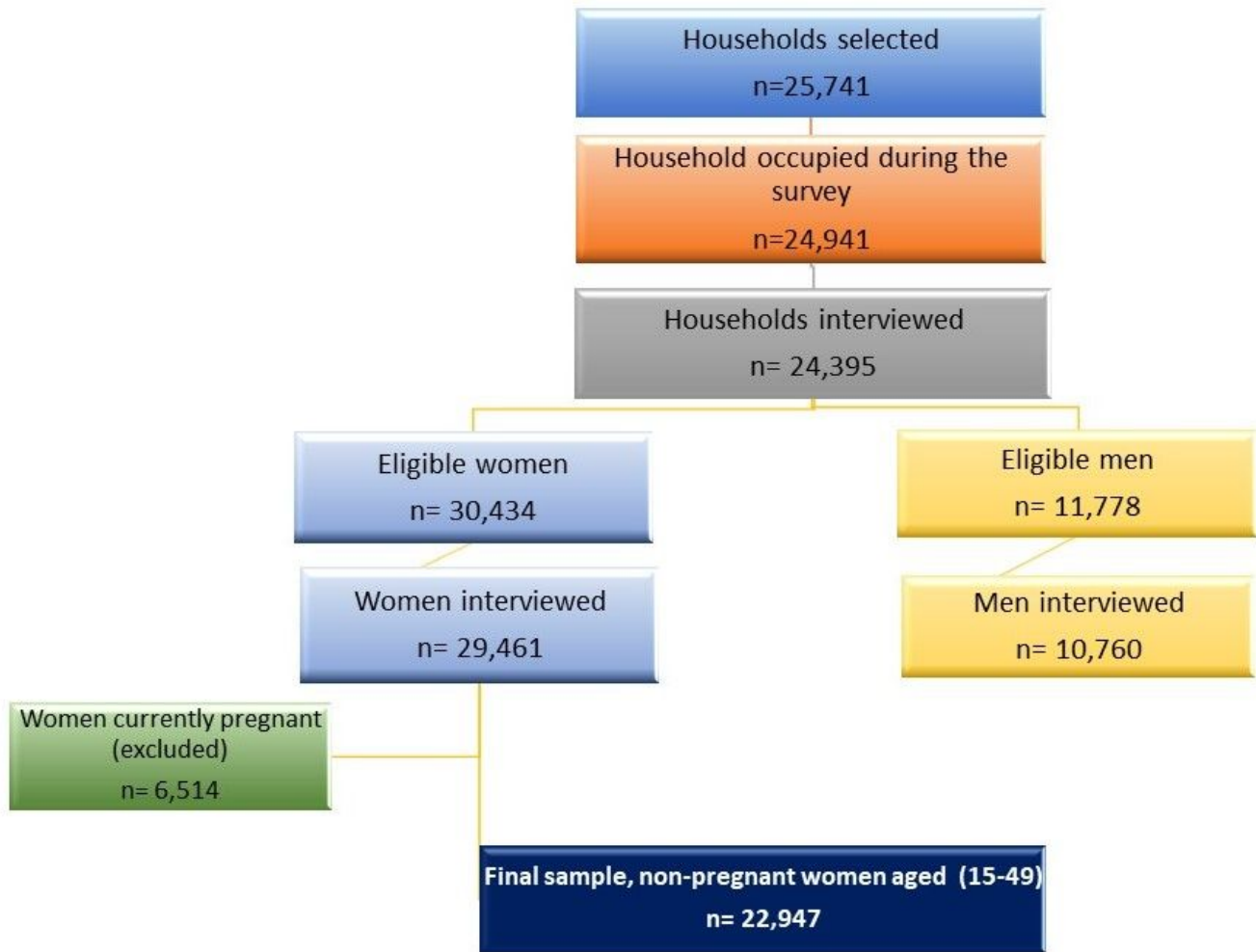


Figure 1

Flowchart of Participants