CORRELATES OF SECONDARY INFERTILITY

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Correlates of Secondary Infertility

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PREFACE

The Demographic and Health Surveys (DHS) Program is one of the principal sources of international data on fertility, family planning, maternal and child health, nutrition, mortality, environmental health, HIV/AIDS, malaria, and provision of health services.

One of the objectives of The DHS Program is to analyze DHS data and provide findings that will be useful to policymakers and program managers in low- and middle-income countries. DHS Analytical Studies serve this objective by providing in-depth research on a wide range of topics, typically including several countries and applying multivariate statistical tools and models. These reports are also intended to illustrate research methods and applications of DHS data that may build the capacity of other researchers.

The topics in this series are selected by The DHS Program in consultation with the U.S. Agency for International Development.

It is hoped that the DHS Analytical Studies will be useful to researchers, policymakers, and survey specialists, particularly those engaged in work in low- and middle-income countries.

Sunita Kishor
Director, The DHS Program

ABSTRACT

The experience of infertility has social, economic, and psychological effects on women and their partners. While primary infertility can be a rare occurrence, secondary infertility can be found at higher rates. Using a demographic definition of secondary infertility, this report examines the factors associated with secondary fertility at the individual level among women age 20-49 using data from 16 countries with a recent DHS survey. Secondary infertility ranged from 3% in Kenya to 25% in India. The variables examined in relation to secondary infertility included women's sociodemographic variables, health-related variables (such as tobacco use and obesity), and the partner's characteristics. Secondary infertility was found to increase with increasing women's and partner's age for all surveys, with a larger effect for women's age. Having other children in the household who are not the women's own children and higher wealth quintile were also found to increase the risk of secondary infertility in several countries. There was no other variable that was consistently found to be associated with secondary infertility for most surveys in the analysis. The users of these results for supporting women and couples experiencing secondary infertility should consult the country-specific findings.

Key words: secondary infertility, infertility

1   BACKGROUND

The inability to have a child can be devastating for women and couples. There is often an added stigma, especially for women who are not able to have children, that results in their social isolation and exclusion (Bornstein et al. 2020; Donkor 2008; Hasanpoor-Azghdy, Simbar, and Vedadhir 2015; Rouchou 2013). Women often carry the blame for infertility and a woman's status and her womanhood are often linked to her ability to have children (Bornstein et al. 2020; Rouchou 2013). Men may remarry if they are unable to have children with their current wife or divorce if having multiple wives is not acceptable (Bornstein et al. 2020; Rouchou 2013; Rutstein and Shah 2004; Sami et al. 2012). Couples may also seek expensive infertility treatments if they have the means (Rouchou 2013; Thoma et al. 2021). Therefore, infertility goes beyond the personal suffering from the inability to have children to the social and economic repercussions, psychological effects, and link to domestic violence (Bornstein et al. 2020; Hasanpoor-Azghdy, Simbar, and Vedadhir 2015; Rouchou 2013; Saif, Rohail, and Aqeel 2021; Sami et al. 2012; Thoma et al. 2021).

There are multiple definitions of infertility that vary with the disciplines of clinical, epidemiological, and demographic studies (Mascarenhas et al. 2012a). The clinical definition of infertility is a disease of the reproductive system. More specifically, the International Classification of Diseases (ICD) defines infertility as a "disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse" (World Health Organization 2018). In the clinical field, the purpose of identifying infertility is to provide treatment and solutions at the individual level. The demographic definition is more focused on quantifying infertility at the population level (Mascarenhas et al. 2012a). In addition, the demographic definition makes a distinction between primary and secondary infertility. Generally, primary infertility can be defined as couples who are unable to have any children, and secondary infertility as couples who are unable to have another child after having had at least one child, both in a specified time of exposure to unprotected sex. Definitions can also vary based on the length of exposure or who is considered to be at risk. For example, clinical definitions use 12 months of unprotected sex as the length of exposure, while demographic definitions use 5 years. These different definitions can make it difficult to compare findings across studies that focus on risk factors and correlates of infertility. A study that used the demographic definition and included 277 household surveys found that while primary infertility is often a rare occurrence, secondary infertility is more common (Mascarenhas et al. 2012b). The study estimated global primary infertility at 1.9% (country-specific prevalence ranged from 0.8% to 4%) and secondary infertility at 10.5% (ranging from 3.8% to 22.2%) in 2010 (Mascarenhas et al. 2012b). This study uses the demographic definition of secondary infertility as defined by Mascarenhas et al. (2012a), and does not focus on the strength or limitations of these definitions.

There are extensive clinical research and case-control studies that examine the risk factors associated with infertility. These include reproductive system disorders (in men and women), hormonal disorders, sexually transmitted diseases, older age (both men and women), and health behavior risk factors such as obesity, nutrition, smoking, alcohol consumption, and other unexplained factors (Deyhoul, Mohamaddoost, and Hosseini 2017; Direkvand-Moghadam, Delpisheh, and Khosravi 2013; Lindsay and Vitrikas 2015; Mallikarjuna and Rajeshwari 2015; Sami et al. 2012). Few research studies have been conducted on the correlates of infertility with population data and especially data from low- and middle-income countries (LMICs). A study in Turkey that used Demographic and Health Surveys (DHS) found that primary infertility was significantly higher in women who are older, uneducated, over age 30 at first marriage,

overweight, and whose age at first menarche was younger than age 12 (Sarac and Koc 2018). A study in India that used the Indian National Family Health Survey found a higher risk of primary infertility in women from urban areas, who were overweight or obese, and who followed a nonvegetarian diet (Purkayastha and Sharma 2021). Both these studies examined primary infertility.

This report attempts to identify the correlates of secondary infertility by using household cross-sectional surveys. The aim is to identify the subgroups with higher risks of secondary infertility that may require support for prevention, treatment, and/or coping with infertility. We examine several health-related variables found to be significantly associated with secondary infertility in clinical and case-control studies in order to observe if this association is also observed at the population level with cross-sectional data. This will help to identify subgroups of women in need of further support.

2 DATA AND METHODS

2.1 Data

Data from 16 countries with recent DHS data from DHS-7 or DHS-8 were included in the analysis (see Table 1). These countries are USAID Population and Reproductive Health (PRH) priority countries. Other USAID priority countries were not included in the analysis because they did not have a recent DHS.

Table 1 Surveys used in the analysis

Country	DHS survey
Bangladesh	2017-18
Ethiopia	2016
Ghana	2014
Haiti	2016-17
India	2015-16
Kenya	2014
Malawi	2015-16
Mali	2018
Nepal	2016
Nigeria	2018
Philippines	2017
Rwanda	2014-15
Senegal	2018
Tanzania	2015-16
Uganda	2016
Zambia	2018-19

2.2 Methods

2.2.1 Outcome variable

The main outcome of interest is secondary infertility. Only the proportion of primary infertility is estimated for each survey; all other analyses focus on secondary infertility. The demographic definition of infertility as described by Mascarenhas et al. (2012a) is used and constructed for this analysis by Riese (2021) as described below.

> Primary infertility is defined as the absence of a live birth for women that have been in a union for at least 5 years, during which neither partner used contraception, and where the female partner expresses a desire for a child at the time of the survey. The prevalence of primary infertility is calculated as the number of women age 20-49 in an infertile union divided by the sum of the number of women age 20-49 in fertile and infertile unions. Women in a fertile union have had at least one live birth and have been in a union for at least 5 years, while women in infertile unions have been in a union for at least 5 years without using contraception at the time of the survey but have had no live births (Figure 1).

> For surveys that used the marriage and union calendar, the calendar was used to define 5 continuous years of union. In surveys without the marriage and union calendar, time since first union was used to identify women who had been in only one union with 5 or more years since first union.

3

Figure 1   Primary infertility, women age 20-49 using a 5-year exposure period (from Mascarenhas, 2012a)
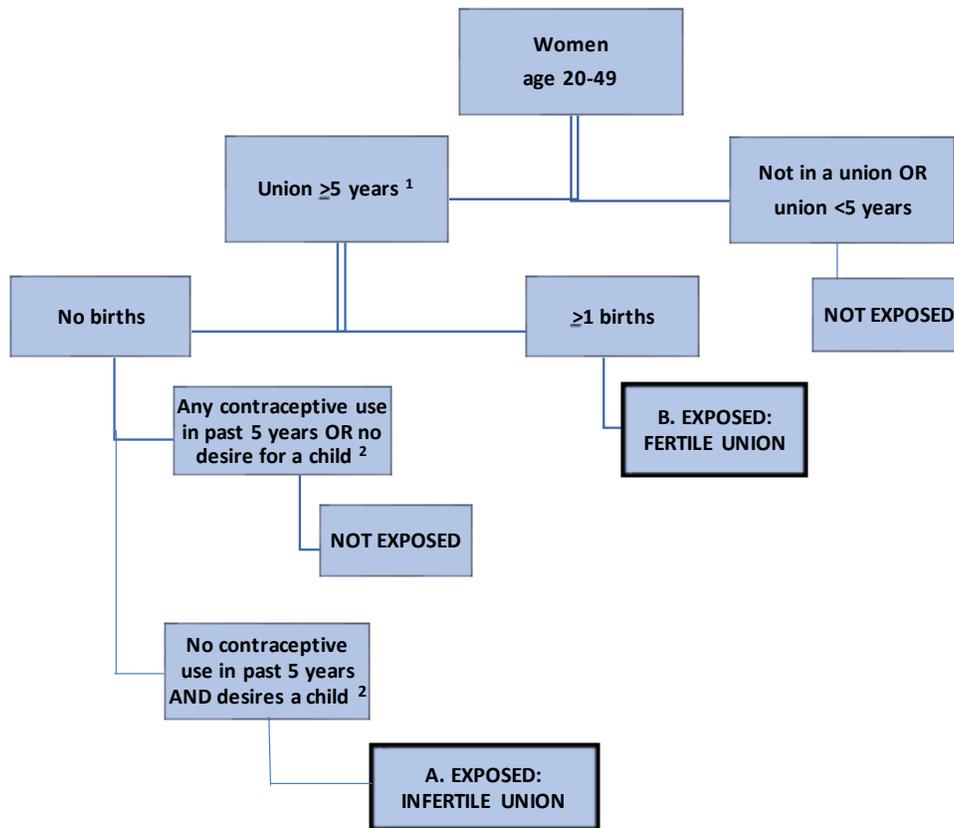
Primary infertility prevalence is calculated as the number of infertile women (**A**) divided by the number of women who are both infertile and fertile (the sum of **A** plus **B**)
1. Union is defined as marriage or cohabitation.
2. Desire for a child is defined as wanting a child, undecided, or declared infecund.

Secondary infertility is defined as the absence of a live birth for women who desire a child and have been in a union for at least 5 years since their last live birth, during which they did not use any contraceptives. The prevalence of secondary infertility is calculated as the number of women age 20-49 in an infertile union divided by the combined number of women age 20-49 in infertile and fertile unions. Women in a fertile union have been in a union for at least 5 years and, at the time of the survey, successfully had at least one live birth in the past 5 years, while women in infertile unions have been in a union for at least 5 years following a birth without using contraception, but have not had another birth (Figure 2). Secondary infertility includes infertility after the first or higher order birth, as long as that birth was at least 5 years ago.

Figure 2   **Secondary infertility, women age 20-49 using a 5-year exposure period (from Mascarenhas, 2012a)**
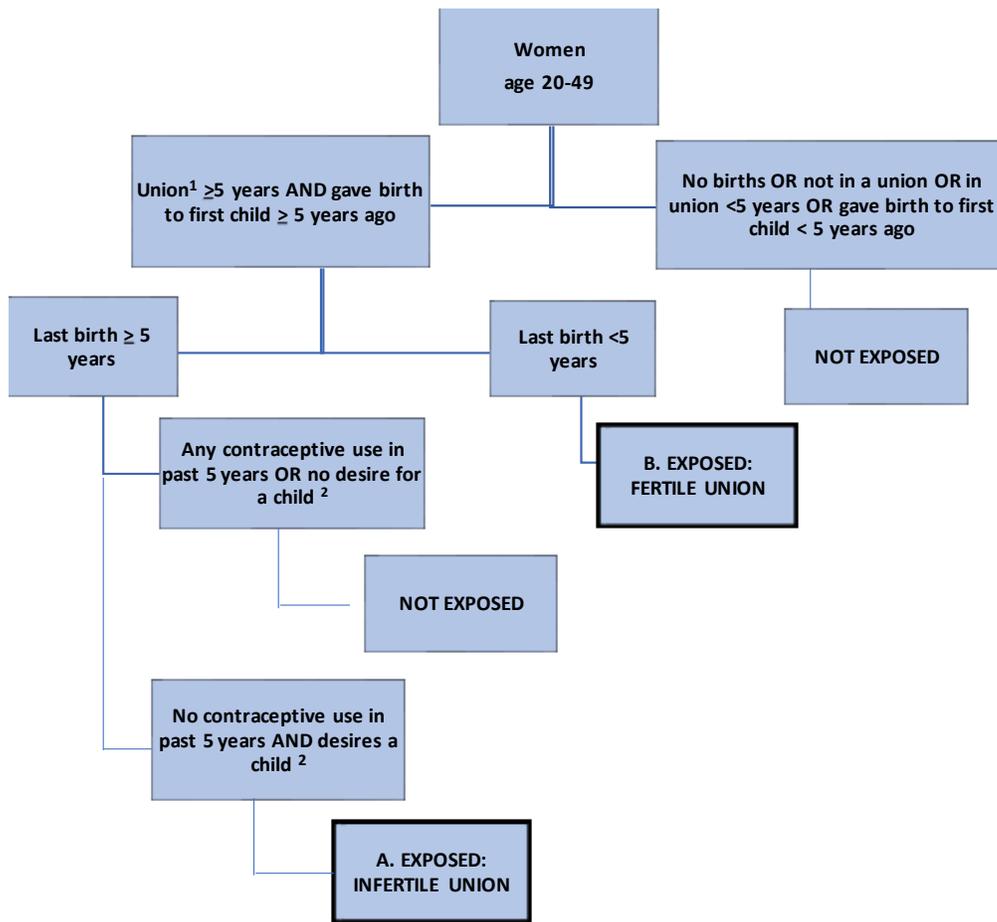
Secondary infertility prevalence is calculated as the number of infertile women (**A**)
divided by the number of women who are both infertile and fertile (the sum of **A** plus **B**)
1. Union is defined as marriage or cohabitation.
2. Desire for a child is defined as wanting a child, undecided, or declared infecund.

For those surveys that used the contraceptive calendar, the calendar was used to define the absence of contraceptive for at least 5 years. In surveys without the calendar, current contraceptive use was used as a proxy; this introduces bias to the estimate and could overestimate infertility. The infertility measures used in the analysis adjust for this bias using prediction models from multiple rounds of surveys that have calendar data. For more information on the method used to construct the primary and secondary infertility measures, please refer to Riese (2021).

2.2.2 Analysis

The analysis focuses on examining the association of several independent variables with secondary infertility. The independent variables can be divided into three groups: women's sociodemographic variables, women's health-related variables, and partners' characteristics. The variables and their definitions are described in Table 2. The health-related variables include health behaviors such as smoking, knowledge of the correct fertile period, and several health outcomes that have been found to be associated with infertility or risk of miscarriage. The individual ages of women and their partners were examined and not the gap age. Studying the gap would have grouped young couples and older couples of similar ages in the same category. This would have masked the age effect on secondary infertility for men and women.

Table 2   Definition of variables used in the regression models

		Model				
	Definitions and categories	1	2	3	4	5
Women's sociodemographic variables						
Age	For descriptive results: 5-year age groups from 20-49 For regressions: age in single years	x	x	x		x
Age at first cohabitation	Less than 20 and 20-49	x	x	x	x	x
Education	None, Primary, Secondary or more	x	x	x		x
Other children in the household under age 18 that are not the women's own children	0, 1, 2, 3+ Note: we cannot infer the relationship of the women with other children in the household that are not her own	x	x	x	x	x
Place of residence	Urban, Rural	x	x	x	x	x
Wealth quintile	Lowest, Second, Middle, Fourth, Highest	x	x	x	x	x
Women's health-related variables						
Ever had a terminated pregnancy	Whether the respondent ever had a pregnancy that terminated in a miscarriage, abortion, or stillbirth, i.e., did not result in a live birth: No, Yes		x			x
Uses any type of tobacco	Uses any type of tobacco, smoke or smokeless: No, Yes		x			x
At least one problem in accessing health care	Four possible problems to accessing health care when they are sick are reported by women: getting permission to go, money needed for treatment, distance or no nearby health facility, and not wanting to go alone. Reporting at least one of these problems indicates at least one problem in accessing health care: No, Yes		x			x
Lifetime number of sexual partners	Among women who ever had sex, total lifetime number of sexual partners: 1, 2, 3, 4+. Zero is not included since analytical sample is among women currently in a union.		x			x
Correct knowledge of fertile period	For the question on the knowledge of the ovulatory cycle, women are asked when during the women's monthly cycle does she think a woman has the greatest chance of becoming pregnant. The response of middle of the cycle is correct knowledge: No, Yes		x			x
Obese	Women with a Body Mass Index (BMI) of 30 or above. Women who are pregnant or had a birth in the last 2 months are excluded.			x		x
Partner's characteristics						
Age	For descriptive results: <30, 30-39, 40-49, 50 or more For regressions: age in single years				x	
Education	None, Primary, Secondary or more				x	

Notes: For Kenya, having a terminated pregnancy, number of sexual partners, and partners' characteristics were asked only for a subset of women, therefore additional models were fit for these variables. For India, number of sexual partners, and partners' characteristics were asked only for a subset of women, therefore additional models were fit for these variables.

The analysis includes cross-tabulations of all the independent variables with secondary infertility. Adjusted logistic regressions were also fit for secondary infertility using five models as shown in Table 2. Model 1 is the base model that includes only the women's sociodemographic variables. In Model 2, several health-

related variables are added; these are found in the core questionnaire and asked to all women eligible for the question. In Model 3, a separate model is fit for obesity since this is only measured in a subset of women selected for the biomarker measurements. Model 4 includes the partner's characteristics with the base model but excludes women's age and education that are highly correlated with the partner's age and education. Finally, Model 5 is the full model that includes all the variables except for partner's age and education, since they are highly correlated with the women's characteristics.

The ages of men and women were examined as single years in the regression models instead of a categorical variable. Age was mainly used as a control variable since the interest is in seeing the relationships with other variables used in the models. The risk of older age with infertility has been established in the literature.

The analysis also includes a description of women with secondary infertility by their sociodemographic variables. This may help to identify women who would need support for infertility interventions.

All analyses take into account the sampling weight and survey design of the survey. Stata 16 SE is used for all analyses.

3   RESULTS

3.1   Descriptive results

Figure 3   Percentage of women age 20-49 with primary and secondary infertility
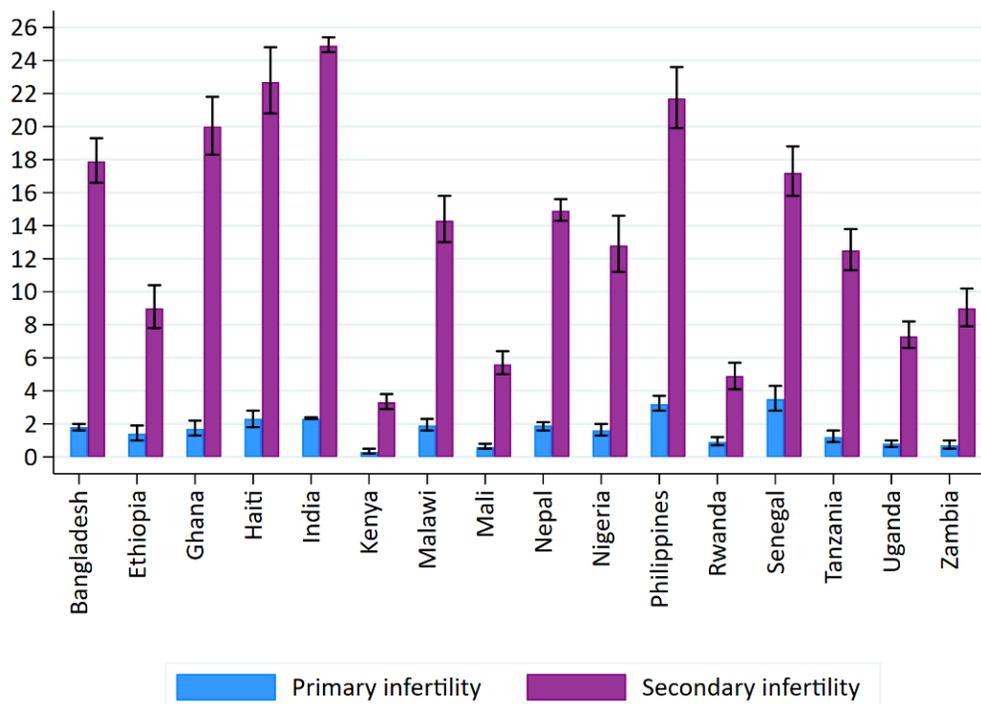
Figure 3 summarizes the percentage of primary and secondary infertility in all countries in the analysis. Primary infertility was less than 4% in all countries, with ranges from 0.3% in Kenya to 3.5% in Senegal. Secondary infertility ranged from 3.3% in Kenya to 24.9% in India. Secondary infertility was between 20-25% in Ghana, Haiti, India, and the Philippines, and less than 20% for the remaining countries. The pooled percentage of primary infertility for all the countries in the analysis is 1.6%, and for secondary infertility it is 13%. The pooled estimates were obtained from pooling all the surveys and providing equal weight to each survey.

Appendix Table 1 describes the sample of women age 20-49 exposed to secondary infertility by the variables used in the analysis. The distribution of women by these variables differs considerably between the countries that have very different population structures. For instance, 92% of women in Bangladesh had an age at first cohabitation in Bangladesh of less than 20 years compared to 40% in Rwanda. Approximately 79% of women in Mali had no education compared to 2% in the Philippines. Some countries did not have data available for all the variables or only collected information on the variable in a subset of the sample such as in India and Kenya. For more details on the country-specific distribution of these variables, please refer to Appendix Table 1.

Figure 4   Secondary infertility by women's age

Bangladesh

3.7 (20-24), 5.8 (25-29), 11.0 (30-34), 22.4 (35-39), 61.0 (40-44), 93.4 (45-49)

Ethiopia

1.4 (20-24), 2.0 (25-29), 5.2 (30-34), 9.6 (35-39), 17.9 (40-44), 45.9 (45-49)

Ghana

10.3 (20-24), 9.5 (25-29), 9.4 (30-34), 18.7 (35-39), 30.4 (40-44), 59.9 (45-49)

Haiti

12.8 (20-24), 15.3 (25-29), 18.3 (30-34), 18.5 (35-39), 25.3 (40-44), 61.5 (45-49)

India

6.3 (20-24), 9.0 (25-29), 17.6 (30-34), 35.8 (35-39), 65.5 (40-44), 87.7 (45-49)

Kenya

0.6 (20-24), 2.0 (25-29), 1.8 (30-34), 4.1 (35-39), 5.7 (40-44), 23.6 (45-49)

Malawi

2.7 (20-24), 3.0 (25-29), 3.5 (30-34), 6.6 (35-39), 11.6 (40-44), 31.5 (45-49)

Mali

7.3 (20-24), 6.8 (25-29), 10.9 (30-34), 16.1 (35-39), 22.8 (40-44), 55.9 (45-49)

Nepal

3.4 (20-24), 5.3 (25-29), 9.4 (30-34), 18.0 (35-39), 39.4 (40-44), 78.8 (45-49)

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Figure 4   Secondary infertility by women's age (continued)

Nigeria

Philippines

Rwanda

Senegal

Tanzania

Uganda

Zambia
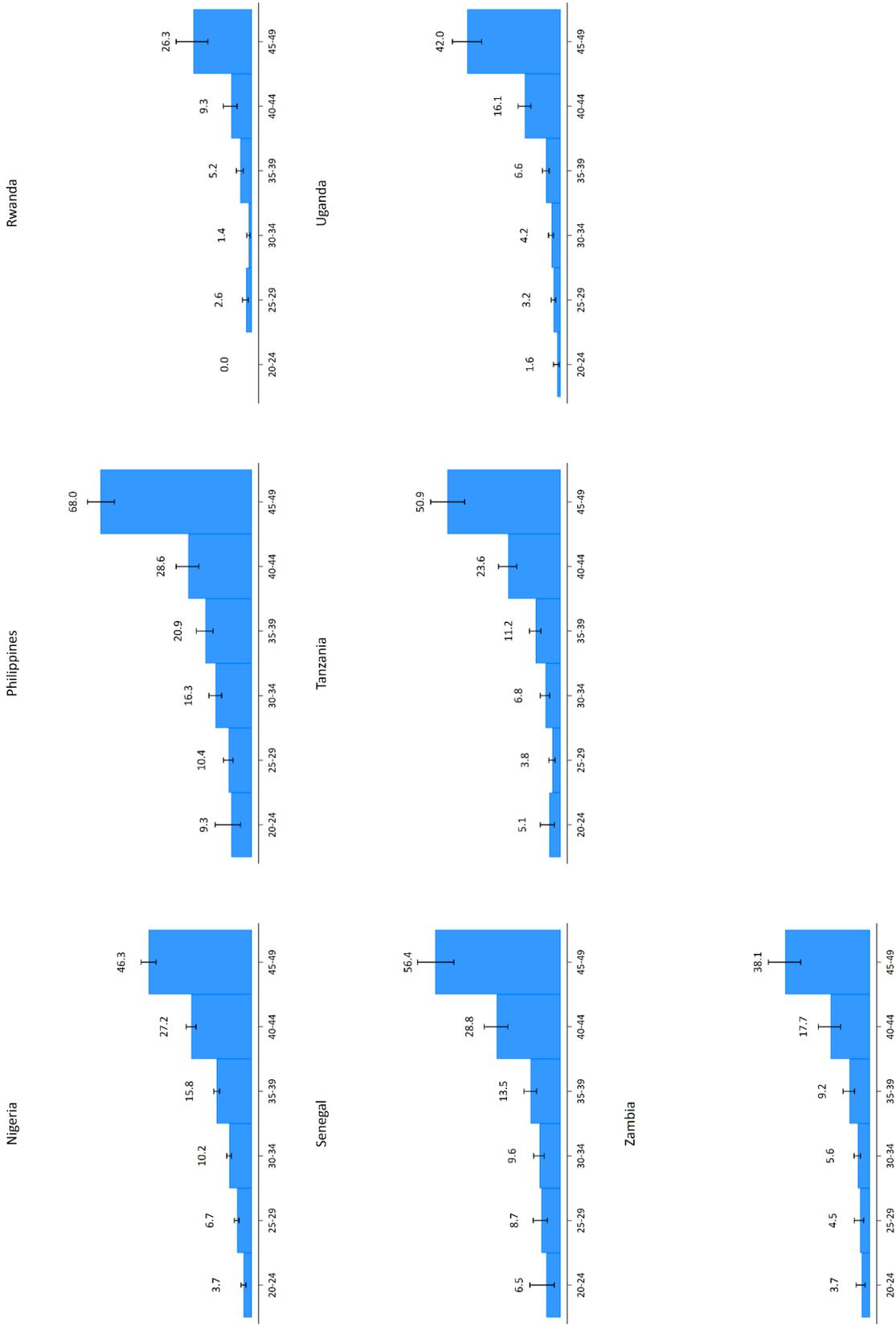
Appendix Table 2 summarizes the cross-tabulations of the background variables with secondary infertility. The largest differences in secondary infertility were found by women's age followed by the partner's age. As shown in Figure 4, secondary infertility increased substantially with the increase in women's age. The increases were greater in some countries than in others. For example, in Bangladesh, secondary infertility increased from 3.7 for women age 20-24 to 93% for women age 45-49, while in Kenya, this increased between 0.6 for women age 20-24 to 24% for women age 45-49. For some countries such as Haiti, Kenya, Malawi, Mali, and Rwanda, a sharp increase in secondary infertility was observed for women age 45-49.

We also observe the same increases in secondary infertility with increasing partner's age. However, the increases were not as large as for women's age. In some countries, these increases were substantially large for women with partners age 50 or greater. In India, secondary infertility reached 81% for women with partners age 50 years or greater, 42% for women with partners age 40-49, and less than 15% for the remaining age groups. Bangladesh, Nepal, and the Philippines also had considerably high secondary infertility for women with partners age 50 or greater, reaching 67%, 53%, and 50%, respectively (see Appendix Table 2).

None of the other women's or partners' sociodemographic variables were found to vary significantly with secondary infertility in all countries. The wealth index showed significant variations in secondary infertility in 14 of the 16 countries in the analysis, with a general increase in secondary infertility between the highest wealth quintiles and the remaining wealth quintiles. The largest increase was found in Haiti with 13% of women in the lowest wealth quintile with secondary infertility, compared to 41% for women in the highest wealth quintile. Kenya and Malawi did not show any significant differences between the wealth quintile and secondary infertility.

Women who had a terminated pregnancy in the past had a higher proportion of secondary infertility compared to women who have not had a terminated pregnancy in 12 of 15 countries. The Philippines did not collect information on this variable in their survey. The lifetime number of a woman's sexual partners was also significantly associated with secondary infertility in many countries. In general, women who had more than one sexual partner had higher proportions of secondary infertility compared to women with only one sexual partner. Some countries such as Ethiopia and Rwanda exhibited a pattern of increasing secondary infertility with an increasing number of lifetime partners. For the remaining health variables, the results were inconsistent. Tobacco use, problems accessing health care, correct knowledge of the fertile period, and obesity were significantly associated with secondary infertility in a few countries and not significant in others.

3.2   Regression results

The country-specific adjusted logistic regression results for Models 1-5 described in the methods are found in Appendix Tables 3-18. Figures 5-11 summarize the regression results for most of the variables used in the analysis. A figure was not produced for some variables that did not show significance in the majority of the countries such as the women's and partner's education.

In the figures, the estimates from Model 1 are used to summarize the results for the women's socio-demographic variables, Models 2-3 for the different health-related variables, and Model 4 for the partner's variables. The results for the full model, Model 5, can be found in the Appendix tables.

3.2.1 Women's sociodemographic variables and partner characteristics

Figure 5   **Adjusted odds ratios of secondary infertility for women's age and partner's age**
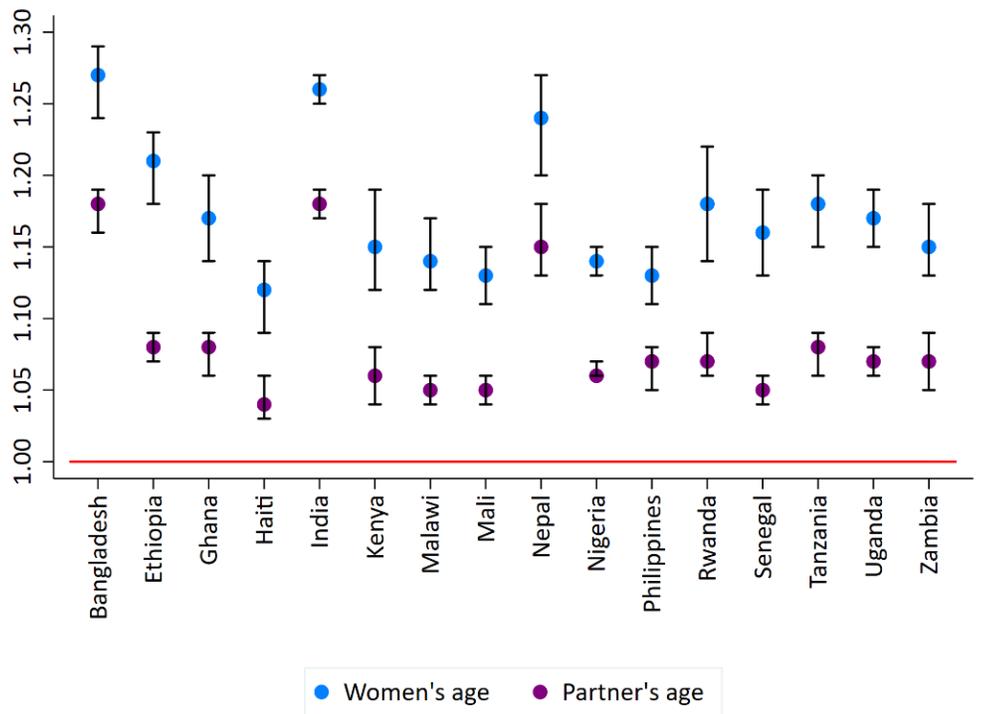
Figure 5 summarizes the odds ratio of secondary infertility for women's and partner's age in single years from Model 1 and Model 4 respectively. Both women's and men's age were significant predictors of secondary infertility in all countries in the analysis. We see that women's age always had a larger odds ratio compared to the partner's age. For women's age, the highest adjusted odds ratios were found in Bangladesh and India (1.3 for women's age and 1.2 for partner's age, both at p<0.001) followed by Nepal (1.2 for women's and partner's age, both p<0.001). This indicates that for each additional year of age for women and men in these countries, the odds of secondary infertility increased by 20-30%.

Women's education was found to be significant only in Haiti, India, Kenya, Nigeria, the Philippines, and Rwanda. In Haiti, India, and Nigeria, secondary infertility increased with increasing education, while in Kenya, the Philippines, and Rwanda, the opposite trend was observed. Only Mali showed a marginal significance of secondary infertility for the partner's primary education compared to no education (0.7, p<0.05), while women's education was not significant.

Figure 6   Adjusted odds ratios of secondary infertility for age at first cohabitation of 20-49 (ref.: <20)
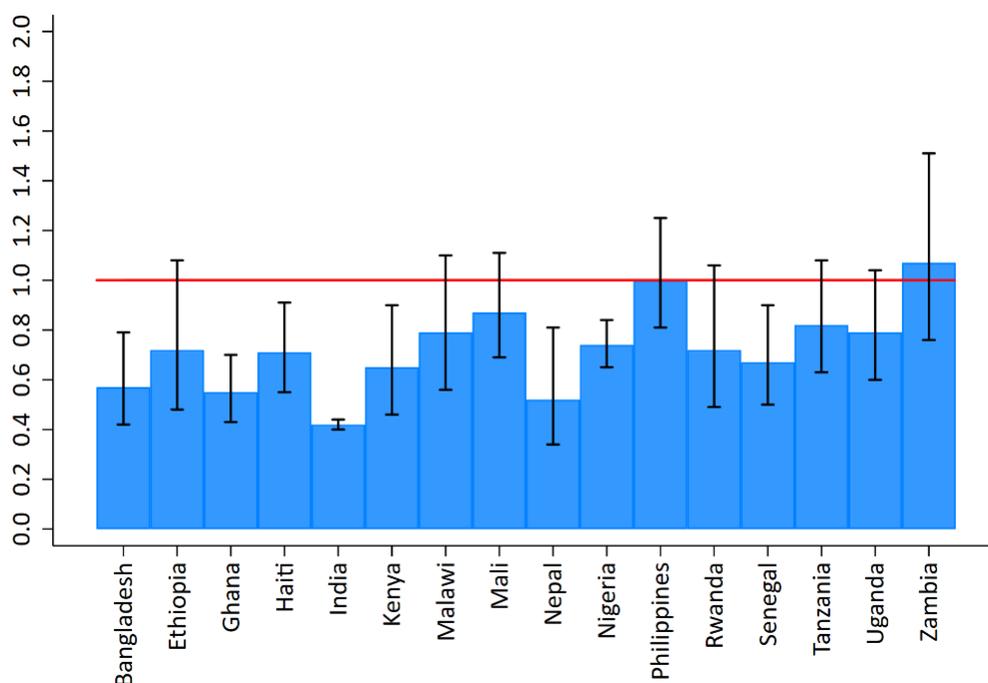
Figure 6 summarizes the adjusted odds ratios of secondary infertility for age at first cohabitation of 20-49 compared to younger than age 20. We observe that in half of the countries, there is a lower odds of secondary infertility for women whose age at first cohabitation is more than 20 compared to women whose age at first cohabitation is younger than 20. In Ethiopia, Malawi, Mali, the Philippines, Rwanda, Tanzania, Uganda, and Zambia, this was not significant. India had the lowest odds ratio with women with an age at first cohabitation of 20-49 having approximately 60% lower odds of secondary infertility compared to women with an age of first cohabitation of younger than 20.

Women who live in rural areas in Ethiopia had 56% lower odds of secondary infertility compared to women living in urban areas, while in Nigeria, women from rural areas had 20% higher odds of secondary infertility compared to urban women (see Appendix Tables 4 for Ethiopia and 12 for Nigeria). There were no significant differences in secondary infertility between urban and rural women for all remaining countries.

Figure 7 summarizes the adjusted odds ratio for other children under age 18 in the household who are not the women's own children for all countries in the analysis. In Ethiopia, Ghana, Haiti, India, Kenya, Malawi, Mali, Nepal, Rwanda, Senegal, Tanzania, Uganda, and Zambia, the odds of secondary infertility increased with the presence of other children in the household, compared to having no other children in the household. For Ghana, Nepal, Rwanda, Senegal, and Zambia, the significance was marginal ($p<0.05$), and for Nepal and Senegal, the significance was lost in the full model shown in Model 5 (see Appendix tables for these countries). The highest odds ratios were found in Kenya, Malawi, and Uganda, where women who had three or more children in the household under age 18 who were not her own had approximately three times the odds of secondary infertility compared to women who had no other children in the household. In Ethiopia, women who had two other children in the household had three times the odds of secondary infertility compared to women who had none. In Tanzania, women with two or three other children in the household had twice the odds of secondary infertility compared to women who had none. This variable was not available in Bangladesh and the Philippines.

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Figure 7   Adjusted odds ratios of secondary infertility for other children under age 18 in the household
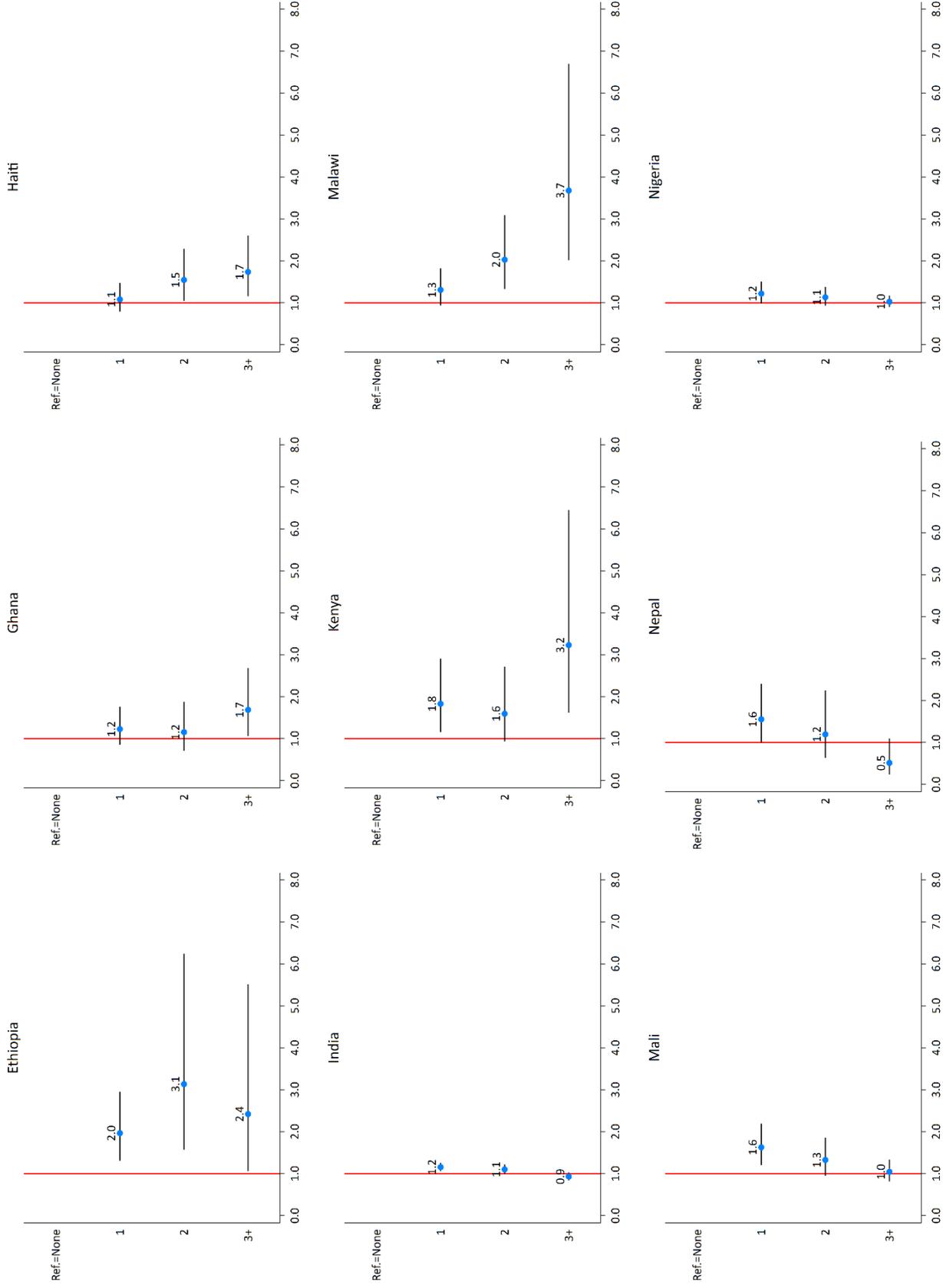
Figure 7   Adjusted odds ratios of secondary infertility for other children under age 18 in the household (continued)
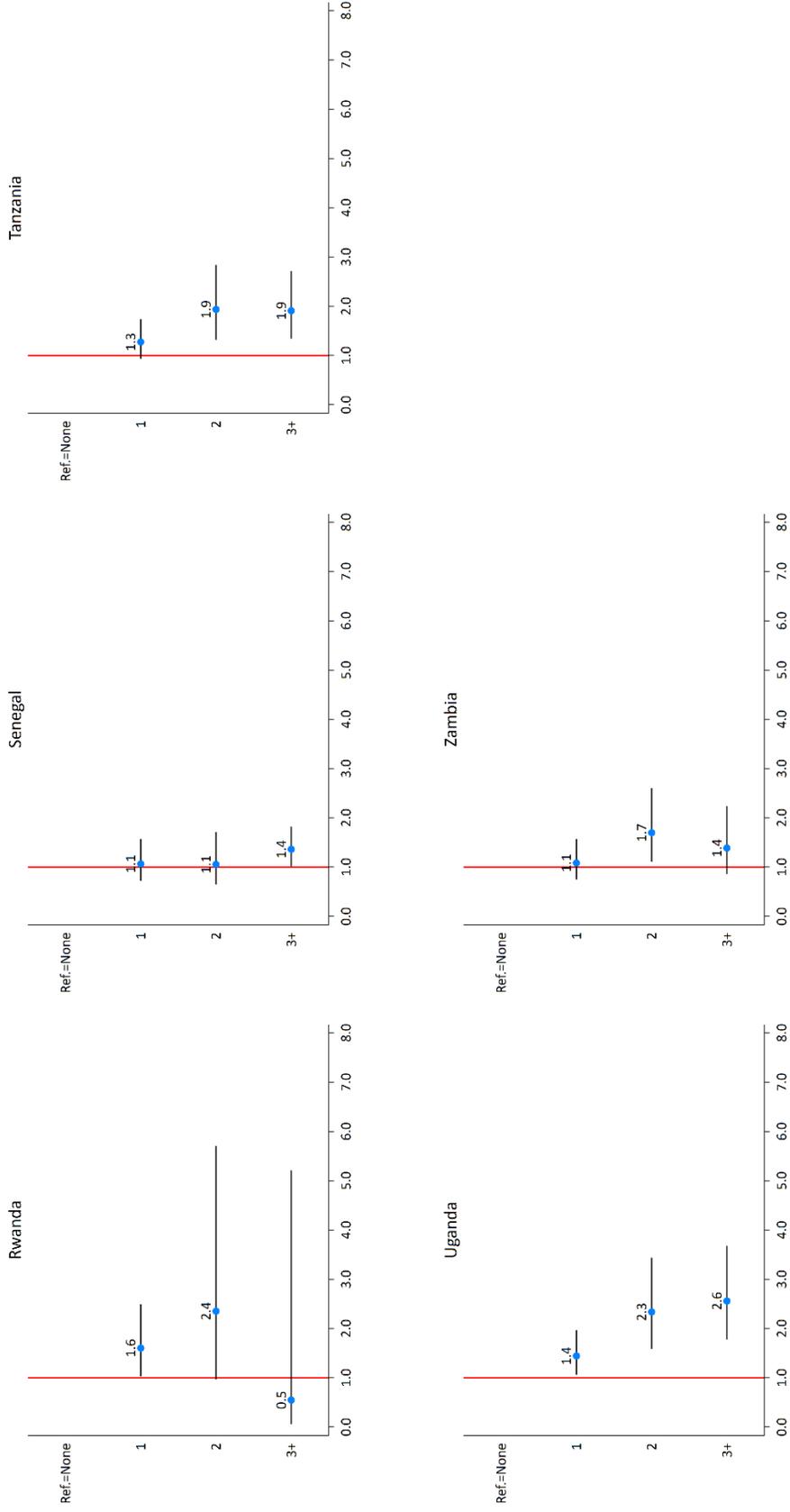
Figure 8   Adjusted odds ratios of secondary infertility for the wealth quintile
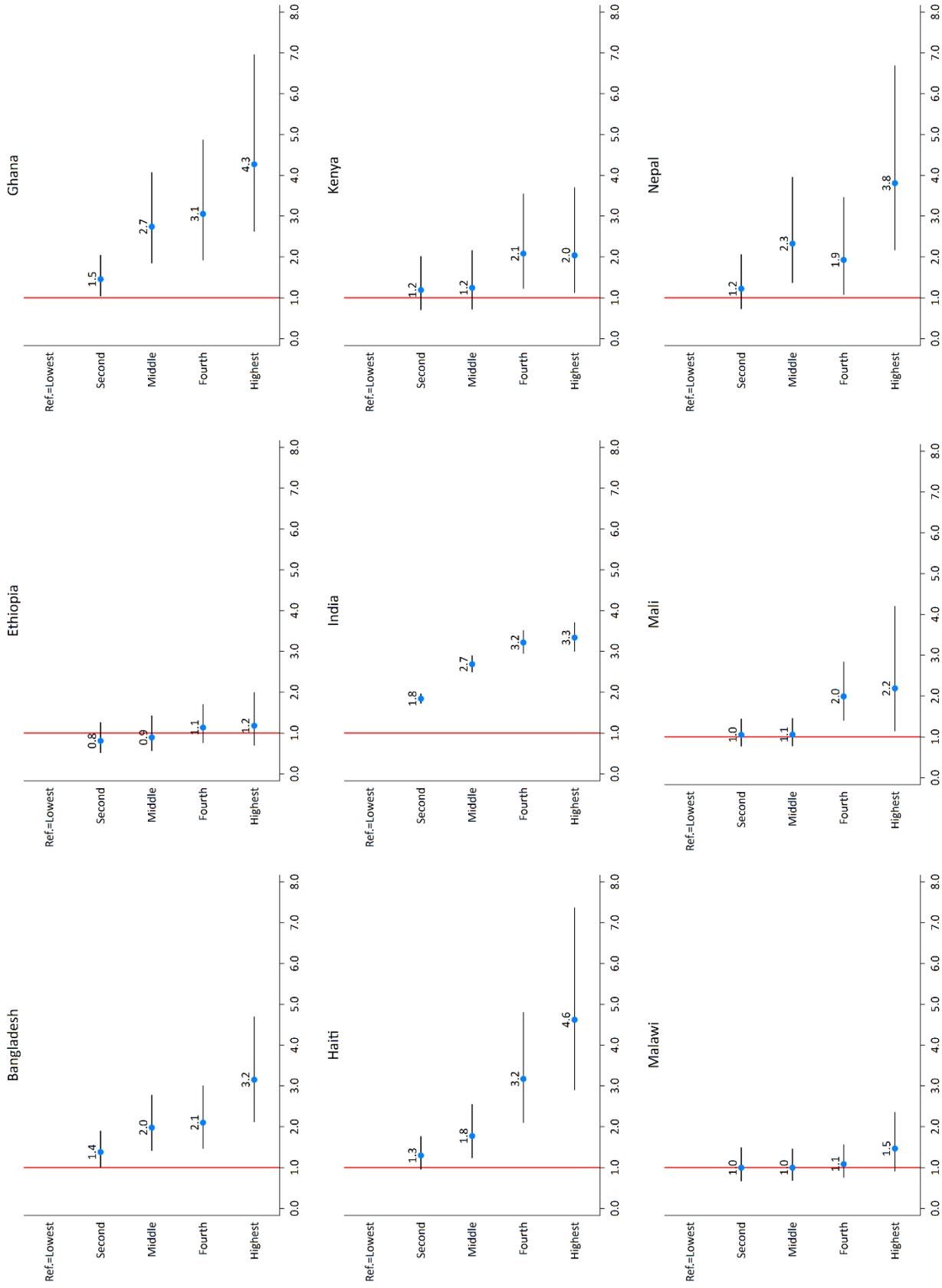
Figure 8   Adjusted odds ratios of secondary infertility for the wealth quintile (continued)
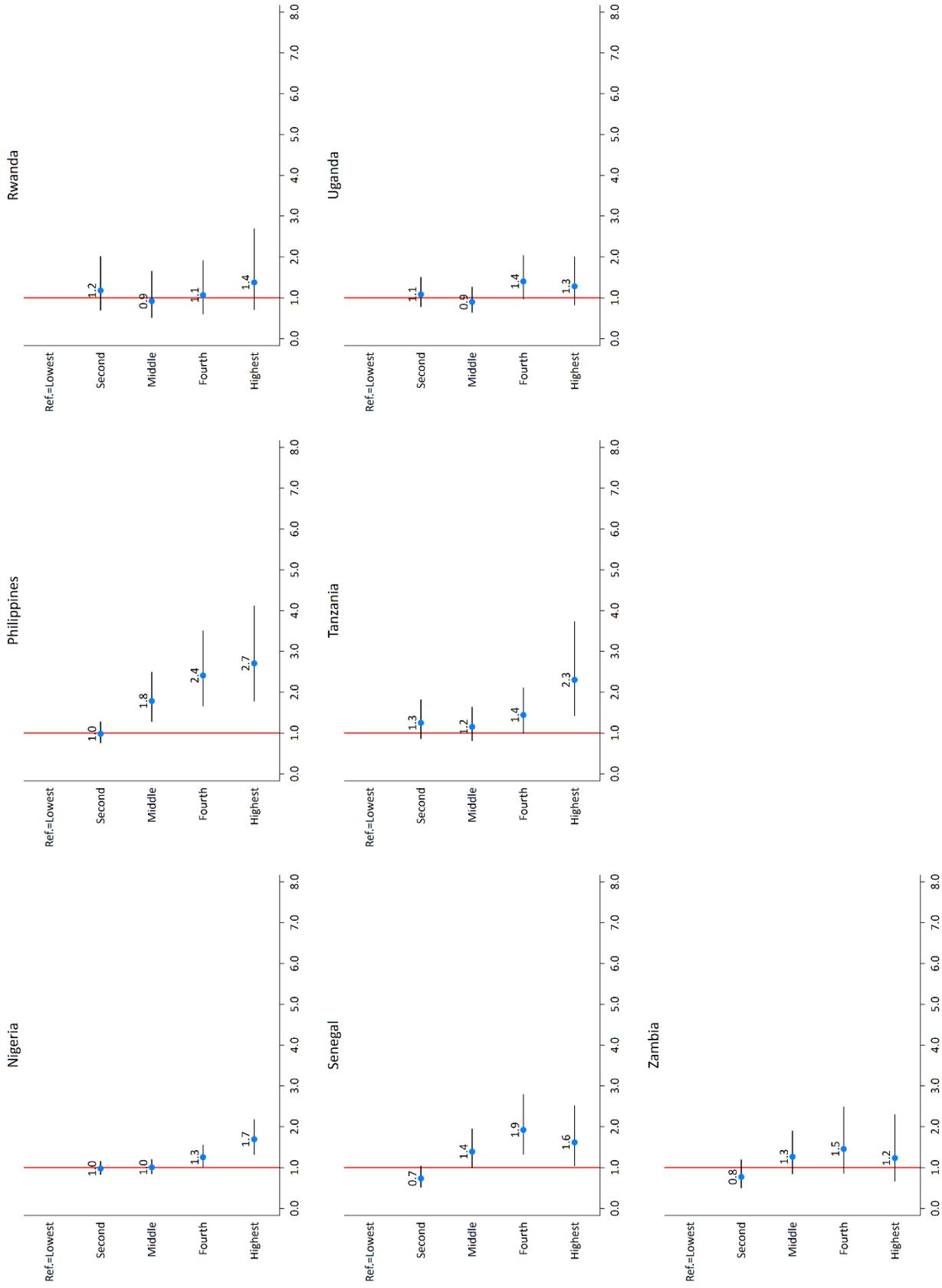
Figure 8 summarizes the adjusted odds ratio for the wealth quintile for all countries in the analysis. In Bangladesh, Ghana, Haiti, India, and the Philippines, the odds of secondary infertility increased with increasing wealth quintile compared to women in the lowest wealth quintile. For women in Kenya, Mali, Nepal, Nigeria, Senegal, and Tanzania, there was a higher odds of secondary infertility for women in the fourth and/or highest wealth quintile compared to women in the lowest wealth quintile. In Ethiopia, Malawi, Rwanda, Uganda, and Zambia, the association between secondary infertility and the wealth quintile, after controlling for other sociodemographic variables, was not significant. In some countries, the risk of secondary infertility by wealth status was relatively large. In Haiti, Ghana, and Nepal, for example, women in the highest wealth quintile had four to five times the odds of secondary infertility compared to women in the lowest wealth quintile.

3.2.2 Health-related variables

As described in Table 2, Models 2-3 fit logistic regression for the health-related variables in the analysis. Figures 9-11 summarize the adjusted odds ratios for some of these variables. The regression results for each country for all the models are found in Appendix Tables 3-18.

Figure 9   **Adjusted odds ratios of secondary infertility for women who ever had a terminated pregnancy (ref.=No)**
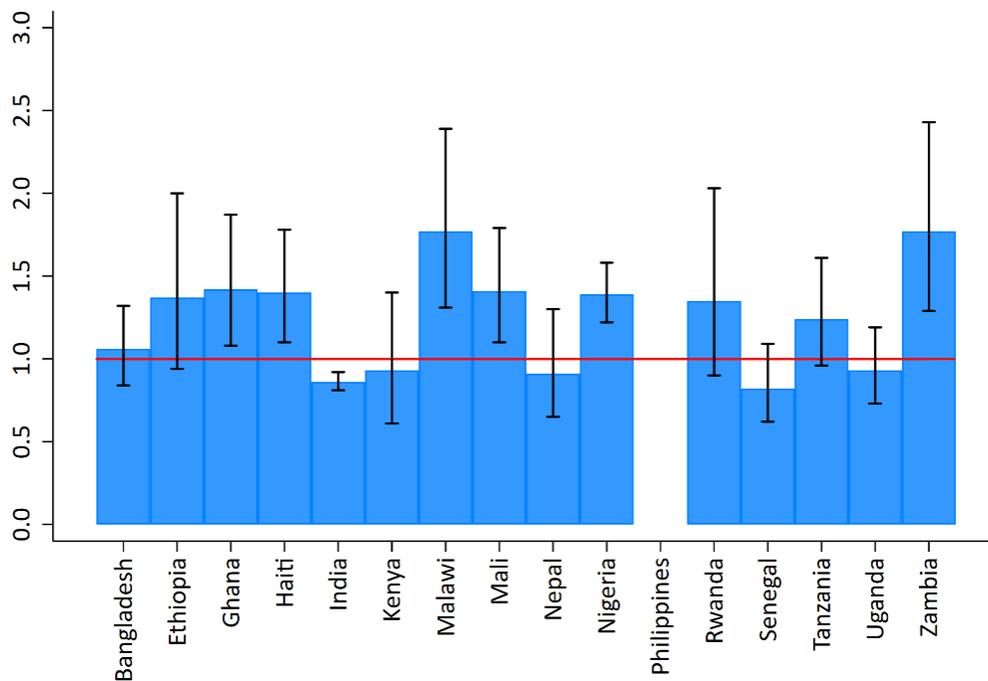
In Figure 9, we see the adjusted odds ratio for women who ever had a terminated pregnancy. Women in Ghana, Haiti, Malawi, Mali, Nigeria, and Zambia had a higher odds of secondary infertility if they have ever had a terminated pregnancy compared to women who have not. Women in India had a lower odds of secondary infertility if they ever had a terminated pregnancy, compared to women who have not, although this lost significance in the full model (see Appendix Table 7 for India). In Malawi and Zambia, women had almost twice the odds of secondary infertility if they ever had a terminated pregnancy compared to women

who have not (AOR 1.8, p<0.001 for both). However, for Malawi, this lost significance in the full model. Significance of this variable was also lost in the full model in Mali.

Using any type of tobacco was not a significant predictor of secondary infertility in most countries in the analysis. In Uganda and Zambia, women who used any type of tobacco had approximately twice the odds of secondary infertility compared to women who did not use tobacco. Women in Ghana had almost 80% lower odds of secondary infertility if they used any type of tobacco compared to women who did not use; however, this lost significance in the full model. Data on tobacco use were not available for Bangladesh and Senegal.

Having at least one problem in accessing health care was also not an important predictor of secondary infertility in most countries. It was significant in India, Nepal, and Kenya, although this significance was lost in the full model. India and Kenya were also the only two countries in the analysis that showed a significant association between correct knowledge of the fertile period and secondary infertility. However, for both countries, this significance was lost in the full model (see Appendix Table 7 for India and 8 for Kenya).

Figure 10 Adjusted odds ratios of secondary infertility for lifetime number of sexual partners
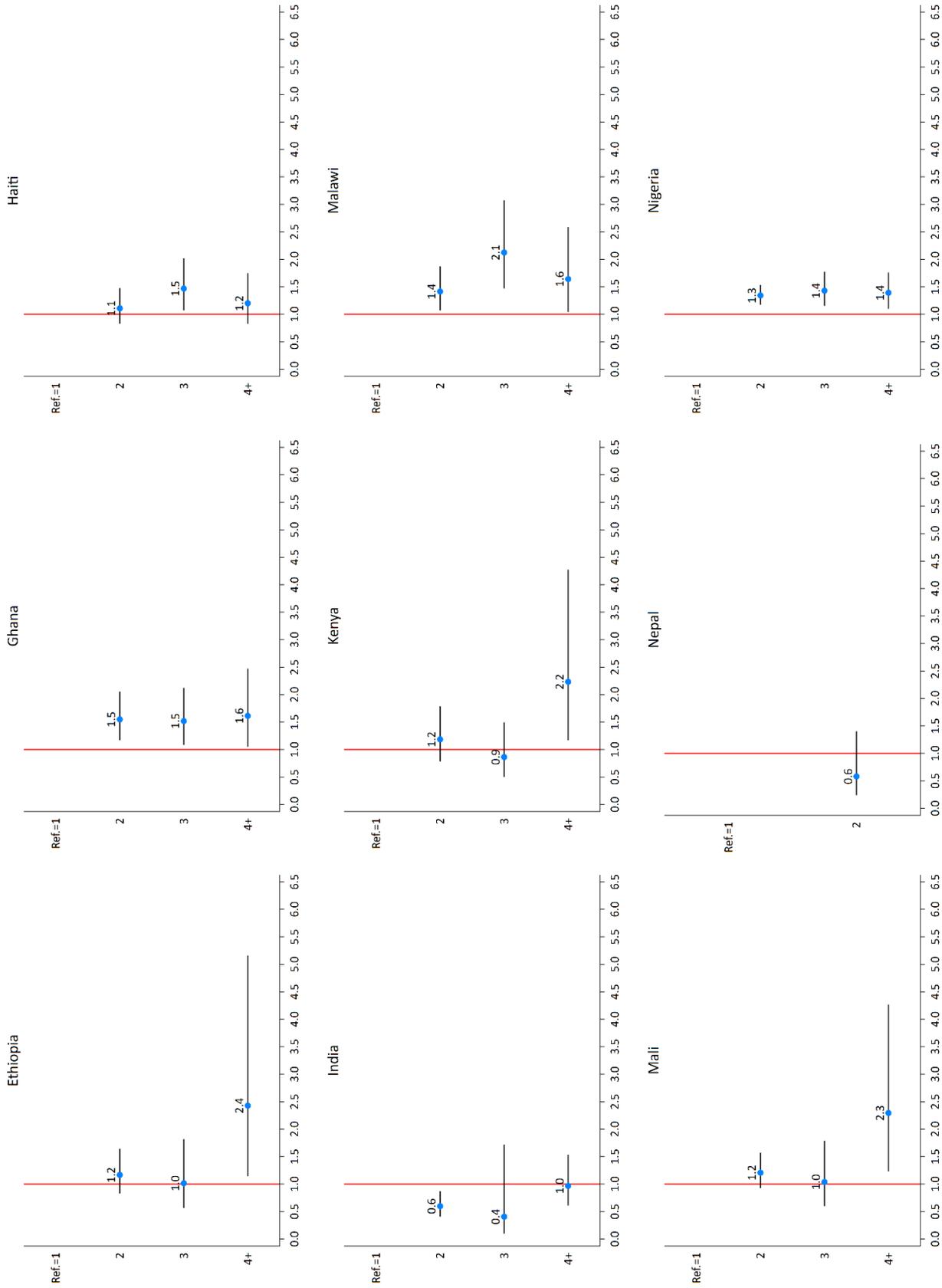
Figure 10   Adjusted odds ratios of secondary infertility for lifetime number of sexual partners (continued)
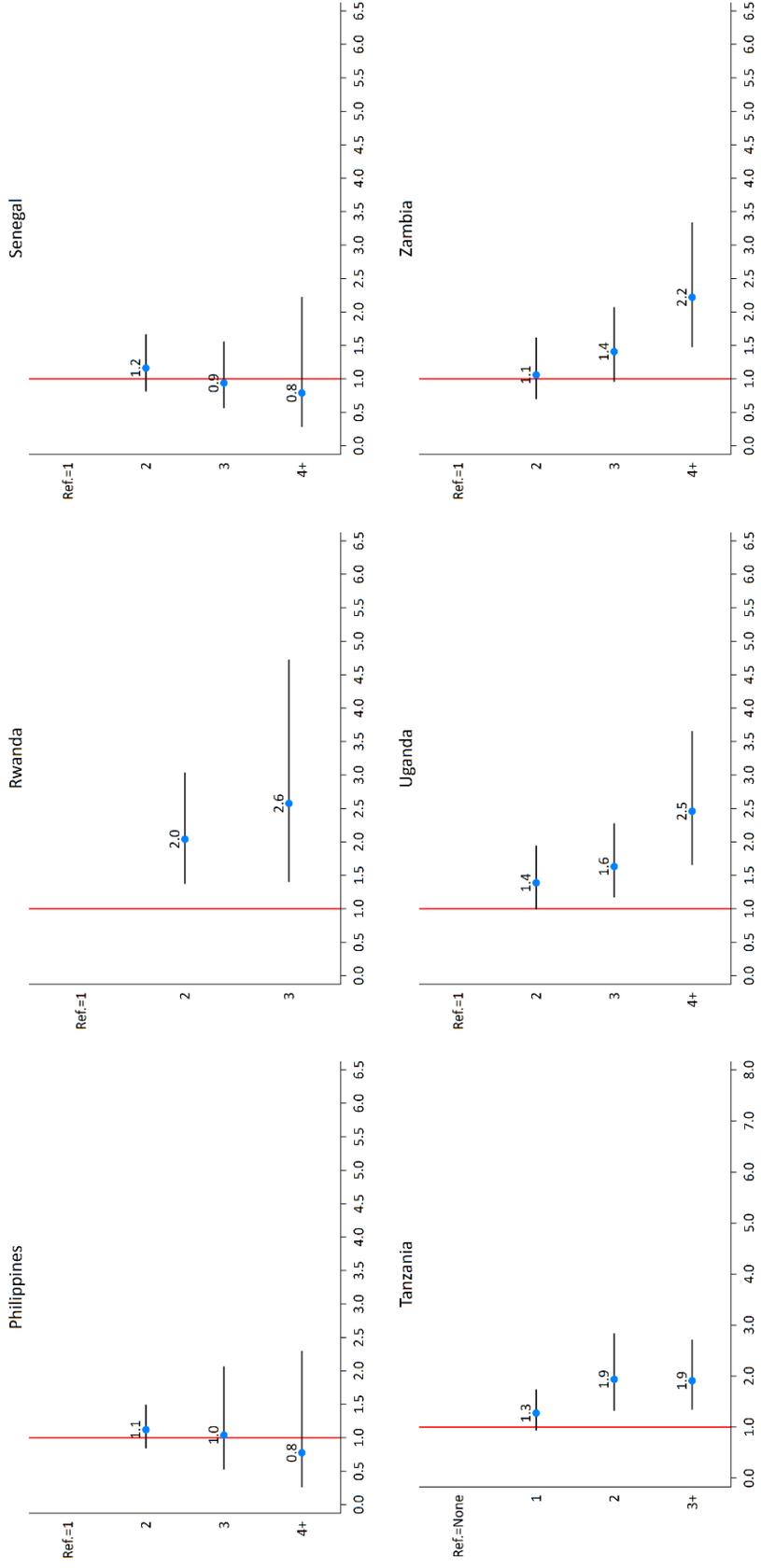
Figure 10 summarizes the adjusted odds ratio of secondary infertility with lifetime number of sexual partners. Only Nepal, the Philippines, and Senegal did not show any significant association with this variable and secondary infertility. In Ethiopia, Kenya, Mali, Uganda, and Zambia, women who had four or more partners had between two to three times the odds of secondary infertility, compared to women who had only one sexual partner. However, for Kenya and Mali, this lost significance in the full model. In Rwanda, women who had two or three lifetime sexual partners had twice the odds of secondary infertility compared to women who had only one sexual partner, while women with four or more sexual partners were marginally significant with an adjusted odds ratio of 4.4. (This category was not shown in the figure due to the wide confidence interval - see Appendix Table 14 for Rwanda). In India, women who had two lifetime sexual partners had 40% lower odds of secondary infertility compared to women who had only one sexual partner. India was the only country that showed a negative association between the number of sexual partners and secondary infertility. Bangladesh and Tanzania did not have this variable available in the dataset.

Figure 11   Adjusted odds ratios of secondary infertility for obese BMI (ref.: No)
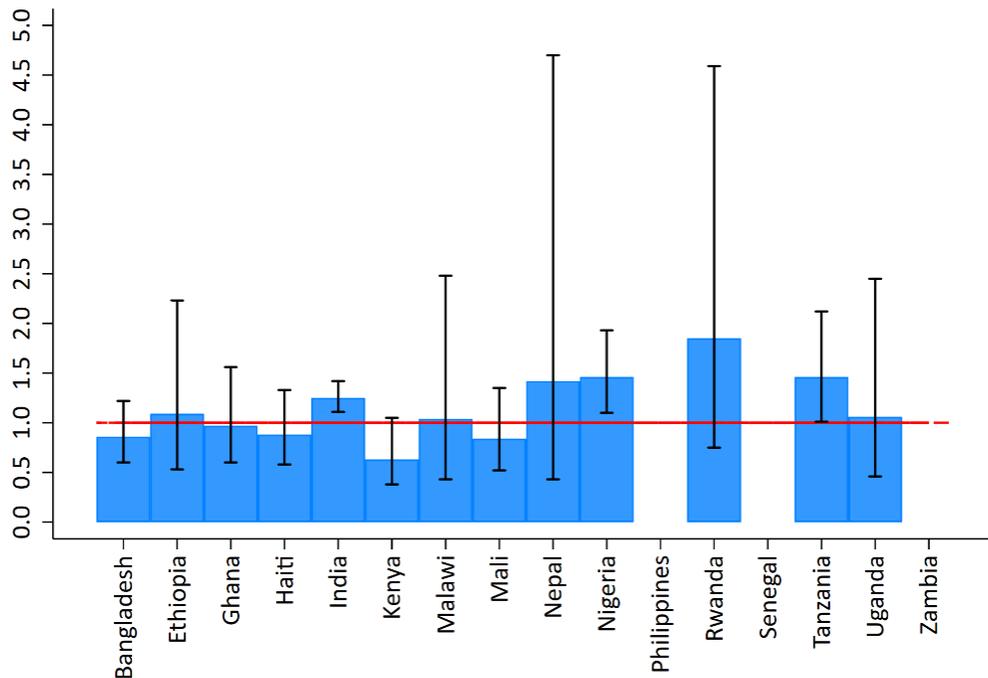
Figure 11 summarizes the adjusted odds ratios of secondary infertility for the obese BMI variable. In general, we find very few significant findings for this variable. While being obese was found to be significantly associated with secondary infertility in several countries in the cross-tabulations shown in Appendix Table 2, this was found to be significant in only three countries in the regression models. In India, women who are obese had 25% higher odds of secondary infertility compared to women who are not, and in Nigeria and Tanzania, there were 46% higher odds. In Tanzania, this significance was marginal ($p<0.05$), although the significance was retained in the full model.

3.3   Profile of women with secondary infertility

Table 3 summarizes the percent distribution of secondary infertility by women's sociodemographic variables. Between 40-50% of women in all the countries with secondary infertility are between age 40-49. Other characteristics are country-specific. For example, more than 40% of women with secondary infertility had secondary or higher education in Haiti, India, the Philippines, and Zambia (in the Philippines it was 82%), but less than 15% in Ethiopia, Mali, Malawi, Rwanda, Senegal, and Tanzania. Many women with secondary infertility have two or more of their own living children. This is also illustrated in Figure 12. These represent children the women had more than 5 years ago based on the secondary infertility definition. This ranged from 53% and 55% in the Philippines and Haiti, respectively, to 80% in Ethiopia, followed by 77% in Mali. A small percentage of women with secondary infertility had a child who did not survive; this ranged from approximately 1% in the Philippines to 7% in Malawi.

Table 3   Percent distribution of secondary infertility by women's sociodemographic variables

	Bangladesh %	Bangladesh No.	Ethiopia %	Ethiopia No.	Ghana %	Ghana No.	Haiti %	Haiti No.	India %	India No.	Kenya %	Kenya No.	Malawi %	Malawi No.	Mali %	Mali No.
Age																
20-24	3.0	27	1.1	6	2.2	13	2.9	21	2.0	578	1.5	4	5.6	25	5.0	38
25-29	11.2	101	6.0	31	8.3	49	13.1	93	12.6	3,610	18.0	47	15.5	69	12.9	98
30-34	16.3	147	16.0	83	12.0	70	21.5	153	19.4	5,583	16.0	42	17.5	78	19.5	148
35-39	15.3	138	22.7	118	25.5	150	19.2	136	21.5	6,191	24.6	64	21.0	93	24.0	182
40-44	18.5	167	21.8	113	24.8	145	17.3	122	20.6	5,925	16.2	42	17.0	76	17.0	129
45-49	35.8	324	32.4	168	27.2	159	25.9	183	23.8	6,849	23.7	62	23.3	103	21.5	163
Age at first cohabitation																
<20	91.3	825	79.1	410	58.5	343	41.9	297	69.9	20,095	65.6	171	75.2	334	74.8	566
20-49	8.7	79	20.9	109	41.5	243	58.1	412	30.1	8,640	34.4	90	24.8	110	25.2	191
Education																
None	27.5	249	73.1	379	28.8	169	22.9	163	42.3	12,160	22.9	60	23.8	106	78.3	592
Primary	34.8	315	20.6	107	19.2	112	31.8	225	13.5	3,869	53.5	140	63.2	281	11.4	87
Secondary +	37.7	341	6.3	32	52.0	305	45.2	321	44.2	12,706	23.6	62	13.0	58	10.2	78
Number of living children																
0	2.6	24	2.5	13	2.2	13	2.8	20	2.0	564	5.0	13	6.5	29	2.8	21
1	35.5	321	17.8	92	23.6	139	42.7	303	32.8	9,415	30.6	80	29.3	130	19.8	150
2	23.1	209	14.1	73	26.9	158	25.1	178	28.7	8,258	19.8	52	24.5	109	20.6	156
3	18.4	166	13.5	70	20.4	119	10.9	77	18.2	5,239	16.3	43	14.4	64	14.7	111
4+	20.4	184	52.2	270	26.9	158	18.5	131	18.3	5,259	28.3	74	25.3	113	42.1	319
Other children under 18 in the household																
0	NA	NA	72.7	376	72.0	422	62.0	439	81.9	23,547	70.0	183	64.1	285	53.3	403
1	NA	NA	18.5	95	15.1	89	19.6	139	8.2	2,361	16.8	44	18.0	80	16.3	124
2	NA	NA	5.7	29	6.5	38	10.1	71	5.4	1,561	6.2	16	9.2	41	9.2	69
3+	NA	NA	3.1	16	6.4	38	8.4	59	4.4	1,266	7.0	18	8.8	39	21.3	161
Place of residence																
Urban	29.1	263	18.2	94	60.9	357	47.9	339	34.3	9,848	36.0	94	13.6	60	26.0	196
Rural	70.9	642	81.8	424	39.1	229	52.1	369	65.7	18,887	64.0	167	86.4	384	74.0	560
Wealth quintile																
Lowest	15.7	142	18.9	98	13.0	76	13.3	94	17.6	5,066	22.5	59	17.4	77	18.5	140
Second	18.5	167	16.6	86	15.5	91	13.7	97	19.1	5,483	16.4	43	17.6	78	17.8	135
Middle	19.3	174	18.0	93	19.4	114	17.3	123	20.4	5,870	16.0	42	20.6	92	16.6	126
Fourth	20.0	181	23.3	121	22.4	132	25.0	177	21.7	6,230	22.3	58	21.7	96	24.9	188
Highest	26.5	239	23.2	120	29.7	174	30.7	218	21.2	6,086	22.9	60	22.6	101	22.2	168
Total	100.0	904	100.0	518	100.0	586	100.0	708	100.0	28,735	100.0	261	100	444	100	757

Continued....

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Table 3   Percent distribution of secondary infertility by women's sociodemographic variables—Continued

	Nepal		Nigeria		Philippines		Rwanda		Senegal		Tanzania		Uganda		Zambia	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Age																
20-24	3.0	9	1.8	46	2.1	25	0.0	0	1.9	11	2.7	15	2.2	10	3.5	26
25-29	16.5	48	10.9	274	10.2	121	11.0	17	10.7	62	7.2	38	11.8	51	12.9	97
30-34	19.5	57	17.5	438	20.3	239	9.7	15	14.5	83	13.8	74	15.3	66	16.3	123
35-39	16.9	49	23.8	595	23.4	275	27.0	43	18.5	106	20.3	109	17.3	74	23.2	175
40-44	19.5	57	23.8	595	19.1	225	25.8	41	25.8	149	27.8	149	25.5	110	23.2	175
45-49	24.6	72	22.1	554	24.9	293	26.5	42	28.6	164	28.2	151	27.8	119	20.9	157
Age at first cohabitation																
<20	76.3	222	65.8	1,645	33.5	395	43.5	69	61.7	355	67.5	362	69.3	297	61.9	465
20-49	23.7	69	34.2	856	66.5	783	56.5	89	38.3	220	32.5	174	30.7	132	38.1	287
Education																
None	53.7	156	48.0	1,201	2.4	28	34.0	54	72.0	413	25.6	137	23.2	100	12.8	96
Primary	18.8	55	15.9	399	15.8	186	53.6	84	21.1	121	65.1	349	55.8	240	41.9	315
Secondary +	27.5	80	36.0	901	81.8	963	12.4	20	6.9	40	9.2	50	21.0	90	45.3	341
Number of living children																
0	1.9	6	2.2	56	1.1	13	6.0	10	1.7	10	5.6	30	2.7	11	3.8	29
1	39.0	114	21.3	533	45.7	538	35.6	56	26.1	150	27.9	149	21.9	94	26.2	197
2	19.0	55	20.8	520	27.8	327	23.2	37	18.6	107	21.1	113	20.1	86	25.3	190
3	13.9	41	17.0	424	11.5	135	20.3	32	17.2	99	20.2	109	15.8	68	15.0	113
4+	26.2	76	38.7	967	14.0	165	14.9	24	36.3	209	25.2	135	39.5	170	29.7	224
Other children under 18 in the household																
0	76.2	222	58.8	1,471	NA	NA	75.2	119	22.7	130	51.9	278	51.0	219	59.1	444
1	15.0	44	11.5	287	NA	NA	19.2	30	11.2	65	18.7	100	21.1	91	19.1	144
2	5.7	17	7.7	192	NA	NA	5.0	8	8.4	48	12.0	65	14.1	61	11.5	87
3+	3.0	9	22.0	551	NA	NA	0.7	1	57.7	332	17.3	93	13.8	59	10.3	77
Place of residence																
Urban	56.6	165	39.9	997	49.5	582	21.1	33	40.8	235	32.8	176	23.3	100	48.9	368
Rural	43.4	126	60.1	1,503	50.5	595	78.9	124	59.2	340	67.2	360	76.7	329	51.1	385
Wealth quintile																
Lowest	19.0	55	22.7	567	17.2	203	15.8	25	19.8	114	18.9	102	17.5	75	15.3	115
Second	15.6	46	19.3	483	14.5	171	22.7	36	13.8	80	19.1	102	18.9	81	13.6	102
Middle	23.2	68	17.1	428	18.8	222	17.2	27	22.5	129	17.6	94	17.5	75	20.3	153
Fourth	17.6	51	18.4	461	24.6	289	18.4	29	25.3	145	20.4	110	25.4	109	24.5	185
Highest	24.5	71	22.5	562	24.9	293	25.8	41	18.7	107	23.9	128	20.6	89	26.3	198
Total	100.0	291	100.0	2,500	100.0	1,177	100.0	158	100.0	575	100.0	536	100.0	429	100.0	752

Notes: NA = Data not available in survey; a = data only collected for a subsample of the survey

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Figure 12   Percent distribution of women with secondary infertility by the number of living children
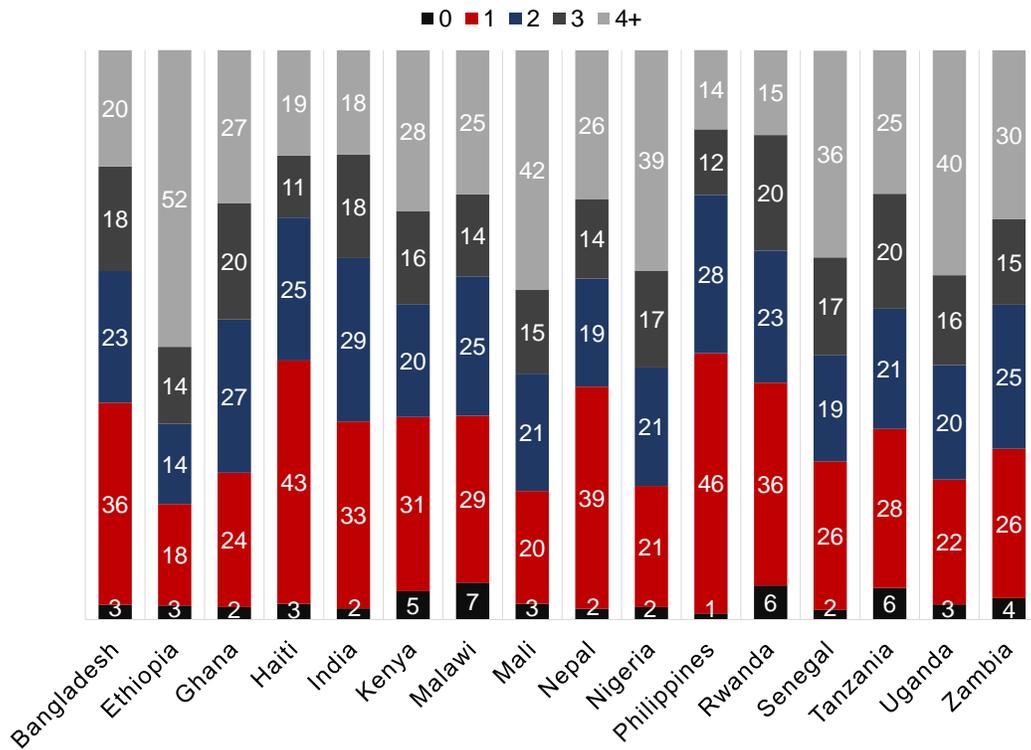
Between approximately one-quarter to three-quarters of women with secondary infertility had other children under age 18 in their household who were not their own. In Senegal, 58% of women with secondary infertility had three or more children under age 18 in their household who were not their own children, followed by Nigeria with 22%.

DISCUSSION AND CONCLUSION

This report attempts to identify the subgroups of women with a higher risk of secondary infertility by using a demographic definition of infertility and cross-sectional data. The results reveal that beyond the age of women and their partners, and for many countries, their wealth status and having other children in the household, there was no universal factor that was associated with a significantly higher secondary infertility. The results were country-specific and this was especially true for the health-related factors. Therefore, use of these results for supporting women and couples who are experiencing secondary infertility should focus on the country-specific findings.

Women's age was a universal and strong predictor of secondary infertility. The link between older age and infertility has been established in the literature. The use of age in the regressions was primarily to control for age in the models. One important finding was that the partners' older age was also associated with secondary infertility in all countries in the analysis. While the association was not as strong as the women's age, there was a clear positive relationship between partners' older age and increased risk of secondary infertility. The blame for infertility is often placed on the woman (Bornstein et al. 2020; Fledderjohann 2012; Inhorn 2003; Steuber and Haunani Solomon 2008), and there is also a belief that there is no age limit or a much later age restriction for men having children (Billari et al. 2011; de la Rochebrochard 2001). These results suggest that while it is biologically possible for men to have children at older ages, there is an increased risk of secondary infertility in older men.

The results show that in many countries, there was an increased risk of secondary infertility in the higher wealth quintiles. The wealth index is a composite measure constructed with information on ownership of assets, materials used for housing construction, and types of water access and sanitation facilities.[1] Despite some of the limitations that include comparability between surveys and countries, the wealth index has been used extensively to highlight disparities between the wealth quintiles, and to identify whether services and interventions are reaching the poorest segments of society. In studying the association between the wealth index and secondary infertility, it is possible that there are other hidden factors associated with higher wealth status that may be responsible for the association with secondary infertility. These could be cultural or related to employment. Women may be prioritizing employment and maintaining a career over attempting to have another child (Bongaarts, Blanc, and McCarthy 2019; Shreffler and Johnson 2013), and we assume that women with a history of a professional career or employment have higher wealth status. This cannot be directly measured with DHS data because employment status is only asked for the previous 12 months. We do not know the employment or career status of women in the same time frame used to measure infertility, which is the previous 5 years. In addition, Stulp and Barrett (2016) have discussed the possible dynamics of the relationship between wealth and fertility and the shortcomings of assessing this relationship with cross-sectional data. The same logic can be applied to the relationship between wealth and infertility. Since we are using cross-sectional data, we do not know the direction of this relationship. It is possible that secondary infertility led to higher wealth status due to smaller family size and lower expenditures for child care. This relationship can also depend on the cultural context, since in some societies, having extended family members to care for children can help to alleviate the cost of child care (Stulp and Barrett 2016).

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[1] https://dhsprogram.com/topics/wealth-index/Index.cfm

Further study is needed to understand the associations found in this analysis between the wealth quintile and secondary infertility in such countries as Haiti, Ghana, and Nepal.

Several health-related variables found to be associated with infertility using case control or clinical studies were not universally associated with secondary infertility in this analysis. For example, obesity was found to be associated with infertility in several studies (Deyhoul, Mohamaddoost, and Hosseini 2017; Direkvand-Moghadam, Delpisheh, and Khosravi 2013; Talmor and Dunphy 2015), but was only found to be a significant factor in three countries (India, Nigeria, and marginally for Tanzania) after adjusting for other variables. However, we do not know if women were obese before they experienced infertility since we are using cross-sectional data. History of recurrent miscarriages is another factor found to be associated with infertility in previous studies. Some studies describe similar pathways to failed pregnancies for both miscarriages and infertility (Agenor and Bhattacharya 2015; Coulam 1992; Deyhoul, Mohamaddoost, and Hosseini 2017; Hakim, Gray, and Zacur 1995; Triggianese et al. 2015). Other studies have also found a link between induced abortion and secondary infertility (Koster 2010; Okonofua 1994; Tzonou et al. 1993), while another study suggested that the lack of association between induced abortion and infertility was due to a shift towards safer abortion practices (Torres-Sánchez et al. 2004). In this study, we examined ever having a terminated pregnancy that includes miscarriages, stillbirths, and abortions. This was found to be significant in only six countries in the analysis, with women in Malawi and Zambia having almost twice the risk of secondary infertility if they ever had a terminated pregnancy. While it is expected that abortions and stillbirths would occur at a much lower rate than miscarriages, the addition of abortion and stillbirths to this variable could be one reason we did not find many significant results. Women may also be underreporting their terminated pregnancies because they do not want to reveal or feel uncomfortable disclosing that they have had a terminated pregnancy in a household survey such as the DHS (Leone, Sochas, and Coast 2021; Sánchez-Páez and Ortega 2019). In addition, we did not account for the time of the terminated pregnancy, which could have occurred many years before the experience of secondary infertility.

Smoking and tobacco use has also been linked to infertility in several studies (Deyhoul, Mohamaddoost, and Hosseini 2017), but in this study was only found to be significant in two countries, Uganda and Zambia, where women had almost twice the odds of secondary infertility if they smoked compared to the women who did not smoke. The results revealed very low proportions of women who use any type of tobacco. In addition, information on the frequency or length of tobacco use was not included in the analysis. These may have weakened the associations with secondary infertility. Two other health-related variables were examined to assess whether access to health care or knowledge of the fertile period are significant factors of secondary infertility. Both these variables were not found to be significant predictors of secondary infertility. This again could be a measurement issue because we are not certain if the access to health care truly captures access, or if it is a true lack of association. In summary, these health-related factors were not found to be associated with secondary infertility in the countries in the analysis. This may be due to the limitations in the measures that are mentioned or to the cross-sectional nature of the data. However, when some countries did show significance, the risk was relatively large with sometimes more than twice the odds of secondary infertility. Thus, these results should be examined for each country separately.

The lifetime number of sexual partners was significantly associated with secondary infertility in several countries and especially for women who had three or more lifetime sexual partners. In some countries, such as Ethiopia, Kenya, Mali, Uganda, and Zambia, women who had four or more lifetime partners had more

than twice the odds of secondary infertility compared to women who had one. One possible explanation is that the lifetime number of sexual partners can be associated with an increased incidence of sexually transmitted infections (STIs), which has been associated with infertility (Deyhoul, Mohamaddoost, and Hosseini 2017; Direkvand-Moghadam, Delpisheh, and Khosravi 2013; Grodstein, Goldman, and Cramer 1993; Tsevat et al. 2017).

Most of the countries in the analysis have shown a significant association between having other children under age 18 in the household, who are not the women's own children, and secondary infertility. For some countries, the association with secondary infertility was relatively high, with women who have two or more other children in the household having twice or three times the odds of secondary infertility compared to women who have no other children in the household. This association may be occurring in both directions. In one direction, women who have many children in the household may not be prioritizing having children of their own, which might lead to secondary infertility. In the other direction, women with secondary infertility may be taking in other children to raise as their own. The fostering and adoption of children can be a coping mechanism for women who have accepted their infertility status, especially if infertility treatments are not accessible either financially or otherwise (Bennett 2018; Daniluk and Hurtig-Mitchell 2003). Rutstein and Shah (2004) found that childless women are more likely to live in households with adopted children than women with children of their own. However, the acceptability of adoption depends on the culture and social setting and has been found to be less favored in specific subgroups (Adewunmi et al. 2012; Ali and Sami 2007; Bharadwaj 2003; Yassini, Shavazi, and Shavazi 2012). We also cannot infer the relationship of the child in the household who is not the women's own child with each woman. Therefore, we do not know if the children are fostered or adopted children by the women and her partner or if other children from the extended family are living in the household. Extended household structure is quite common in low- and middle-income countries (Cherlin 2012; Spijker and Esteve 2011).

There are some notable limitations to this analysis. With surveys that are using calendar data to construct the definition of secondary infertility, there could be misreporting of the continuous contraceptive use for the past 5 years. Some women may fail to report a traditional method as contraceptive use or misclassify breastfeeding as the lactational amenorrhea method (LAM), which is considered a modern contraceptive method in DHS data. For countries with no calendar data, the use of current contraceptives may not correctly represent the use in the previous 5 years. These issues may misclassify women's secondary infertility status according to the definition shown in Figure 2. Another limitation of the infertility definition used in this study is the exclusion of women not currently in a union or who were in a union for fewer than 5 years. This would exclude women whose marriage was dissolved due to infertility and, therefore, excluding these women would underestimate the level of secondary infertility. As discussed, the use of cross-sectional data limits the ability to understand the direction of the associations. However, the aim is to identify subgroups of women who need support due to their infertility status. Thus, the direction of the association is not the primary focus of this analysis. Some possibly important variables that can have a direct effect on infertility could not be included in the analysis, such as information on the frequency and timing of sexual intercourse that was not collected in these surveys. It can also be important to account for the partner's fertility desires in the definition of infertility. In the current definition, a woman who has no desire for a child is excluded from the denominator because she is considered not exposed (see Figure 2). However, it is possible for the partner to want a child even when the woman does not want children. In this case, one can argue that women with partners who desire more children should not be excluded even when

they reported not wanting more children. Thus, it may be more appropriate to use couples' data for the study of infertility.

The results show that among women with secondary infertility, most (between 50-80%) have two or more children. One could argue that the majority of women already have several children, and therefore secondary infertility is not a major concern for health programs. However, from a reproductive rights perceptive, women should have the number of children they desire. In addition, experiencing infertility can cause depression, stigma, social exclusion, domestic violence, and strain on the couple (Rouchou 2013). Therefore, women and couples experiencing infertility, regardless of the number of children the couple may have, need support for coping with and managing infertility. Numerous studies have shown a link between depression and other psychological issues with infertility, including secondary infertility (De Berardis et al. 2014; Meller et al. 2002; Ramezanzadeh et al. 2004; Saif, Rohail, and Aqeel 2021). Women with self-reported depression were found to be less likely to seek medical advice for infertility (Herbert, Lucke, and Dobson 2010). A review of psychosocial interventions for infertile couples has found that educational interventions and skills training in coping, stress reduction, sex therapy, and preparatory information about medical tests or treatments were more effective than counseling interventions in having positive effects on infertile couples (Boivin 2003). A positive effect in these studies was measured as improvements in depression, anxiety, or psychiatric morbidity after the intervention (Boivin 2003). Infertility has been found to cause a strain on marriages, but has also been found to have some positive effects depending on the couple's coping and communication strategies (Schmidt 2009). Different strategies of communication and coping can have an effect on a couple's social relationships, stress, and mental health (Schmidt 2009). These examples offer insights into the types of interventions that support couples experiencing infertility. Educational programs are also needed to address the misconceptions and stigma around infertility (Rouchou 2013).

In summary, infertility is a public health concern that goes beyond the inability to have children and has far-reaching consequences that should be addressed. This report attempted to identify the subgroups of women who are more likely to have secondary infertility or have a high level of secondary infertility that could be supported with more targeted interventions.

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APPENDIX

Appendix Table 1a   Distribution of variables used in the analysis

	Bangladesh		Ethiopia		Ghana		Haiti		India		Kenya		Malawi		Mali	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
OUTCOMES																
Primary infertility	1.8	274	1.4	114	1.7	71	2.3	127	2.3	9,645	0.3	40	0.6	75	1.9	128
Total		15,199		8,254		4,227		5,526		412,221		14,044		12,334		6,608
Secondary infertility	17.9	904	9.0	518	20.0	586	22.7	708	24.9	28,735	3.3	261	5.6	444	14.3	757
Total		5,044		5,754		2,934		3,120		115,175		7,865		7,873		5,280
Covariates																
WOMEN'S SOCIODEMOGRAPHIC VARIABLES																
Age																
20-24	14.5	732	6.9	397	4.2	125	5.2	163	8.0	9,244	7.9	622	11.6	912	9.7	513
25-29	34.6	1,745	26.9	1,545	17.6	516	19.4	605	34.8	40,095	30.5	2,403	29.5	2,323	27.2	1,436
30-34	26.4	1,331	27.6	1,587	25.6	750	26.8	836	27.5	31,684	28.8	2,265	28.4	2,233	25.6	1,351
35-39	12.2	617	21.4	1,229	27.3	801	23.6	735	15.0	17,294	20.1	1,578	18.1	1,426	21.3	1,124
40-44	5.4	274	10.9	629	16.3	477	15.5	484	7.9	9,050	9.3	735	8.3	652	10.7	565
45-49	6.9	347	6.4	366	9.1	266	9.6	298	6.8	7,809	3.3	263	4.2	328	5.5	292
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
Age at first cohabitation																
<20	91.9	4,633	83.4	4,797	59.4	1,742	47.3	1,475	70.9	81,710	65.4	5,141	78.4	6,175	79.8	4,212
20-49	8.1	411	16.6	957	40.6	1,192	52.7	1,645	29.1	33,465	34.6	2,724	21.6	1,699	20.2	1,068
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
Education																
None	13.3	668	74.7	4,295	32.9	964	26.7	834	39.7	45,770	13.8	1,084	16.3	1,286	78.9	4,164
Primary	33.6	1,697	21.0	1,206	19.9	582	39.4	1,228	14.9	17,183	59.5	4,678	66.9	5,270	10.7	564
Secondary +	53.1	2,679	4.4	253	47.3	1,388	33.9	1,058	45.3	52,222	26.7	2,103	16.7	1,317	10.5	552
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
Other children under 18 in the household																
0	NA	NA	85.3	4,907	75.5	2,216	68.2	2,129	82.5	95,014	83.9	6,600	78.0	6,143	61.1	3,225
1	NA	NA	10.4	599	12.8	376	17.6	549	7.2	8,268	9.9	776	13.9	1,094	11.1	585
2	NA	NA	2.3	135	5.4	160	7.6	236	5.1	5,911	3.8	297	4.8	377	7.2	379
3+	NA	NA	1.9	111	6.2	183	6.7	208	5.2	5,982	2.4	192	3.3	260	20.7	1,091
Total	NA	NA	100.0	5,751	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
Place of residence																
Urban	27.1	1,367	10.4	600	45.7	1,340	35.9	1,121	29.0	33,419	32.5	2,553	12.8	1,005	19.8	1,047
Rural	72.9	3,677	89.6	5,154	54.3	1,594	64.1	1,999	71.0	81,756	67.5	5,312	87.2	6,868	80.2	4,233
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
Wealth quintile																
Lowest	22.5	1,133	22.1	1,269	23.0	674	23.2	723	26.5	30,540	23.7	1,866	19.9	1,567	21.7	1,148
Second	20.2	1,018	22.1	1,271	20.4	600	20.1	627	21.3	24,545	20.9	1,646	21.4	1,686	21.3	1,122
Middle	18.5	931	21.5	1,235	18.4	539	20.4	635	19.1	22,051	18.6	1,465	21.1	1,659	20.9	1,104
Fourth	19.4	979	19.4	1,118	18.8	552	19.5	607	17.7	20,331	17.6	1,386	20.2	1,588	19.9	1,048
Highest	19.5	983	15.0	860	19.4	569	16.9	528	15.4	17,708	19.1	1,502	17.4	1,373	16.2	858
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280

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Appendix Table 1a Distribution of variables used in the analysis—Continued

	Bangladesh		Ethiopia		Ghana		Haiti		India		Kenya		Malawi		Mali	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
WOMEN'S HEALTH-RELATED VARIABLES																
Ever had a terminated pregnancy																
No	77.9	3,931	88.6	5,100	69.7	2,045	80.3	2,507	81.6	93,962	87.1	3,421	87.1	6,861	85.0	4,489
Yes	22.1	1,113	11.4	653	30.3	890	19.7	614	18.4	21,213	12.9	508	12.9	1,013	15.0	791
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	3,929[a]	100.0	7,873	100.0	5,280
Uses any type of tobacco																
No	NA	NA	98.9	5,692	99.5	2,918	93.2	2,909	93.6	107,855	99.0	7,785	99.3	7,821	98.8	5,214
Yes	NA	NA	1.1	62	0.5	16	6.8	212	6.4	7,319	1.0	80	0.7	52	1.2	66
Total	NA	NA	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
At least one problem in accessing health care																
No	31.0	1,564	23.7	1,361	48.5	1,422	19.5	609	50.4	58,019	22.7	1,785	25.6	2,013	48.2	2,543
Yes	69.0	3,481	76.3	4,392	51.5	1,512	80.5	2,512	49.6	57,155	77.3	6,080	74.4	5,860	51.8	2,737
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
Lifetime number of sexual partners																
1	NA	NA	78.4	4,506	39.5	1,157	28.9	900	97.0	18,439	45.7	1,784	49.6	3,903	78.5	4,134
2	NA	NA	16.8	968	32.2	945	29.6	923	1.9	366	34.0	1,326	32.2	2,534	16.1	846
3	NA	NA	3.3	189	17.4	511	23.0	718	0.1	19	12.5	486	12.7	998	3.7	196
4+	NA	NA	1.5	86	10.9	319	18.6	579	1.0	194	7.8	305	5.5	434	1.7	92
Total	NA	NA	100.0	5,749	100.0	2,932	100.0	3,120	100.0	19,018[a]	100.0	3,902[a]	100.0	7,869	100.0	5,268
Correct knowledge of fertile period																
No	66.1	3,335	79.3	4,564	63.7	1,870	79.4	2,477	81.6	94,009	88.5	6,963	85.1	6,697	74.1	3,915
Yes	33.9	1,709	20.7	1,189	36.3	1,064	20.6	643	18.4	21,166	11.5	902	14.9	1,176	25.9	1,365
Total	100.0	5,044	100.0	5,754	100.0	2,934	100.0	3,120	100.0	115,175	100.0	7,865	100.0	7,873	100.0	5,280
Obese BMI																
No	92.8	4,337	98.5	4,729	80.7	1,048	83.5	1,561	94.8	100,797	88.4	3,112	94.0	2,167	90.2	1,969
Yes	7.2	337	1.5	70	19.3	251	16.5	308	5.2	5,521	11.6	407	6.0	139	9.8	213
Total	100.0	4,673	100.0	4,800	100.0	1,299	100.0	1,869	100.0	106,318	100.0	3,519	100.0	2,306	100.0	2,182
PARTNER'S CHARACTERISTICS																
Age																
<30	8.0	401	7.5	429	5.2	154	9.2	287	13.9	2,768	9.1	357	14.8	1,165	4.0	212
30-39	47.7	2,404	41.2	2,373	36.8	1,079	41.2	1,285	54.4	10,811	47.0	1,838	50.9	4,009	32.2	1,701
40-49	30.0	1,512	33.2	1,909	39.2	1,147	34.1	1,064	23.7	4,712	30.1	1,178	26.4	2,077	36.5	1,926
50+	14.3	722	18.1	1,043	18.8	550	15.5	484	7.9	1,577	13.8	539	7.9	623	27.3	1,441
Total	100.0	5,039	100.0	5,754	100.0	2,931	100.0	3,120	100.0	19,867[a]	100.0	3,912[a]	100.0	7,873	100.0	5,280
Education																
None	21.1	1,062	53.9	3,078	24.9	718	22.4	688	22.1	4,376	10.2	398	12.2	947	79.1	4,032
Primary	35.5	1,786	36.6	2,091	10.6	308	35.8	1,101	16.0	3,177	52.5	2,041	57.6	4,478	8.7	443
Secondary +	43.3	2,178	9.6	547	64.5	1,863	41.8	1,283	61.9	12,266	37.2	1,448	30.2	2,349	12.3	625
Total	100.0	5,027	100.0	5,716	100.0	2,889	100.0	3,073	100.0	19,819[a]	100.0	3,886[a]	100.0	7,774	100.0	5,100

Notes: NA = Data not available in survey; [a] Data only collected for a subsample of the survey

Appendix Table 1b Distribution of variables used in the analysis

	Nepal		Nigeria		Philippines		Rwanda		Senegal		Tanzania		Uganda		Zambia	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
							OUTCOMES									
Primary infertility	1.6	124	1.9	427	3.2	390	0.9	48	3.5	157	1.2	73	0.8	66	0.7	41
Total		7,766		22,957		12,219		5,277		4,541		6,096		8,195		5,905
Secondary infertility	12.8	291	14.9	2,500	21.7	1,177	4.9	158	17.2	575	12.5	536	7.3	429	9.0	376
Total		2,272		16,748		5,426		3,234		3,335		4,288		5,845		4,165
Covariates																
						WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age																
20-24	11.1	253	7.4	1,246	4.9	268	1.8	60	4.9	165	6.7	286	10.4	606	8.4	350
25-29	40.0	908	24.2	4,056	21.3	1,157	20.7	668	21.2	708	23.9	1,023	27.3	1,597	25.8	1,073
30-34	26.5	602	25.6	4,295	27.1	1,469	33.9	1,095	26.1	870	25.2	1,082	26.5	1,547	26.3	1,095
35-39	12.0	273	22.5	3,772	24.3	1,317	25.3	817	23.6	786	22.6	968	19.3	1,131	22.7	946
40-44	6.3	144	13.0	2,184	14.5	784	13.5	435	15.5	516	14.7	632	11.6	680	11.9	495
45-49	4.0	91	7.1	1,195	7.9	431	4.9	159	8.7	291	6.9	297	4.9	284	4.9	206
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Age at first cohabitation																
<20	81.1	1,842	71.7	12,010	46.1	2,501	39.6	1,279	64.8	2,162	71.8	3,078	73.9	4,317	73.0	3,039
20-49	18.9	430	28.3	4,739	53.9	2,925	60.4	1,955	35.2	1,174	28.2	1,210	26.1	1,527	27.0	1,126
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Education																
None	48.2	1,095	50.6	8,473	1.6	86	19.7	638	69.6	2,321	25.5	1,093	14.8	862	12.2	510
Primary	21.4	486	16.3	2,730	19.2	1,042	72.2	2,334	21.7	722	66.3	2,843	62.8	3,671	53.8	2,241
Secondary +	30.4	691	33.1	5,546	79.2	4,299	8.1	262	8.8	292	8.2	353	22.4	1,312	33.9	1,414
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Other children under 18 in the household																
0	76.5	1,737	61.4	10,284	NA	NA	86.7	2,803	23.3	778	65.8	2,820	69.4	4,056	68.1	5,671
1	11.2	254	10.0	1,673	NA	NA	10.7	345	11.6	388	15.3	656	17.0	993	18.1	1,506
2	6.0	137	6.9	1,157	NA	NA	1.8	57	9.3	311	7.3	314	7.1	412	6.2	521
3+	6.4	145	21.7	3,634	NA	NA	0.9	29	55.7	1,858	11.6	498	6.6	384	7.6	632
Total	100.0	2,272	100.0	16,748	NA	NA	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	8,330
Place of residence																
Urban	52.2	1,186	37.7	6,321	43.8	2,378	14.0	454	36.9	1,232	26.3	1,126	20.2	1,183	37.2	1,551
Rural	47.8	1,086	62.3	10,428	56.2	3,048	86.0	2,780	63.1	2,104	73.7	3,162	79.8	4,662	62.8	2,614
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Wealth quintile																
Lowest	23.3	530	24.0	4,024	26.2	1,423	20.6	667	22.9	763	22.9	982	21.7	1,268	21.1	880
Second	21.0	477	22.5	3,766	21.6	1,173	22.6	731	20.8	693	21.1	907	20.9	1,219	21.7	903
Middle	22.0	500	19.7	3,298	18.2	990	21.1	681	20.2	673	20.3	870	20.3	1,188	20.0	835
Fourth	19.3	439	17.8	2,978	17.8	966	19.3	625	19.4	647	18.9	812	18.4	1,074	19.4	806
Highest	14.4	326	16.0	2,682	16.1	875	16.4	529	16.8	559	16.7	717	18.7	1,095	17.8	741
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165

Continued….

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Appendix Table 1b   Distribution of variables used in the analysis—Continued

	Nepal		Nigeria		Philippines		Rwanda		Senegal		Tanzania		Uganda		Zambia	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
WOMEN'S HEALTH-RELATED VARIABLES																
Ever had a terminated pregnancy																
No	71.0	1,613	83.7	14,010	NA	NA	79.0	2,556	75.0	2,502	77.6	3,326	75.8	4,428	88.5	3,687
Yes	29.0	659	16.3	2,738	NA	NA	21.0	678	25.0	833	22.4	962	24.2	1,416	11.5	477
Total	100.0	2,272	100.0	16,748	NA	NA	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Uses any type of tobacco																
No	90.5	2,055	99.6	16,689	93.8	5,090	97.5	3,153	NA	NA	98.8	4,237	97.5	5,699	97.0	4,038
Yes	9.5	217	0.4	60	6.2	336	2.5	81	NA	NA	1.2	51	2.5	145	3.0	127
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	NA	NA	100.0	4,288	100.0	5,845	100.0	4,165
At least one problem in accessing health care																
No	18.1	412	46.1	7,729	44.7	2,427	36.7	1,185	43.0	1,434	30.3	1,300	37.8	2,209	56.7	2,362
Yes	81.9	1,860	53.9	9,020	55.3	2,999	63.3	2,048	57.0	1,902	69.7	2,988	62.2	3,636	43.3	1,803
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Lifetime number of sexual partners																
1	96.0	2,182	66.4	11,023	80.2	4,352	75.7	2,447	80.6	2,688	NA	NA	42.3	2,467	40.8	1,695
2	3.9	88	20.3	3,374	16.6	898	19.4	628	15.8	528	NA	NA	31.3	1,826	32.9	1,367
3	0.0	0	7.4	1,229	2.3	124	4.1	131	2.7	90	NA	NA	16.2	946	16.6	691
4+	0.1	2	5.8	967	0.9	49	0.8	25	0.9	30	NA	NA	10.1	592	9.7	405
Total	100.0	2,272	100.0	16,592	100.0	5,423	100.0	3,230	100.0	3,335	NA	NA	100.0	5,831	100.0	4,157
Correct knowledge of fertile period																
No	74.3	1,689	74.9	12,544	72.6	3,941	83.1	2,686	82.9	2,766	79.1	3,394	76.0	4,442	79.6	3,316
Yes	25.7	583	25.1	4,204	27.4	1,486	16.9	548	17.1	570	20.9	894	24.0	1,403	20.4	849
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,234	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Obese BMI																
No	95.9	1,028	88.8	4,594	NA	NA	94.3	1,306	NA	NA	88.6	3,281	89.5	1,446	NA	NA
Yes	4.1	44	11.2	578	NA	NA	5.7	79	NA	NA	11.4	421	10.5	170	NA	NA
Total	100.0	1,072	100.0	5,172	NA	NA	100.0	1,385	NA	NA	100.0	3,701	100.0	1,616	NA	NA
PARTNER'S CHARACTERISTICS																
Age																
<30	21.1	481	2.5	420	14.5	789	9.5	305	2.9	96	8.4	359	12.9	752	10.5	437
30-39	57.0	1,296	30.7	5,148	49.6	2,689	50.7	1,631	24.9	831	40.9	1,755	43.8	2,558	46.0	1,916
40-49	16.8	382	39.3	6,582	28.6	1,552	28.0	903	38.3	1,277	34.2	1,467	31.4	1,833	33.9	1,413
50+	5.0	114	27.5	4,598	7.3	396	11.8	380	33.9	1,131	16.5	707	12.0	701	9.6	399
Total	100.0	2,272	100.0	16,748	100.0	5,426	100.0	3,218	100.0	3,335	100.0	4,288	100.0	5,845	100.0	4,165
Education																
None	20.5	464	39.9	6,567	1.8	97	19.5	628	73.0	2,280	15.0	643	7.6	432	7.3	292
Primary	25.0	568	15.1	2,487	26.0	1,411	71.8	2,317	12.5	392	72.8	3,118	57.0	3,256	41.1	1,642
Secondary +	54.5	1,235	45.0	7,421	72.2	3,918	8.8	283	14.4	450	12.1	520	35.5	2,026	51.6	2,065
Total	100.0	2,267	100.0	16,475	100.0	5,425	100.0	3,228	100.0	3,121	100.0	4,281	100.0	5,715	100.0	3,999

Notes: NA = Data not available in survey; [a] Data only collected for a subsample of the survey

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Appendix Table 2a   Cross tabulation of variables with secondary infertility

	Bangladesh		Ethiopia		Ghana		Haiti		India		Kenya		Malawi		Mali	
	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1
WOMEN'S SOCIODEMOGRAPHIC VARIABLES																
Age		***		***		***		***		***		***		***		***
20-24	3.7 [2.4,5.7]		1.4 [0.5,4.1]		10.3 [4.8,20.5]		12.8 [7.7,20.4]		6.3 [5.5,7.1]		.6 [0.3,1.5]		2.7 [1.7,4.4]		7.3 [5.2,10.3]	
25-29	5.8 [4.7,7.1]		2.0 [1.2,3.3]		9.5 [7.0,12.6]		15.3 [12.4,18.9]		9.0 [8.6,9.4]		2.0 [1.3,3.0]		3.0 [2.1,4.1]		6.8 [5.4,8.6]	
30-34	11.0 [9.2,13.2]		5.2 [3.8,7.1]		9.4 [7.1,12.3]		18.3 [15.0,22.0]		17.6 [16.9,18.3]		1.8 [1.2,2.7]		3.5 [2.7,4.5]		10.9 [8.9,13.4]	
35-39	22.4 [18.9,26.4]		9.6 [7.5,12.2]		18.7 [15.6,22.3]		18.5 [15.0,22.7]		35.8 [34.8,36.8]		4.1 [3.0,5.4]		6.6 [5.1,8.4]		16.1 [13.6,19.1]	
40-44	61.0 [54.5,67.1]		17.9 [14.4,22.1]		30.4 [26.3,34.9]		25.3 [21.2,29.9]		65.5 [64.2,66.7]		5.7 [4.2,7.9]		11.6 [9.0,14.9]		22.8 [19.4,26.6]	
45-49	93.4 [89.6,95.8]		45.9 [38.3,53.7]		59.9 [53.4,66.1]		61.5 [54.9,67.7]		87.7 [86.8,88.5]		23.6 [18.7,29.3]		31.5 [25.8,37.8]		55.9 [49.7,61.9]	
Age at first cohabitation		**		***		**		**		**						**
<20	17.8 [16.5,19.2]		8.5 [7.2,10.1]		19.7 [17.5,22.0]		20.1 [17.9,22.6]		24.6 [24.1,25.1]		3.3 [2.7,4.0]		5.4 [4.7,6.2]		13.4 [12.1,14.9]	
20-49	19.2 [15.5,23.6]		11.3 [8.3,15.3]		20.4 [17.8,23.3]		25.0 [22.2,28.1]		25.8 [25.1,26.6]		3.3 [2.6,4.1]		6.5 [5.1,8.1]		17.8 [15.1,21.0]	
Education		***		***		***		***		***		**		**		
None	37.2 [33.1,41.5]		8.8 [7.4,10.4]		17.5 [15.0,20.4]		19.5 [16.3,23.1]		26.6 [26.0,27.2]		5.5 [4.3,7.0]		8.2 [6.7,10.1]		14.2 [12.8,15.8]	
Primary	18.5 [16.4,20.8]		8.9 [6.5,11.9]		19.3 [15.2,24.1]		18.3 [16.0,21.0]		22.5 [21.6,23.4]		3.0 [2.4,3.7]		5.3 [4.6,6.2]		15.4 [12.2,19.1]	
Secondary +	12.7 [11.3,14.3]		12.8 [8.3,19.4]		22.0 [19.4,24.8]		30.3 [26.5,34.3]		24.3 [23.6,25.0]		2.9 [2.1,4.0]		4.4 [3.1,6.2]		14.0 [10.9,17.9]	
Other children under 18 in the household		***		***		***		**		***		***		***		***
0	NA		7.7 [6.5,9.0]		19.0 [17.1,21.1]		20.6 [18.3,23.1]		24.8 [24.3,25.3]		2.8 [2.3,3.3]		4.6 [4.0,5.4]		12.5 [11.0,14.2]	
1			15.9 [11.9,20.9]		23.6 [18.4,29.6]		25.2 [21.1,30.0]		28.6 [27.3,29.9]		5.7 [3.8,8.3]		7.3 [5.6,9.5]		21.1 [17.2,25.7]	
2			21.8 [12.5,35.3]		23.7 [17.1,31.9]		30.3 [23.7,37.8]		26.4 [24.9,27.9]		5.4 [3.4,8.5]		10.8 [7.8,14.7]		18.3 [14.1,23.3]	
3+			14.4 [7.3,26.3]		20.5 [14.9,27.6]		28.6 [21.6,36.8]		21.2 [19.8,22.6]		9.5 [5.3,16.4]		15.0 [9.0,23.9]		14.7 [12.5,17.3]	
Place of residence		***		***		***		***		***				**		**
Urban	19.2 [16.8,21.9]		15.7 [12.1,20.1]		26.6 [23.9,29.5]		30.3 [26.5,34.3]		29.5 [28.3,30.6]		3.7 [2.8,4.8]		6.0 [3.9,9.2]		18.8 [15.2,22.9]	
Rural	17.4 [15.9,19.0]		8.2 [6.9,9.8]		14.4 [12.2,16.9]		18.5 [16.4,20.8]		23.1 [22.7,23.5]		3.1 [2.7,3.7]		5.6 [4.9,6.4]		13.2 [11.9,14.7]	
Wealth quintile		***		**		***		***		***				***		***
Lowest	12.5 [10.5,14.8]		7.7 [5.8,10.2]		11.3 [9.0,14.0]		13.0 [10.6,15.9]		16.6 [16.0,17.1]		3.1 [2.5,3.9]		4.9 [3.8,6.4]		12.2 [9.9,14.9]	
Second	16.4 [14.1,19.1]		6.8 [4.9,9.3]		15.1 [12.1,18.7]		15.4 [12.8,18.5]		22.3 [21.7,23.0]		2.6 [1.8,3.7]		4.6 [3.6,5.9]		12.0 [9.8,14.6]	
Middle	18.7 [16.1,21.7]		7.5 [5.3,10.6]		21.1 [17.1,25.8]		19.3 [16.1,23.0]		26.6 [25.8,27.5]		2.8 [2.0,4.0]		5.5 [4.4,7.0]		11.4 [9.4,13.7]	
Fourth	18.5 [16.0,21.4]		10.8 [8.2,14.1]		23.8 [19.9,28.3]		29.1 [25.0,33.5]		30.6 [29.6,31.7]		4.2 [2.9,6.1]		6.1 [4.8,7.7]		17.9 [15.2,21.0]	
Highest	24.4 [21.5,27.5]		14.0 [11.0,17.5]		30.6 [25.7,36.0]		41.2 [35.2,47.6]		34.4 [33.0,35.8]		4.0 [2.9,5.4]		7.3 [5.3,10.0]		19.6 [15.6,24.2]	

Continued…

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Appendix Table 2a   Cross tabulation of variables with secondary infertility—Continued

	Bangladesh		Ethiopia		Ghana		Haiti		India		Kenya		Malawi		Mali	
	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1	% [95% C.I.]	p1
WOMEN'S HEALTH-RELATED VARIABLES																
Ever had a terminated pregnancy		***		**		***		***		*		***		***		***
No	16.6 [15.3,18.1]		8.4 [7.1,9.8]		17.1 [15.2,19.2]		20.3 [18.4,22.4]		25.2 [24.7,25.7]		6.5 [5.6,7.7]		5.0 [4.3,5.7]		13.3 [11.9,14.8]	
Yes	22.4 [19.8,25.3]		14.1 [10.6,18.4]		26.6 [22.9,30.6]		32.4 [28.0,37.1]		24.0 [23.2,24.8]		7.3 [5.3,9.9]		10.2 [8.0,13.0]		20.2 [17.0,23.7]	
Uses any type of tobacco	NA					*		***		***					*		
No			8.9 [7.7,10.4]		20.1 [18.3,21.9]		22.3 [20.3,24.5]		24.7 [24.3,25.2]		3.3 [2.8,3.8]		5.6 [4.9,6.3]		14.3 [13.0,15.7]	
Yes			15.3 [5.6,35.6]		4.8% [1.1,19.0]		27.7 [19.5,37.9]		28.1 [26.8,29.4]		6.8 [3.1,14.2]		15.8 [6.9,32.3]		16.2 [8.5,28.6]	
At least one problem in accessing health care		*				*		**		***		***				
No	16.0 [14.0,18.2]		10.4 [8.3,12.9]		22.2 [19.6,25.1]		29.6 [25.1,34.5]		26.0 [25.3,26.7]		6.5 [5.2,8.1]		6.3 [5.2,7.7]		13.9 [12.5,15.5]	
Yes	18.8 [17.2,20.5]		8.6 [7.2,10.3]		17.9 [15.7,20.3]		21.0 [18.9,23.3]		23.9 [23.4,24.5]		2.4 [2.0,2.9]		5.4 [4.6,6.3]		14.7 [12.8,16.8]	
Lifetime number of sexual partners	NA			***		***		*				*		***		*
1			7.5 [6.3,9.0]		14.2 [11.9,16.8]		19.2 [16.2,22.7]		24.0 [22.8,25.1]		6.2 [5.0,7.5]		4.1 [3.4,5.1]		13.5 [12.1,15.2]	
2			13.2 [10.3,16.7]		23.0 [19.9,26.4]		21.8 [18.7,25.1]		20.6 [15.9,26.3]		6.4 [4.9,8.3]		6.1 [5.0,7.3]		16.4 [13.7,19.6]	
3			14.9 [9.0,23.6]		24.2 [20.3,28.5]		25.5 [21.4,30.0]		14.2 [0.8,77.1]		5.1 [3.2,8.0]		9.0 [6.8,11.8]		15.7 [10.5,22.9]	
4+			25.8 [13.0,44.7]		25.1 [20.2,30.8]		26.2 [21.9,31.0]		23.1 [16.2,31.9]		12.0 [7.1,19.6]		8.9 [6.0,13.1]		26.3 [15.5,40.9]	
Correct knowledge of fertile period								*		***		***				
No	18.5 [17.0,20.0]		9.2 [7.8,10.9]		19.5 [17.3,21.8]		21.5 [19.3,23.9]		25.4 [24.9,25.9]		2.8 [2.4,3.3]		5.6 [4.9,6.4]		14.0 [12.6,15.6]	
Yes	16.9 [14.9,19.1]		8.1 [6.0,10.8]		20.8 [17.9,24.0]		27.1 [23.6,31.1]		22.8 [21.8,23.8]		7.1 [5.4,9.4]		5.9 [4.3,7.9]		15.2 [12.9,17.8]	
Obese BMI				*		**		*		***							
No	18.5 [17.1,20.0]		10.0 [8.6,11.6]		17.7 [14.9,20.9]		22.9 [20.2,25.8]		24.9 [24.5,25.4]		7.0 [6.0,8.2]		5.3 [4.3,6.5]		14.2 [12.4,16.4]	
Yes	21.5 [17.2,26.4]		21.4 [10.9,37.7]		30.8 [23.7,38.9]		29.8 [23.8,36.6]		43.3 [41.3,45.4]		6.8 [4.6,10.1]		7.5 [3.5,15.1]		18.6 [13.6,24.8]	
PARTNER'S CHARACTERISTICS																
Age		***		***		***		***		***		***		***		***
<30	4.2 [2.4,7.2]		3.3 [1.3,8.0]		9.7 [4.8,18.5]		16.7 [11.9,22.8]		8.0 [6.4,10.0]		8.1 [4.4,14.3]		2.9 [2.0,4.4]		6.9 [3.7,12.5]	
30-39	6.6 [5.5,7.8]		3.4 [2.4,4.6]		10.2 [8.3,12.6]		18.9 [16.1,22.1]		12.9 [12.0,13.8]		2.3 [1.6,3.4]		3.8 [3.1,4.7]		7.4 [6.0,9.2]	
40-49	16.1 [14.0,18.4]		8.9 [7.2,11.0]		22.5 [19.8,25.5]		23.0 [20.1,26.3]		42.4 [40.4,44.4]		7.0 [5.6,8.7]		6.9 [5.6,8.5]		13.4 [11.5,15.6]	
50+	67.1 [62.9,71.1]		24.4 [20.5,28.8]		36.7 [32.5,41.1]		35.7 [30.6,41.1]		81.1 [78.1,83.8]		19.5 [15.8,23.7]		18.2 [14.9,22.1]		24.8 [22.2,27.6]	
Education		***		*		***		***		**		*				
None	22.9 [20.1,25.8]		9.4 [7.7,11.3]		16.2 [13.3,19.6]		19.4 [16.2,23.0]		23.1 [21.5,24.9]		10.0 [7.8,12.7]		6.9 [5.3,8.9]		14.6 [13.0,16.2]	
Primary	16.2 [14.4,18.3]		7.2 [5.5,9.4]		13.5 [10.0,18.0]		16.7 [14.2,19.6]		21.9 [19.8,24.2]		5.9 [4.8,7.3]		5.7 [4.8,6.7]		11.1 [8.3,14.7]	
Secondary +	16.8 [15.0,18.7]		13.1 [9.6,17.6]		22.4 [20.1,24.9]		30.1 [27.0,33.5]		25.9 [24.5,27.3]		6.8 [5.2,8.9]		5.0 [3.9,6.4]		14.0 [11.2,17.5]	

Notes: NA = Data not available. *p<0.05, **p<0.01, ***p<0.0001

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Appendix Table 2b   Cross tabulation of variables with secondary infertility

	Nepal % [95% C.I.]	p1	Nigeria % [95% C.I.]	p1	Philippines % [95% C.I.]	p1	Rwanda % [95% C.I.]	p1	Senegal % [95% C.I.]	p1	Tanzania % [95% C.I.]	p1	Uganda % [95% C.I.]	p1	Zambia % [95% C.I.]	p1
WOMEN'S SOCIODEMOGRAPHIC VARIABLES																
Age		***		***		***		***		***		***		***		***
20-24	3.4 [1.7,6.8]		3.7 [2.7,4.9]		9.3 [5.1,16.5]		0.0		6.5 [2.9,13.9]		5.1 [2.8,9.2]		1.6 [0.7,3.3]		3.7 [2.2,6.2]	
25-29	5.3 [3.7,7.6]		6.7 [5.8,7.9]		10.4 [8.5,12.8]		2.6 [1.6,4.3]		8.7 [6.0,12.4]		3.8 [2.6,5.4]		3.2 [2.3,4.3]		4.5 [2.9,7.1]	
30-34	9.4 [7.1,12.5]		10.2 [9.2,11.3]		16.3 [13.6,19.3]		1.4 [0.8,2.3]		9.6 [7.4,12.2]		6.8 [5.0,9.2]		4.2 [3.3,5.5]		5.6 [4.3,7.2]	
35-39	18.0 [13.4,23.8]		15.8 [14.5,17.1]		20.9 [17.4,24.9]		5.2 [3.9,7.0]		13.5 [10.9,16.6]		11.2 [8.9,14.1]		6.6 [5.2,8.3]		9.2 [7.0,12.1]	
40-44	39.4 [28.0,52.1]		27.2 [25.1,29.5]		28.6 [23.8,34.0]		9.3 [6.7,12.9]		28.8 [23.8,34.4]		23.6 [19.8,28.0]		16.1 [13.4,19.2]		17.7 [13.2,23.2]	
45-49	78.8 [66.4,87.5]		46.3 [43.0,49.7]		68.0 [61.7,73.8]		26.3 [19.8,34.0]		56.4 [48.1,64.4]		50.9 [43.2,58.5]		42.0 [35.6,48.7]		38.1 [31.1,45.6]	
Age at first cohabitation		***		***		***		***		***		***		***		***
<20	12.1 [10.4,14.0]		13.7 [13.0,14.5]		15.8 [13.8,17.9]		5.4 [4.2,6.9]		16.4 [14.3,18.7]		11.8 [10.4,13.2]		6.9 [6.1,7.8]		7.7 [6.3,9.3]	
20-49	16.0 [11.8,21.4]		18.1 [16.8,19.4]		26.7 [24.3,29.3]		4.6 [3.7,5.7]		18.7 [15.6,22.3]		14.4 [12.1,17.0]		8.6 [7.0,10.5]		12.7 [10.5,15.4]	
Education		*		*		**		***						***		**
None	14.3 [12.1,16.8]		14.2 [13.2,15.2]		32.8 [23.5,43.7]		8.4 [6.4,10.9]		17.8 [16.1,19.6]		12.6 [10.6,14.8]		11.5 [9.5,14.0]		9.4 [7.1,12.5]	
Primary	11.3 [8.3,15.2]		14.6 [13.2,16.2]		17.8 [15.2,20.8]		3.6 [2.9,4.5]		16.8 [12.6,22.0]		12.3 [10.9,13.8]		6.5 [5.7,7.5]		7.0 [6.0,8.3]	
Secondary +	11.6 [8.8,15.2]		16.2 [15.1,17.5]		22.4 [20.3,24.7]		7.5 [4.5,12.1]		13.6 [8.6,21.0]		14.0 [9.9,19.6]		6.9 [5.4,8.7]		12.1 [9.5,15.3]	
Other children under 18 in the household		*		*				***		***		***		***		***
0	12.8 [10.9,14.9]		14.3 [13.5,15.2]		NA		4.2 [3.5,5.1]		16.7 [13.7,20.3]		9.9 [8.5,11.4]		5.4 [4.6,6.2]		7.8 [6.4,9.5]	
1	17.3 [12.5,23.3]		17.1 [14.8,19.8]				8.7 [6.3,12.1]		16.6 [12.2,22.3]		15.3 [12.2,19.0]		9.1 [7.4,11.3]		9.6 [7.4,12.3]	
2	12.2 [7.4,19.6]		16.6 [14.4,19.2]				13.8 [6.7,26.2]		15.4 [11.0,21.2]		20.5 [15.7,26.3]		14.7 [10.9,19.5]		16.7 [12.4,22.0]	
3+	6.1 [3.1,11.8]		15.2 [13.8,16.6]				3.6 [0.3,31.2]		17.9 [15.8,20.1]		18.6 [14.8,23.1]		15.4 [11.7,20.1]		12.2 [8.4,17.5]	
Place of residence		**		**		**		**		**		**				
Urban	13.9 [11.6,16.6]		15.8 [14.7,17.0]		24.5 [21.6,27.6]		7.3 [5.3,10.1]		19.0 [16.2,22.3]		15.6 [13.0,18.5]		8.5 [6.4,11.0]		11.9 [9.7,14.5]	
Rural	11.6 [9.4,14.3]		14.4 [13.6,15.3]		19.5 [17.3,21.9]		4.5 [3.7,5.4]		16.2 [14.5,17.9]		11.4 [10.1,12.8]		7.1 [6.3,7.9]		7.4 [6.4,8.5]	
Wealth quintile		***		***		***		*		**		**		**		
Lowest	10.5 [8.1,13.5]		14.1 [12.8,15.5]		14.2 [12.3,16.5]		3.7 [2.5,5.5]		14.9 [12.6,17.4]		10.3 [8.4,12.7]		5.9 [4.8,7.3]		6.5 [5.2,8.2]	
Second	9.6 [7.1,12.8]		12.8 [11.6,14.1]		14.6 [12.2,17.3]		4.9 [3.4,7.0]		11.5 [9.1,14.3]		11.3 [9.1,13.9]		6.6 [5.4,8.1]		5.7 [4.1,7.8]	
Middle	13.5 [10.6,17.1]		13.0 [11.8,14.3]		22.4 [18.7,26.6]		4.0 [2.7,5.8]		19.2 [16.3,22.5]		10.8 [8.7,13.4]		6.3 [5.0,8.0]		9.1 [7.2,11.5]	
Fourth	11.7 [8.3,16.3]		15.5 [14.0,17.1]		29.9 [25.1,35.2]		4.7 [3.3,6.6]		22.4 [18.9,26.4]		13.5 [10.9,16.7]		10.2 [7.9,13.0]		11.4 [8.0,16.2]	
Highest	21.8 [17.2,27.3]		21.0 [19.0,23.1]		33.5 [26.4,41.4]		7.7 [5.6,10.5]		19.2 [14.0,25.8]		17.9 [14.4,22.0]		8.1 [6.3,10.3]		13.3 [10.1,17.5]	

Continued…

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Appendix Table 2b   Cross tabulation of variables with secondary infertility—Continued

	Nepal % [95% C.I.]	p1	Nigeria % [95% C.I.]	p1	Philippines % [95% C.I.]	p1	Rwanda % [95% C.I.]	p1	Senegal % [95% C.I.]	p1	Tanzania % [95% C.I.]	p1	Uganda % [95% C.I.]	p1	Zambia % [95% C.I.]	p1
WOMEN'S HEALTH-RELATED VARIABLES																
Ever had a terminated pregnancy		***		***	NA			***				***		**		***
No	12.0 [10.3,14.0]		13.9 [13.2,14.7]				4.2 [3.4,5.0]		17.2 [15.6,18.8]		11.2 [9.9,12.6]		6.8 [6.0,7.7]		8.2 [7.0,9.5]	
Yes	14.8 [11.9,18.2]		20.1 [18.5,21.8]				7.6 [5.7,10.0]		17.4 [14.5,20.8]		17.2 [14.6,20.1]		9.1 [7.6,11.0]		15.7 [12.3,19.7]	
Uses any type of tobacco		*				**			NA			**		**		**
No	12.3 [10.7,14.2]		14.9 [14.3,15.6]		21.7 [19.9,23.6]		4.9 [4.1,5.8]				12.3 [11.1,13.6]		7.2 [6.4,8.0]		8.8 [7.7,10.0]	
Yes	17.8 [12.6,24.5]		12.9 [6.1,25.1]		21.6 [16.0,28.4]		4.3 [1.4,12.2]				31.9 [15.8,53.9]		14.6 [9.7,21.5]		17.2 [11.7,24.7]	
At least one problem in accessing health care		**		**		**										
No	18.3 [13.8,23.9]		16.0 [15.0,17.0]		24.8 [22.4,27.4]		5.1 [3.9,6.7]		14.9 [12.3,17.9]		13.3 [11.1,15.7]		7.6 [6.4,9.1]		9.4 [8.0,10.9]	
Yes	11.6 [10.1,13.4]		14.0 [13.2,14.9]		19.2 [16.9,21.7]		4.7 [3.9,5.8]		19.0 [16.7,21.4]		12.2 [10.7,13.8]		7.2 [6.3,8.2]		8.6 [6.7,11.0]	
Lifetime number of sexual partners		***		***		***		***		**	NA			***		***
1	12.8 [11.2,14.7]		12.9 [12.2,13.8]		21.6 [19.7,23.6]		3.6 [2.9,4.4]		15.9 [14.3,17.5]				5.5 [4.4,6.9]		6.9 [5.4,8.7]	
2	12.5 [6.5,22.6]		17.9 [16.4,19.5]		22.7 [18.7,27.3]		8.2 [6.1,10.8]		23.1 [18.7,28.1]				7.5 [6.3,9.0]		8.1 [6.5,10.0]	
3	0.0		20.0 [17.4,22.8]		20.6 [11.7,33.7]		10.8 [6.4,17.8]		23.1 [15.8,32.5]				8.9 [7.0,11.3]		10.5 [8.1,13.6]	
4+	0.0		19.6 [16.6,23.0]		14.9 [5.4,35.1]		17.1 [4.9,45.4]		18.9 [6.7,43.1]				12.0 [9.2,15.4]		18.9 [14.0,24.9]	
Correct knowledge of fertile period		***		***		***		***				***				
No	12.9 [11.2,15.0]		14.2 [13.5,15.0]		20.8 [18.7,23.2]		4.9 [4.1,5.9]		17.0 [15.3,18.9]		12.6 [11.2,14.0]		7.5 [6.7,8.4]		8.7 [7.5,10.0]	
Yes	12.5 [9.8,15.9]		17.0 [15.7,18.3]		24.0 [21.1,27.0]		4.8 [3.2,7.0]		18.3 [14.9,22.3]		12.2 [9.8,15.1]		6.9 [5.5,8.5]		10.5 [8.3,13.2]	
Obese BMI		***		***	NA			*	NA			***			NA	
No	13.3 [11.0,15.9]		13.0 [11.8,14.2]				4.7 [3.6,6.0]				12.5 [11.2,14.0]		7.9 [6.5,9.6]			
Yes	25.9 [12.5,46.0]		20.0 [16.7,23.9]				10.9 [5.6,19.9]				23.6 [18.5,29.7]		13.2 [7.4,22.3]			
PARTNER'S CHARACTERISTICS																
Age		***		***		***		***		***		***		***		***
<30	4.2 [2.6,6.6]		5.5 [3.7,8.0]		12.5 [9.3,16.7]		1.7 [0.8,4.0]		18.6 [12.3,27.1]		3.6 [1.9,6.6]		3.7 [2.4,5.8]		3.6 [2.2,5.9]	
30-39	7.0 [5.5,8.8]		7.5 [6.6,8.5]		16.8 [14.9,18.9]		2.3 [1.6,3.2]		8.1 [6.1,10.6]		5.8 [4.5,7.4]		3.5 [2.8,4.4]		5.0 [3.8,6.6]	
40-49	31.5 [25.4,38.3]		13.4 [12.5,14.4]		27.7 [24.6,31.2]		6.6 [5.1,8.6]		13.7 [11.4,16.4]		14.1 [11.8,16.7]		9.0 [7.5,10.6]		10.7 [8.9,12.8]	
50+	53.0 [42.3,63.4]		26.3 [24.7,27.9]		49.5 [41.4,57.5]		14.0 [10.6,18.2]		27.8 [25.1,30.7]		30.5 [26.5,34.7]		21.0 [17.8,24.6]		28.2 [22.6,34.5]	
Education		**		*		**		*		*		***		*		*
None	16.1 [12.6,20.2]		14.5 [13.4,15.6]		18.7 [13.4,25.3]		4.5 [3.2,6.4]		17.9 [16.2,19.9]		12.2 [9.7,15.1]		10.6 [8.0,13.9]		8.2 [5.5,12.1]	
Primary	11.0 [8.4,14.2]		14.3 [12.9,15.9]		18.1 [15.7,20.8]		4.6 [3.7,5.6]		15.4 [11.5,20.4]		12.5 [11.1,13.9]		6.6 [5.7,7.6]		7.5 [6.0,9.2]	
Secondary +	12.5 [10.1,15.2]		15.7 [14.7,16.7]		23.0 [20.9,25.4]		7.9 [5.2,11.9]		15.9 [11.3,21.9]		12.9 [9.6,17.2]		7.6 [6.3,9.2]		10.6 [9.0,12.5]	

Notes: NA = Data not available. *p<0.05, **p<0.01, ***p<0.0001

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Appendix Table 3   Adjusted logistic regressions of secondary infertility for women in Bangladesh 2017-18

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.27***	1.24 - 1.29	1.27***	1.24 - 1.29	1.27***	1.24 - 1.29			1.27***	1.24 - 1.29
Age at first cohabitation (ref. <20)										
20-49	0.57***	0.42 - 0.79	0.59***	0.43 - 0.80	0.56***	0.41 - 0.79	0.88	0.64 - 1.20	0.58**	0.42 - 0.81
Education (ref. None)										
Primary	0.96	0.71 - 1.29	0.98	0.72 - 1.32	0.95	0.70 - 1.28			0.96	0.71 - 1.30
Secondary +	0.84	0.59 - 1.18	0.87	0.61 - 1.25	0.85	0.60 - 1.21			0.89	0.62 - 1.27
Other children under 18 in household (ref. 0)										
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3+	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Place of residence (ref. Urban)										
Rural	1.29	0.99 - 1.70	1.27	0.97 - 1.67	1.28	0.98 - 1.68	1.10	0.85 - 1.41	1.26	0.96 - 1.64
Wealth quintile (ref. Lowest)										
Second	1.38*	1.00 - 1.90	1.39*	1.01 - 1.91	1.36	0.98 - 1.89	1.51**	1.11 - 2.04	1.37	0.98 - 1.90
Middle	1.98***	1.41 - 2.78	2.02***	1.44 - 2.83	1.88***	1.32 - 2.68	2.11***	1.54 - 2.88	1.92***	1.35 - 2.72
Fourth	2.10***	1.47 - 3.01	2.13***	1.49 - 3.06	1.97***	1.36 - 2.86	1.97***	1.42 - 2.73	2.00***	1.38 - 2.90
Highest	3.15***	2.11 - 4.70	3.29***	2.19 - 4.94	3.06***	2.01 - 4.65	3.07***	2.13 - 4.43	3.17***	2.07 - 4.86
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.06	0.84 - 1.32					1.02	0.81 - 1.29
Uses any type of tobacco (ref. No)										
Yes			NA	NA					NA	NA
At least one problem in accessing health care (ref. No)										
Yes			1.19	0.93 - 1.52					1.17	0.91 - 1.50
Lifetime number of sexual partners (ref. 1)										
2			NA	NA					NA	NA
3			NA	NA					NA	NA
4+			NA	NA					NA	NA
Correct knowledge of fertile period (ref. No)										
Yes			0.89	0.72 - 1.09					0.88	0.71 - 1.09
Obese BMI (ref. No)										
Yes					0.86	0.60 - 1.22			0.86	0.60 - 1.23
PARTNER'S CHARACTERISTICS										
Age							1.18***	1.16 - 1.19		
Education (ref. None)										
Primary							1.13	0.88 - 1.45		
Secondary +							0.86	0.64 - 1.15		
Observations (unweighted)	5,027		5,027		4,647		5,010		4,647	

Note: NA = Data not available. *p<0.05, **p<0.01, ***p<0.001

Appendix Table 4   Adjusted logistic regressions of secondary infertility for women in Ethiopia 2016

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.21***	1.18 - 1.23	1.20***	1.17 - 1.23	1.20***	1.17 - 1.23			1.20***	1.16 - 1.23
Age at first cohabitation (ref. <20)										
20-49	0.72	0.48 - 1.08	0.73	0.49 - 1.10	0.75	0.49 - 1.14	0.99	0.66 - 1.48	0.76	0.50 - 1.16
Education (ref. None)										
Primary	1.31	0.87 - 1.97	1.33	0.87 - 2.02	1.21	0.78 - 1.88			1.24	0.79 - 1.94
Secondary +	1.00	0.52 - 1.94	1.09	0.54 - 2.19	1.05	0.54 - 2.07			1.16	0.57 - 2.37
Other children under 18 in household (ref. 0)										
1	1.96**	1.31 - 2.95	1.91**	1.28 - 2.84	1.95**	1.29 - 2.96	1.94***	1.32 - 2.85	1.88**	1.25 - 2.82
2	3.13**	1.57 - 6.24	2.93**	1.43 - 6.02	3.07**	1.48 - 6.36	2.48*	1.18 - 5.19	2.82**	1.31 - 6.08
3+	2.42*	1.06 - 5.51	2.44*	1.11 - 5.37	2.85*	1.20 - 6.78	1.95	0.76 - 5.02	2.84*	1.24 - 6.51
Place of residence (ref. Urban)										
Rural	0.44**	0.26 - 0.75	0.42**	0.25 - 0.71	0.37***	0.22 - 0.65	0.55*	0.34 - 0.90	0.36***	0.21 - 0.61
Wealth quintile (ref. Lowest)										
Second	0.81	0.52 - 1.26	0.82	0.52 - 1.30	0.80	0.49 - 1.30	0.82	0.53 - 1.29	0.82	0.50 - 1.34
Middle	0.89	0.56 - 1.43	0.90	0.56 - 1.45	0.92	0.56 - 1.51	0.93	0.58 - 1.51	0.93	0.57 - 1.54
Fourth	1.13	0.75 - 1.71	1.16	0.76 - 1.79	1.08	0.70 - 1.69	1.48	0.92 - 2.38	1.11	0.70 - 1.77
Highest	1.18	0.70 - 2.00	1.19	0.69 - 2.03	0.95	0.55 - 1.65	1.27	0.72 - 2.24	0.95	0.54 - 1.66
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.37	0.94 - 2.00					1.40	0.96 - 2.06
Uses any type of tobacco (ref. No)										
Yes			1.97	0.54 - 7.25					2.07	0.54 - 7.90
At least one problem in accessing health care (ref. No)										
Yes			1.08	0.74 - 1.59					1.07	0.72 - 1.60
Lifetime number of sexual partners (ref. 1)										
2			1.17	0.83 - 1.64					1.28	0.90 - 1.81
3			1.01	0.57 - 1.82					1.09	0.61 - 1.95
4+			2.43*	1.14 - 5.16					2.54*	1.20 - 5.34
Correct knowledge of fertile period (ref. No)										
Yes			0.90	0.61 - 1.32					0.83	0.55 - 1.26
Obese BMI (ref. No)										
Yes					1.09	0.53 - 2.23			1.14	0.56 - 2.32
PARTNER'S CHARACTERISTICS										
Age							1.08***	1.07 - 1.09		
Education (ref. None)										
Primary							0.96	0.67 - 1.39		
Secondary +							1.34	0.82 - 2.19		
Observations (unweighted)	5,367		5,361		4,428		5,326		4,422	

Note: NA = Data not available. *p<0.05, **p<0.01, ***p<0.001

Appendix Table 5   Adjusted logistic regressions of secondary infertility for women in Ghana 2015

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.21***	1.18 - 1.23	1.20***	1.17 - 1.23	1.20***	1.17 - 1.23			1.20***	1.16 - 1.23
Age at first cohabitation (ref. <20)										
20-49	0.72	0.48 - 1.08	0.73	0.49 - 1.10	0.75	0.49 - 1.14	0.99	0.66 - 1.48	0.76	0.50 - 1.16
Education (ref. None)										
Primary	1.31	0.87 - 1.97	1.33	0.87 - 2.02	1.21	0.78 - 1.88			1.24	0.79 - 1.94
Secondary +	1.00	0.52 - 1.94	1.09	0.54 - 2.19	1.05	0.54 - 2.07			1.16	0.57 - 2.37
Other children under 18 in household (ref. 0)										
1	1.96**	1.31 - 2.95	1.91**	1.28 - 2.84	1.95**	1.29 - 2.96	1.94***	1.32 - 2.85	1.88**	1.25 - 2.82
2	3.13**	1.57 - 6.24	2.93**	1.43 - 6.02	3.07**	1.48 - 6.36	2.48*	1.18 - 5.19	2.82**	1.31 - 6.08
3+	2.42*	1.06 - 5.51	2.44*	1.11 - 5.37	2.85*	1.20 - 6.78	1.95	0.76 - 5.02	2.84*	1.24 - 6.51
Place of residence (ref. Urban)										
Rural	0.44**	0.26 - 0.75	0.42**	0.25 - 0.71	0.37***	0.22 - 0.65	0.55*	0.34 - 0.90	0.36***	0.21 - 0.61
Wealth quintile (ref. Lowest)										
Second	0.81	0.52 - 1.26	0.82	0.52 - 1.30	0.80	0.49 - 1.30	0.82	0.53 - 1.29	0.82	0.50 - 1.34
Middle	0.89	0.56 - 1.43	0.90	0.56 - 1.45	0.92	0.56 - 1.51	0.93	0.58 - 1.51	0.93	0.57 - 1.54
Fourth	1.13	0.75 - 1.71	1.16	0.76 - 1.79	1.08	0.70 - 1.69	1.48	0.92 - 2.38	1.11	0.70 - 1.77
Highest	1.18	0.70 - 2.00	1.19	0.69 - 2.03	0.95	0.55 - 1.65	1.27	0.72 - 2.24	0.95	0.54 - 1.66
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.42*	1.08 - 1.87					2.14***	1.41 - 3.24
Uses any type of tobacco (ref. No)										
Yes			0.16*	0.04 - 0.66					0.29	0.03 - 3.03
At least one problem in accessing health care (ref. No)										
Yes			0.88	0.68 - 1.14					0.73	0.51 - 1.05
Lifetime number of sexual partners (ref. 1)										
2			1.55**	1.17 - 2.06					1.85**	1.17 - 2.93
3			1.52*	1.09 - 2.12					1.63	0.90 - 2.94
4+			1.61*	1.05 - 2.47					1.79*	1.01 - 3.17
Correct knowledge of fertile period (ref. No)										
Yes			0.93	0.70 - 1.23					1.25	0.88 - 1.77
Obese BMI (ref. No)										
Yes					0.97	0.60 - 1.56			0.95	0.58 - 1.55
PARTNER'S CHARACTERISTICS										
Age							1.08***	1.06 - 1.09		
Education (ref. None)										
Primary							1.02	0.67 - 1.55		
Secondary +							1.21	0.80 - 1.84		
Observations (unweighted)	3,116		3,114		1,390		3,070		1,390	

Note: NA = Data not available. *p<0.05, **p<0.01, ***p<0.001

Appendix Table 6   Adjusted logistic regressions of secondary infertility for women in Haiti 2016-17

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.12***	1.09 - 1.14	1.11***	1.09 - 1.14	1.13***	1.10 - 1.15			1.13***	1.10 - 1.15
Age at first cohabitation (ref. <20)										
20-49	0.71**	0.55 - 0.91	0.71*	0.55 - 0.92	0.73	0.52 - 1.03	1.00	0.79 - 1.25	0.73	0.52 - 1.03
Education (ref. None)										
Primary	1.02	0.75 - 1.39	1.04	0.76 - 1.42	1.07	0.72 - 1.59			1.08	0.72 - 1.62
Secondary +	1.46*	1.02 - 2.08	1.44*	1.00 - 2.06	1.75*	1.11 - 2.75			1.67*	1.05 - 2.66
Other children under 18 in household (ref. 0)										
1	1.08	0.79 - 1.47	1.07	0.78 - 1.47	1.20	0.84 - 1.72	1.11	0.82 - 1.50	1.23	0.85 - 1.77
2	1.55*	1.04 - 2.29	1.58*	1.05 - 2.36	1.48	0.93 - 2.35	1.51*	1.02 - 2.25	1.52	0.94 - 2.45
3+	1.74**	1.16 - 2.60	1.71**	1.14 - 2.56	2.02*	1.16 - 3.53	1.55*	1.05 - 2.30	1.98*	1.12 - 3.47
Place of residence (ref. Urban)										
Rural	1.14	0.84 - 1.54	1.15	0.85 - 1.57	1.08	0.73 - 1.60	1.12	0.83 - 1.50	1.06	0.71 - 1.58
Wealth quintile (ref. Lowest)										
Second	1.30	0.95 - 1.77	1.33	0.97 - 1.82	1.23	0.83 - 1.81	1.36	0.99 - 1.87	1.30	0.88 - 1.94
Middle	1.77**	1.23 - 2.56	1.76**	1.23 - 2.53	1.55	0.99 - 2.42	1.92***	1.32 - 2.78	1.56	1.00 - 2.44
Fourth	3.17***	2.09 - 4.81	3.04***	2.00 - 4.62	3.48***	2.01 - 6.04	3.30***	2.15 - 5.05	3.34***	1.92 - 5.78
Highest	4.62***	2.90 - 7.38	4.48***	2.79 - 7.21	3.65***	1.98 - 6.73	4.92***	3.06 - 7.91	3.48***	1.87 - 6.48
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.40**	1.10 - 1.78					1.43*	1.05 - 1.96
Uses any type of tobacco (ref. No)										
Yes			1.32	0.83 - 2.10					1.51	0.85 - 2.68
At least one problem in accessing health care (ref. No)										
Yes			0.93	0.71 - 1.21					0.86	0.61 - 1.21
Lifetime number of sexual partners (ref. 1)										
2			1.11	0.83 - 1.48					1.11	0.77 - 1.61
3			1.47*	1.07 - 2.02					1.64*	1.09 - 2.46
4+			1.20	0.82 - 1.75					0.99	0.62 - 1.60
Correct knowledge of fertile period (ref. No)										
Yes			1.17	0.91 - 1.51					1.35	0.99 - 1.84
Obese BMI (ref. No)										
Yes					0.88	0.58 - 1.33			0.87	0.57 - 1.33
PARTNER'S CHARACTERISTICS										
Age							1.04***	1.03 - 1.06		
Education (ref. None)										
Primary							0.74	0.54 - 1.01		
Secondary +							1.11	0.81 - 1.53		
Observations (unweighted)	3,202		3,202		1,912		3,164		1,912	

Note: NA = Data not available. *p<0.05, **p<0.01, ***p<0.001

	Model 1		Model 2a		Model 2b		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES												
Age	1.26***	1.25 - 1.27	1.26***	1.26 - 1.27	1.27***	1.25 - 1.28	1.26***	1.26 - 1.27			1.27***	1.25 - 1.28
Age at first cohabitation (ref. <20)												
20-49	0.42***	0.40 - 0.44	0.42***	0.40 - 0.44	0.38***	0.33 - 0.44	0.41***	0.39 - 0.44	0.57***	0.50 - 0.64	0.38***	0.33 - 0.44
Education (ref. None)												
Primary	1.08*	1.01 - 1.17	1.09*	1.02 - 1.18	1.30**	1.10 - 1.55	1.06	0.99 - 1.15			1.30**	1.09 - 1.56
Secondary +	1.21***	1.13 - 1.29	1.23***	1.15 - 1.32	1.22**	1.05 - 1.41	1.15***	1.08 - 1.23			1.17*	1.01 - 1.36
Other children under 18 in household (ref. 0)												
1	1.16***	1.06 - 1.26	1.15***	1.06 - 1.26	1.01	0.82 - 1.26	1.15**	1.05 - 1.26	0.97	0.80 - 1.17	1.00	0.80 - 1.24
2	1.10	1.00 - 1.22	1.10	0.99 - 1.21	0.90	0.70 - 1.15	1.07	0.97 - 1.19	0.90	0.72 - 1.13	0.95	0.74 - 1.22
3+	0.93	0.84 - 1.03	0.93	0.83 - 1.03	0.95	0.73 - 1.25	0.92	0.83 - 1.03	0.89	0.70 - 1.13	0.96	0.73 - 1.27
Place of residence (ref. Urban)												
Rural	1.04	0.97 - 1.12	1.04	0.96 - 1.12	1.01	0.86 - 1.19	1.06	0.98 - 1.14	1.07	0.93 - 1.24	1.03	0.88 - 1.22
Wealth quintile (ref. Lowest)												
Second	1.84***	1.72 - 1.97	1.87***	1.75 - 2.01	2.07***	1.75 - 2.44	1.84***	1.72 - 1.98	1.92***	1.64 - 2.25	2.08***	1.75 - 2.47
Middle	2.69***	2.49 - 2.90	2.76***	2.55 - 2.98	3.18***	2.67 - 3.78	2.68***	2.47 - 2.90	2.84***	2.41 - 3.36	3.10***	2.58 - 3.72
Fourth	3.22***	2.95 - 3.52	3.35***	3.06 - 3.67	4.48***	3.66 - 5.49	3.21***	2.93 - 3.51	3.63***	3.00 - 4.38	4.25***	3.45 - 5.22
Highest	3.34***	3.00 - 3.72	3.55***	3.18 - 3.96	4.68***	3.69 - 5.92	3.28***	2.94 - 3.67	4.06***	3.26 - 5.04	4.78***	3.74 - 6.11
WOMEN'S HEALTH-RELATED VARIABLES												
Ever had a terminated pregnancy (ref. No)												
Yes			0.86***	0.81 - 0.92							0.85*	0.73 - 1.00
Uses any type of tobacco (ref. No)												
Yes			0.96	0.88 - 1.05							0.93	0.75 - 1.14
At least one problem in accessing health care (ref. No)												
Yes			1.09**	1.03 - 1.15							1.06	0.93 - 1.21
Lifetime number of sexual partners (ref. 1)												
2					0.60**	0.41 - 0.87					0.58**	0.40 - 0.86
3					0.41	0.10 - 1.72					0.41	0.09 - 1.75
4+					0.97	0.61 - 1.54					0.95	0.58 - 1.54
Correct knowledge of fertile period (ref. No)												
Yes			0.80***	0.74 - 0.86							0.96	0.80 - 1.14
Obese BMI (ref. No)												
Yes							1.25***	1.11 - 1.42			1.47*	1.07 - 2.01
PARTNER'S CHARACTERISTICS												
Age									1.18***	1.17 - 1.19		
Education (ref. None)												
Primary									0.92	0.77 - 1.09		
Secondary +									1.02	0.88 - 1.18		
Observations (unweighted)	122,975		122,975		20,047		113,288		21,270		18,375	

Note: NA = Data not available. *p<0.05, **p<0.01, ***p<0.001

Appendix Table 8   Adjusted logistic regressions of secondary infertility for women in Kenya 2014

	Model 1		Model 2a		Model 2b		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES												
Age	1.15***	1.12 - 1.19	1.16***	1.13 - 1.19	1.15***	1.11 - 1.18	1.15***	1.11 - 1.18			1.14***	1.11 - 1.18
Age at first cohabitation (ref. <20)												
20-49	0.65*	0.46 - 0.90	0.63**	0.45 - 0.88	0.68*	0.48 - 0.97	0.67*	0.47 - 0.95	0.95	0.67 - 1.35	0.66*	0.46 - 0.94
Education (ref. None)												
Primary	0.48**	0.30 - 0.75	0.47**	0.29 - 0.75	0.43**	0.26 - 0.71	0.42**	0.25 - 0.71			0.37***	0.22 - 0.63
Secondary +	0.41**	0.23 - 0.73	0.35***	0.20 - 0.64	0.40**	0.21 - 0.77	0.41**	0.22 - 0.77			0.37**	0.19 - 0.71
Other children under 18 in household (ref. 0)												
1	1.83*	1.15 - 2.91	1.85**	1.17 - 2.94	1.77*	1.11 - 2.81	1.56	0.99 - 2.44	1.72*	1.10 - 2.70	1.52	0.97 - 2.41
2	1.59	0.94 - 2.72	1.77*	1.04 - 3.02	1.34	0.74 - 2.42	1.57	0.87 - 2.82	1.62	0.93 - 2.84	1.32	0.72 - 2.41
3+	3.23***	1.62 - 6.44	3.51***	1.78 - 6.91	3.91**	1.67 - 9.14	4.52***	2.04 - 10.04	4.00***	1.97 - 8.14	4.08**	1.76 - 9.48
Place of residence (ref. Urban)												
Rural	0.83	0.54 - 1.27	0.84	0.55 - 1.29	0.79	0.52 - 1.22	0.86	0.54 - 1.35	0.91	0.58 - 1.41	0.83	0.53 - 1.29
Wealth quintile (ref. Lowest)												
Second	1.19	0.70 - 2.02	1.16	0.68 - 2.00	1.21	0.70 - 2.09	1.34	0.76 - 2.37	1.23	0.72 - 2.09	1.32	0.75 - 2.32
Middle	1.24	0.71 - 2.17	1.15	0.65 - 2.03	1.18	0.67 - 2.09	1.33	0.74 - 2.37	1.20	0.71 - 2.01	1.29	0.73 - 2.29
Fourth	2.08**	1.22 - 3.55	1.77*	1.01 - 3.10	1.81*	1.02 - 3.18	1.83	1.00 - 3.36	1.89*	1.09 - 3.30	1.70	0.90 - 3.18
Highest	2.04*	1.12 - 3.71	1.59	0.87 - 2.90	1.90*	1.03 - 3.51	2.13*	1.10 - 4.12	1.99*	1.08 - 3.68	2.05*	1.06 - 3.98
WOMEN'S HEALTH-RELATED VARIABLES												
Ever had a terminated pregnancy (ref. No)												
Yes					0.93	0.61 - 1.40					0.95	0.62 - 1.45
Uses any type of tobacco (ref. No)												
Yes			1.10	0.46 - 2.63							0.59	0.23 - 1.50
At least one problem in accessing health care (ref. No)												
Yes			0.37***	0.25 - 0.53							0.96	0.66 - 1.39
Lifetime number of sexual partners (ref. 1)												
2					1.19	0.79 - 1.79					1.20	0.79 - 1.82
3					0.86	0.50 - 1.49					0.85	0.49 - 1.48
4+					2.23*	1.17 - 4.27					1.81	0.89 - 3.70
Correct knowledge of fertile period (ref. No)												
Yes			2.00***	1.34 - 2.98							1.22	0.84 - 1.78
Obese BMI (ref. No)												
Yes							0.63	0.38 - 1.05			0.62	0.37 - 1.03
PARTNER'S CHARACTERISTICS												
Age									1.06***	1.04 - 1.08		
Education (ref. None)												
Primary									0.76	0.46 - 1.24		
Secondary +									0.72	0.40 - 1.31		
Observations (unweighted)	8,701		8,701		4,349		3,864		4,305		3,839	

Note: *p<0.05, **p<0.01, ***p<0.001

Appendix Table 9   Adjusted logistic regressions of secondary infertility for women in Malawi 2015-16

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.14***	1.12 - 1.17	1.14***	1.11 - 1.16	1.26***	1.20 - 1.32			1.25***	1.19 - 1.31
Age at first cohabitation (ref. <20)										
20-49	0.79	0.56 - 1.10	0.78	0.55 - 1.09	0.62	0.34 - 1.14	1.09	0.80 - 1.50	0.62	0.33 - 1.17
Education (ref. None)										
Primary	1.01	0.76 - 1.36	0.99	0.74 - 1.33	1.36	0.77 - 2.39			1.35	0.75 - 2.43
Secondary +	0.86	0.49 - 1.54	0.80	0.45 - 1.42	1.33	0.50 - 3.57			1.20	0.44 - 3.31
Other children under 18 in household (ref. 0)										
1	1.31	0.94 - 1.82	1.33	0.95 - 1.86	0.95	0.49 - 1.86	1.45*	1.03 - 2.03	1.07	0.53 - 2.13
2	2.03**	1.33 - 3.09	1.92**	1.26 - 2.93	1.67	0.74 - 3.73	2.17***	1.45 - 3.27	1.92	0.85 - 4.36
3+	3.68***	2.02 - 6.70	3.38***	1.85 - 6.17	4.49**	1.47 - 13.69	3.46***	1.95 - 6.15	4.15*	1.34 - 12.81
Place of residence (ref. Urban)										
Rural	0.96	0.56 - 1.65	1.07	0.62 - 1.84	1.04	0.49 - 2.21	1.05	0.62 - 1.78	1.08	0.51 - 2.31
Wealth quintile (ref. Lowest)										
Second	1.00	0.67 - 1.49	0.95	0.64 - 1.41	1.11	0.48 - 2.55	0.96	0.64 - 1.44	1.10	0.48 - 2.55
Middle	1.00	0.68 - 1.46	0.96	0.65 - 1.41	1.28	0.60 - 2.71	1.05	0.71 - 1.55	1.22	0.55 - 2.72
Fourth	1.09	0.75 - 1.57	1.07	0.74 - 1.54	1.31	0.63 - 2.73	1.14	0.80 - 1.62	1.33	0.62 - 2.83
Highest	1.46	0.91 - 2.36	1.52	0.95 - 2.44	1.78	0.69 - 4.58	1.54	0.93 - 2.56	1.67	0.65 - 4.28
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.77***	1.31 - 2.39					1.21	0.67 - 2.20
Uses any type of tobacco (ref. No)										
Yes			2.06	0.86 - 4.95					6.13**	1.66 - 22.72
At least one problem in accessing health care (ref. No)										
Yes			0.82	0.64 - 1.07					0.74	0.44 - 1.24
Lifetime number of sexual partners (ref. 1)										
2			1.42*	1.07 - 1.87					1.39	0.81 - 2.39
3			2.12***	1.47 - 3.07					2.75**	1.50 - 5.03
4+			1.64*	1.04 - 2.59					1.39	0.52 - 3.72
Correct knowledge of fertile period (ref. No)										
Yes			1.14	0.79 - 1.63					1.30	0.71 - 2.38
Obese BMI (ref. No)										
Yes					1.04	0.43 - 2.48			1.13	0.48 - 2.67
PARTNER'S CHARACTERISTICS										
Age							1.05***	1.04 - 1.06		
Education (ref. None)										
Primary							0.84	0.60 - 1.18		
Secondary +							0.66	0.43 - 1.02		
Observations (unweighted)	7,828		7,819		2,308		7,730		2,305	

Note: *p<0.05, **p<0.01, ***p<0.001

Appendix Table 10   Adjusted logistic regressions of secondary infertility for women in Mali 2018

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.13***	1.11 - 1.15	1.13***	1.11 - 1.15	1.15***	1.12 - 1.18			1.15***	1.12 - 1.18
Age at first cohabitation (ref. <20)										
20-49	0.87	0.69 - 1.11	0.84	0.66 - 1.08	0.83	0.58 - 1.20	1.29*	1.02 - 1.65	0.83	0.57 - 1.20
Education (ref. None)										
Primary	1.22	0.90 - 1.66	1.18	0.87 - 1.61	1.17	0.71 - 1.92			1.16	0.70 - 1.92
Secondary +	1.13	0.81 - 1.57	1.13	0.80 - 1.58	0.87	0.50 - 1.51			0.88	0.51 - 1.53
Other children under 18 in household (ref. 0)										
1	1.63**	1.21 - 2.20	1.61**	1.19 - 2.17	2.10***	1.37 - 3.21	1.70***	1.25 - 2.29	2.08***	1.36 - 3.17
2	1.33	0.95 - 1.86	1.28	0.91 - 1.80	1.66	0.97 - 2.84	1.35	0.96 - 1.89	1.60	0.94 - 2.73
3+	1.04	0.81 - 1.34	1.00	0.78 - 1.28	1.32	0.94 - 1.86	1.05	0.82 - 1.35	1.25	0.89 - 1.77
Place of residence (ref. Urban)										
Rural	1.18	0.70 - 1.98	1.24	0.73 - 2.11	1.68	0.88 - 3.22	1.14	0.71 - 1.85	1.74	0.89 - 3.38
Wealth quintile (ref. Lowest)										
Second	1.05	0.77 - 1.44	1.06	0.77 - 1.46	1.38	0.84 - 2.25	0.91	0.66 - 1.27	1.36	0.83 - 2.22
Middle	1.06	0.77 - 1.45	1.05	0.76 - 1.45	1.11	0.66 - 1.88	0.95	0.69 - 1.30	1.07	0.63 - 1.82
Fourth	1.99***	1.40 - 2.84	2.03***	1.40 - 2.94	2.52**	1.45 - 4.36	1.75**	1.23 - 2.47	2.59**	1.47 - 4.56
Highest	2.19*	1.14 - 4.21	2.33*	1.18 - 4.62	3.68**	1.54 - 8.80	2.26**	1.23 - 4.18	3.94**	1.58 - 9.83
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.41**	1.10 - 1.79					1.16	0.81 - 1.66
Uses any type of tobacco (ref. No)										
Yes			1.07	0.47 - 2.44					1.01	0.43 - 2.37
At least one problem in accessing health care (ref. No)										
Yes			1.06	0.86 - 1.31					0.97	0.70 - 1.33
Lifetime number of sexual partners (ref. 1)										
2			1.21	0.93 - 1.57					1.25	0.84 - 1.87
3			1.04	0.60 - 1.79					1.35	0.65 - 2.80
4+			2.29**	1.23 - 4.27					2.13	0.81 - 5.59
Correct knowledge of fertile period (ref. No)										
Yes			0.92	0.74 - 1.15					0.70	0.48 - 1.01
Obese BMI (ref. No)										
Yes					0.84	0.52 - 1.35			0.84	0.52 - 1.36
PARTNER'S CHARACTERISTICS										
Age							1.05***	1.04 - 1.06		
Education (ref. None)										
Primary							0.68*	0.47 - 0.98		
Secondary +							0.68*	0.48 - 0.96		
Observations (unweighted)	5,020		5,006		2,085		4,855		2,081	

Note: *p<0.05, **p<0.01, ***p<0.001.

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Appendix Table 11   Adjusted logistic regressions of secondary infertility for women in Nepal 2016

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.24***	1.20 - 1.27	1.25***	1.21 - 1.28	1.22***	1.18 - 1.27			1.23***	1.19 - 1.28
Age at first cohabitation (ref. <20)										
20-49	0.52**	0.34 - 0.81	0.51**	0.33 - 0.78	0.47*	0.23 - 0.93	0.93	0.61 - 1.44	0.45*	0.22 - 0.91
Education (ref. None)										
Primary	1.44	0.95 - 2.19	1.37	0.90 - 2.10	1.37	0.73 - 2.58			1.26	0.67 - 2.38
Secondary +	1.35	0.88 - 2.08	1.23	0.78 - 1.95	1.39	0.74 - 2.62			1.34	0.69 - 2.62
Other children under 18 in household (ref. 0)										
1	1.55*	1.00 - 2.40	1.62*	1.05 - 2.50	1.67	0.88 - 3.16	1.35	0.86 - 2.12	1.72	0.91 - 3.26
2	1.19	0.63 - 2.24	1.22	0.64 - 2.32	1.37	0.54 - 3.46	1.18	0.66 - 2.12	1.30	0.50 - 3.38
3+	0.51	0.24 - 1.10	0.54	0.25 - 1.16	0.49	0.15 - 1.63	0.52	0.25 - 1.07	0.50	0.16 - 1.57
Place of residence (ref. Urban)										
Rural	1.08	0.77 - 1.53	1.09	0.77 - 1.53	0.79	0.46 - 1.35	1.08	0.78 - 1.50	0.74	0.43 - 1.26
Wealth quintile (ref. Lowest)										
Second	1.22	0.72 - 2.07	1.16	0.66 - 2.02	0.48	0.22 - 1.03	1.02	0.64 - 1.64	0.41*	0.18 - 0.92
Middle	2.33**	1.37 - 3.96	2.12**	1.21 - 3.71	1.21	0.58 - 2.51	2.02**	1.23 - 3.31	1.06	0.50 - 2.23
Fourth	1.93*	1.07 - 3.46	1.78	1.00 - 3.18	1.01	0.46 - 2.20	1.77*	1.01 - 3.10	0.94	0.45 - 1.96
Highest	3.81***	2.17 - 6.69	3.14***	1.73 - 5.71	2.67*	1.17 - 6.09	3.29***	1.97 - 5.51	2.18	0.93 - 5.10
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			0.91	0.65 - 1.30					1.35	0.81 - 2.25
Uses any type of tobacco (ref. No)										
Yes			0.73	0.45 - 1.17					0.54	0.26 - 1.14
At least one problem in accessing health care (ref. No)										
Yes			0.64*	0.41 - 0.99					0.80	0.42 - 1.52
Lifetime number of sexual partners (ref. 1)										
2			0.58	0.24 - 1.40					0.66	0.23 - 1.85
3			omitted	omitted						
4+			omitted	omitted					-	-
Correct knowledge of fertile period (ref. No)										
Yes			0.74	0.52 - 1.05					0.72	0.41 - 1.25
Obese BMI (ref. No)										
Yes					1.42	0.43 - 4.70			1.29	0.35 - 4.72
PARTNER'S CHARACTERISTICS										
Age							1.15***	1.13 - 1.18		
Education (ref. None)										
Primary							0.88	0.53 - 1.45		
Secondary +							0.90	0.58 - 1.40		
Observations (unweighted)	2,282		2,279		1,059		2,278		1,058	

Note: *p<0.05, **p<0.01, ***p<0.001.

Omitted estimates from regression due to zero observations in those categories.

Appendix Table 12   Adjusted logistic regressions of secondary infertility for women in Nigeria 2018

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.14***	1.13 - 1.15	1.14***	1.13 - 1.15	1.13***	1.12 - 1.15			1.13***	1.12 - 1.15
Age at first cohabitation (ref. <20)										
20-49	0.74***	0.65 - 0.84	0.70***	0.62 - 0.81	0.64***	0.51 - 0.81	1.08	0.96 - 1.22	0.66***	0.52 - 0.84
Education (ref. None)										
Primary	0.99	0.85 - 1.15	0.93	0.79 - 1.09	0.97	0.73 - 1.29			0.95	0.71 - 1.27
Secondary +	1.21*	1.02 - 1.44	1.09	0.92 - 1.30	0.97	0.70 - 1.34			0.90	0.64 - 1.26
Other children under 18 in household (ref. 0)										
1	1.22	0.99 - 1.51	1.22	0.99 - 1.51	1.59**	1.18 - 2.14	1.12	0.91 - 1.39	1.61**	1.20 - 2.15
2	1.13	0.93 - 1.38	1.13	0.93 - 1.38	1.25	0.89 - 1.75	1.07	0.88 - 1.30	1.28	0.91 - 1.81
3+	1.03	0.90 - 1.17	1.02	0.89 - 1.17	1.30*	1.01 - 1.66	0.84*	0.73 - 0.97	1.29*	1.01 - 1.66
Place of residence (ref. Urban)										
Rural	1.20*	1.04 - 1.38	1.18*	1.02 - 1.37	1.54***	1.20 - 1.99	1.25**	1.08 - 1.44	1.52**	1.17 - 1.96
Wealth quintile (ref. Lowest)										
Second	0.98	0.82 - 1.16	0.96	0.80 - 1.14	1.18	0.87 - 1.59	0.94	0.79 - 1.12	1.16	0.85 - 1.57
Middle	1.00	0.84 - 1.21	0.97	0.80 - 1.17	1.15	0.82 - 1.62	0.94	0.78 - 1.13	1.10	0.77 - 1.57
Fourth	1.25*	1.01 - 1.56	1.17	0.94 - 1.46	1.39	0.94 - 2.07	1.25*	1.01 - 1.55	1.28	0.85 - 1.92
Highest	1.69***	1.31 - 2.18	1.53**	1.17 - 2.00	1.76*	1.12 - 2.76	1.84***	1.44 - 2.34	1.51	0.93 - 2.45
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.39***	1.22 - 1.58					1.37**	1.09 - 1.72
Uses any type of tobacco (ref. No)										
Yes			0.91	0.42 - 1.96					0.70	0.12 - 4.08
At least one problem in accessing health care (ref. No)										
Yes			0.90	0.80 - 1.01					0.80*	0.65 - 0.99
Lifetime number of sexual partners (ref. 1)										
2			1.34***	1.17 - 1.53					1.06	0.83 - 1.35
3			1.43**	1.15 - 1.77					1.17	0.82 - 1.68
4+			1.39**	1.10 - 1.76					1.27	0.86 - 1.87
Correct knowledge of fertile period (ref. No)										
Yes			1.13	0.99 - 1.28					1.23	0.99 - 1.52
Obese BMI (ref. No)										
Yes					1.46**	1.10 - 1.93			1.38*	1.03 - 1.84
PARTNER'S CHARACTERISTICS										
Age							1.06***	1.06 - 1.07		
Education (ref. None)										
Primary							1.07	0.91 - 1.26		
Secondary +							1.12	0.96 - 1.31		
Observations (unweighted)	16,802		16,675		5,184		16,565		5,150	

Note: *p<0.05, **p<0.01, ***p<0.001.

Appendix Table 13   Adjusted logistic regressions of secondary infertility for women in the Philippines 2017

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.13***	1.11 - 1.15	1.13***	1.11 - 1.15	1.13***	1.11 - 1.15			1.13***	1.11 - 1.15
Age at first cohabitation (ref. <20)										
20-49	1.00	0.81 - 1.25	1.00	0.81 - 1.24	1.00	0.81 - 1.25	1.45***	1.17 - 1.79	1.00	0.81 - 1.24
Education (ref. None)										
Primary	0.46***	0.30 - 0.72	0.45***	0.29 - 0.70	0.46***	0.30 - 0.72			0.45***	0.29 - 0.70
Secondary +	0.47***	0.30 - 0.73	0.45***	0.29 - 0.71	0.47***	0.30 - 0.73			0.45***	0.29 - 0.71
Other children under 18 in household (ref. 0)										
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3+	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Place of residence (ref. Urban)										
Rural	0.97	0.74 - 1.26	0.98	0.75 - 1.28	0.97	0.74 - 1.26	1.00	0.77 - 1.29	0.98	0.75 - 1.28
Wealth quintile (ref. Lowest)										
Second	0.98	0.75 - 1.28	0.97	0.74 - 1.27	0.98	0.75 - 1.28	1.03	0.79 - 1.33	0.97	0.74 - 1.27
Middle	1.78***	1.27 - 2.50	1.76***	1.26 - 2.47	1.78***	1.27 - 2.50	1.79***	1.29 - 2.48	1.76***	1.26 - 2.47
Fourth	2.41***	1.65 - 3.51	2.35***	1.60 - 3.46	2.41***	1.65 - 3.51	2.56***	1.77 - 3.68	2.35***	1.60 - 3.46
Highest	2.71***	1.78 - 4.12	2.57***	1.63 - 4.05	2.71***	1.78 - 4.12	2.84***	1.84 - 4.37	2.57***	1.63 - 4.05
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			NA	NA					NA	NA
Uses any type of tobacco (ref. No)										
Yes			1.01	0.62 - 1.65					1.01	0.62 - 1.65
At least one problem in accessing health care (ref. No)										
Yes			0.85	0.68 - 1.07					0.85	0.68 - 1.07
Lifetime number of sexual partners (ref. 1)										
2			1.12	0.84 - 1.49					1.12	0.84 - 1.49
3			1.04	0.52 - 2.06					1.04	0.52 - 2.06
4+			0.78	0.26 - 2.30					0.78	0.26 - 2.30
Correct knowledge of fertile period (ref. No)										
Yes			1.06	0.84 - 1.34					1.06	0.84 - 1.34
Obese BMI (ref. No)										
Yes					NA	NA			NA	NA
PARTNER'S CHARACTERISTICS										
Age							1.07***	1.05 - 1.08		
Education (ref. None)										
Primary							1.11	0.65 - 1.89		
Secondary +							0.92	0.53 - 1.62		
Observations (unweighted)	5,820		5,817		5,820		5,819		5,817	

Note: NA - Data not available. *p<0.05, **p<0.01, ***p<0.001.

Appendix Table 14   Adjusted logistic regressions of secondary infertility for women in Rwanda 2014-15

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.18***	1.14 - 1.22	1.17***	1.14 - 1.22	1.18***	1.13 - 1.24			1.18***	1.12 - 1.24
Age at first cohabitation (ref. <20)										
20-49	0.72	0.49 - 1.06	0.74	0.50 - 1.10	0.79	0.45 - 1.38	0.89	0.61 - 1.31	0.80	0.46 - 1.40
Education (ref. None)										
Primary	0.52**	0.35 - 0.79	0.51**	0.34 - 0.78	0.45*	0.24 - 0.85			0.41**	0.22 - 0.78
Secondary +	0.77	0.35 - 1.68	0.79	0.35 - 1.80	0.32*	0.11 - 0.98			0.37	0.12 - 1.16
Other children under 18 in household (ref. 0)										
1	1.60*	1.03 - 2.49	1.58*	1.00 - 2.49	2.30*	1.21 - 4.38	1.58*	1.01 - 2.46	2.46**	1.25 - 4.83
2	2.35	0.97 - 5.71	1.96	0.82 - 4.68	6.37*	1.55 - 26.15	2.18	0.95 - 4.98	4.89*	1.46 - 16.34
3+	0.55	0.06 - 5.21	0.50	0.05 - 4.94	-	-	0.59	0.07 - 4.72		
Place of residence (ref. Urban)										
Rural	0.64	0.36 - 1.16	0.71	0.40 - 1.28	0.62	0.33 - 1.18	0.85	0.47 - 1.53	0.72	0.36 - 1.44
Wealth quintile (ref. Lowest)										
Second	1.18	0.69 - 2.02	1.11	0.64 - 1.90	1.51	0.67 - 3.43	1.38	0.80 - 2.40	1.41	0.61 - 3.29
Middle	0.92	0.51 - 1.66	0.98	0.52 - 1.84	1.35	0.56 - 3.27	1.08	0.59 - 1.99	1.44	0.55 - 3.76
Fourth	1.07	0.59 - 1.92	1.13	0.61 - 2.10	1.19	0.46 - 3.09	1.18	0.64 - 2.16	1.22	0.44 - 3.36
Highest	1.38	0.70 - 2.70	1.58	0.77 - 3.24	2.33	0.87 - 6.24	1.92	0.89 - 4.12	2.69	0.93 - 7.81
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.35	0.90 - 2.03					1.76	0.95 - 3.24
Uses any type of tobacco (ref. No)										
Yes			0.49	0.16 - 1.47					0.71	0.18 - 2.85
At least one problem in accessing health care (ref. No)										
Yes			1.15	0.74 - 1.78					1.36	0.70 - 2.63
Lifetime number of sexual partners (ref. 1)										
2			2.04***	1.37 - 3.04					2.74***	1.57 - 4.78
3			2.57**	1.40 - 4.73					3.06*	1.26 - 7.47
4+			4.35*	1.04 - 18.13					11.19*	1.28 - 98.07
Correct knowledge of fertile period (ref. No)										
Yes			0.87	0.52 - 1.47					0.92	0.48 - 1.75
Obese BMI (ref. No)										
Yes					1.85	0.75 - 4.59			1.74	0.69 - 4.38
PARTNER'S CHARACTERISTICS										
Age							1.07***	1.06 - 1.09		
Education (ref. None)										
Primary							1.22	0.77 - 1.92		
Secondary +							1.36	0.65 - 2.88		
Observations (unweighted)	3,149		3,146		1,352		3,129		1,350	

Note: *p<0.05, **p<0.01, ***p<0.001.

Appendix Table 15   Adjusted logistic regressions of secondary infertility for women in Senegal 2018

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.16***	1.13 - 1.19	1.16***	1.13 - 1.19	1.16***	1.13 - 1.19			1.16***	1.13 - 1.19
Age at first cohabitation (ref. <20)										
20-49	0.67**	0.50 - 0.90	0.68*	0.51 - 0.91	0.67**	0.50 - 0.90	1.00	0.71 - 1.40	0.68*	0.51 - 0.91
Education (ref. None)										
Primary	0.83	0.56 - 1.22	0.84	0.57 - 1.24	0.83	0.56 - 1.22			0.84	0.57 - 1.24
Secondary +	0.76	0.45 - 1.30	0.81	0.48 - 1.38	0.76	0.45 - 1.30			0.81	0.48 - 1.38
Other children under 18 in household (ref. 0)										
1	1.07	0.72 - 1.58	1.07	0.73 - 1.57	1.07	0.72 - 1.58	1.01	0.64 - 1.58	1.07	0.73 - 1.57
2	1.05	0.65 - 1.71	1.03	0.64 - 1.68	1.05	0.65 - 1.71	0.90	0.57 - 1.42	1.03	0.64 - 1.68
3+	1.36*	1.02 - 1.82	1.34	1.00 - 1.81	1.36*	1.02 - 1.82	1.05	0.78 - 1.41	1.34	1.00 - 1.81
Place of residence (ref. Urban)										
Rural	1.05	0.81 - 1.38	1.08	0.83 - 1.41	1.05	0.81 - 1.38	1.09	0.83 - 1.43	1.08	0.83 - 1.41
Wealth quintile (ref. Lowest)										
Second	0.73	0.52 - 1.04	0.75	0.52 - 1.08	0.73	0.52 - 1.04	0.72	0.50 - 1.03	0.75	0.52 - 1.08
Middle	1.39	0.99 - 1.95	1.52*	1.07 - 2.17	1.39	0.99 - 1.95	1.44*	1.03 - 2.03	1.52*	1.07 - 2.17
Fourth	1.92***	1.32 - 2.80	2.14***	1.43 - 3.18	1.92***	1.32 - 2.80	2.01***	1.41 - 2.87	2.14***	1.43 - 3.18
Highest	1.62*	1.04 - 2.53	1.85*	1.15 - 2.97	1.62*	1.04 - 2.53	2.02**	1.27 - 3.21	1.85*	1.15 - 2.97
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			0.82	0.62 - 1.09					0.82	0.62 - 1.09
Uses any type of tobacco (ref. No)										
Yes			NA	NA					NA	NA
At least one problem in accessing health care (ref. No)										
Yes			1.38	0.98 - 1.95					1.38	0.98 - 1.95
Lifetime number of sexual partners (ref. 1)										
2			1.16	0.81 - 1.67					1.16	0.81 - 1.67
3			0.94	0.56 - 1.56					0.94	0.56 - 1.56
4+			0.79	0.28 - 2.22					0.79	0.28 - 2.22
Correct knowledge of fertile period (ref. No)										
Yes			0.97	0.70 - 1.35					0.97	0.70 - 1.35
Obese BMI (ref. No)										
Yes					NA	NA			NA	NA
PARTNER'S CHARACTERISTICS										
Age							1.05***	1.04 - 1.06		
Education (ref. None)										
Primary							0.86	0.57 - 1.31		
Secondary +							0.72	0.47 - 1.10		
Observations (unweighted)	3,655		3,655		3,655		3,422		3,655	

Note: NA - Data not available. *p<0.05, **p<0.01, ***p<0.001.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.18***	1.15 - 1.20	1.17***	1.15 - 1.20	1.18***	1.15 - 1.20			1.17***	1.15 - 1.20
Age at first cohabitation (ref. <20)										
20-49	0.82	0.63 - 1.08	0.83	0.64 - 1.09	0.85	0.65 - 1.11	1.09	0.85 - 1.41	0.86	0.66 - 1.12
Education (ref. None)										
Primary	0.94	0.71 - 1.23	0.96	0.72 - 1.26	0.98	0.73 - 1.30			1.00	0.75 - 1.34
Secondary +	0.78	0.46 - 1.33	0.79	0.47 - 1.34	0.74	0.42 - 1.28			0.75	0.44 - 1.28
Other children under 18 in household (ref. 0)										
1	1.28	0.94 - 1.74	1.29	0.95 - 1.76	1.30	0.95 - 1.79	1.37	0.99 - 1.90	1.32	0.97 - 1.81
2	1.94***	1.32 - 2.84	1.94***	1.32 - 2.85	2.12***	1.43 - 3.14	1.99***	1.33 - 2.96	2.11***	1.42 - 3.15
3+	1.91***	1.34 - 2.72	1.91***	1.33 - 2.73	1.96***	1.35 - 2.85	1.98***	1.40 - 2.79	1.95***	1.34 - 2.85
Place of residence (ref. Urban)										
Rural	0.88	0.63 - 1.25	0.88	0.62 - 1.24	0.86	0.61 - 1.21	0.92	0.66 - 1.28	0.86	0.61 - 1.21
Wealth quintile (ref. Lowest)										
Second	1.25	0.86 - 1.82	1.28	0.87 - 1.88	1.22	0.83 - 1.79	1.37	0.93 - 2.03	1.24	0.84 - 1.84
Middle	1.15	0.81 - 1.64	1.19	0.83 - 1.72	1.19	0.82 - 1.72	1.26	0.87 - 1.81	1.24	0.84 - 1.81
Fourth	1.44	0.98 - 2.12	1.50*	1.01 - 2.22	1.27	0.84 - 1.90	1.58*	1.08 - 2.33	1.33	0.88 - 2.01
Highest	2.30***	1.42 - 3.74	2.35***	1.45 - 3.82	1.83*	1.09 - 3.07	2.42***	1.54 - 3.82	1.91*	1.14 - 3.21
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.24	0.96 - 1.61					1.12	0.85 - 1.48
Uses any type of tobacco (ref. No)										
Yes			3.19	0.93 - 10.94					2.89	0.82 - 10.25
At least one problem in accessing health care (ref. No)										
Yes			1.03	0.79 - 1.35					1.08	0.81 - 1.43
Lifetime number of sexual partners (ref. 1)										
2			NA	NA					NA	NA
3			NA	NA					NA	NA
4+			NA	NA					NA	NA
Correct knowledge of fertile period (ref. No)										
Yes			0.98	0.72 - 1.33					1.00	0.74 - 1.35
Obese BMI (ref. No)										
Yes					1.46*	1.01 - 2.12			1.44*	1.00 - 2.07
PARTNER'S CHARACTERISTICS										
Age							1.08***	1.06 - 1.09		
Education (ref. None)										
Primary							0.98	0.71 - 1.37		
Secondary +							0.76	0.46 - 1.25		
Observations (unweighted)	4,407		4,407		3,796		4,386		3,796	

Note: NA - Data not available. *p<0.05, **p<0.01, ***p<0.001.

Appendix Table 17   Adjusted logistic regressions of secondary infertility for women in Uganda 2016

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.17***	1.15 - 1.19	1.17***	1.15 - 1.20	1.17***	1.12 - 1.22			1.18***	1.13 - 1.23
Age at first cohabitation (ref. <20)										
20-49	0.79	0.60 - 1.04	0.75*	0.57 - 0.98	0.84	0.51 - 1.39	1.01	0.77 - 1.34	0.82	0.50 - 1.35
Education (ref. None)										
Primary	0.83	0.63 - 1.09	0.82	0.62 - 1.08	0.72	0.42 - 1.23			0.73	0.43 - 1.24
Secondary +	1.03	0.70 - 1.53	1.03	0.70 - 1.52	0.68	0.32 - 1.43			0.66	0.31 - 1.39
Other children under 18 in household (ref. 0)										
1	1.44*	1.06 - 1.96	1.44*	1.05 - 1.97	1.37	0.81 - 2.32	1.48*	1.08 - 2.03	1.38	0.81 - 2.35
2	2.34***	1.59 - 3.44	2.31***	1.57 - 3.39	3.41***	1.72 - 6.77	2.55***	1.71 - 3.79	3.51***	1.73 - 7.13
3+	2.56***	1.78 - 3.68	2.58***	1.79 - 3.73	3.17***	1.71 - 5.87	2.80***	1.96 - 4.01	3.13***	1.64 - 5.98
Place of residence (ref. Urban)										
Rural	0.84	0.60 - 1.18	0.83	0.58 - 1.19	0.71	0.40 - 1.25	0.85	0.59 - 1.25	0.72	0.39 - 1.32
Wealth quintile (ref. Lowest)										
Second	1.08	0.78 - 1.50	1.09	0.77 - 1.53	1.04	0.56 - 1.93	1.05	0.76 - 1.47	1.13	0.60 - 2.14
Middle	0.90	0.64 - 1.27	0.91	0.64 - 1.31	0.69	0.35 - 1.37	0.98	0.68 - 1.42	0.77	0.38 - 1.57
Fourth	1.40	0.96 - 2.04	1.42	0.96 - 2.10	1.37	0.76 - 2.47	1.47*	1.00 - 2.16	1.38	0.74 - 2.56
Highest	1.28	0.82 - 2.01	1.28	0.82 - 2.00	1.62	0.75 - 3.50	1.15	0.75 - 1.77	1.66	0.76 - 3.62
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			0.93	0.73 - 1.19					0.82	0.48 - 1.40
Uses any type of tobacco (ref. No)										
Yes			2.29**	1.24 - 4.24					3.24*	1.28 - 8.19
At least one problem in accessing health care (ref. No)										
Yes			0.99	0.76 - 1.29					0.87	0.56 - 1.34
Lifetime number of sexual partners (ref. 1)										
2			1.39	0.99 - 1.94					1.17	0.67 - 2.06
3			1.63**	1.17 - 2.28					1.47	0.78 - 2.74
4+			2.46***	1.65 - 3.66					3.48***	1.70 - 7.12
Correct knowledge of fertile period (ref. No)										
Yes			0.94	0.72 - 1.24					1.42	0.88 - 2.29
Obese BMI (ref. No)										
Yes					1.06	0.46 - 2.45			0.94	0.42 - 2.13
PARTNER'S CHARACTERISTICS										
Age							1.07***	1.06 - 1.08		
Education (ref. None)										
Primary							0.75	0.50 - 1.12		
Secondary +							0.83	0.55 - 1.25		
Observations (unweighted)	6,033		6,023		1,678		5,895		1,676	

Note: *p<0.05, **p<0.01, ***p<0.001.

Appendix Table 18   Adjusted logistic regressions of secondary infertility for women in Zambia 2018-19

	Model 1		Model 2		Model 3		Model 4		Model 5	
	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.	AOR	95% C.I.
WOMEN'S SOCIODEMOGRAPHIC VARIABLES										
Age	1.15***	1.13 - 1.18	1.14***	1.12 - 1.17	1.15***	1.13 - 1.18			1.14***	1.12 - 1.17
Age at first cohabitation (ref. <20)										
20-49	1.07	0.76 - 1.51	1.03	0.75 - 1.41	1.07	0.76 - 1.51	1.33	0.93 - 1.89	1.03	0.75 - 1.41
Education (ref. None)										
Primary	0.76	0.52 - 1.11	0.74	0.50 - 1.09	0.76	0.52 - 1.11			0.74	0.50 - 1.09
Secondary +	1.49	0.85 - 2.63	1.41	0.79 - 2.51	1.49	0.85 - 2.63			1.41	0.79 - 2.51
Other children under 18 in household (ref. 0)										
1	1.08	0.75 - 1.57	1.09	0.75 - 1.57	1.08	0.75 - 1.57	1.12	0.76 - 1.67	1.09	0.75 - 1.57
2	1.70*	1.11 - 2.60	1.67*	1.09 - 2.55	1.70*	1.11 - 2.60	1.78**	1.16 - 2.74	1.67*	1.09 - 2.55
3+	1.39	0.86 - 2.23	1.38	0.88 - 2.18	1.39	0.86 - 2.23	1.39	0.80 - 2.39	1.38	0.88 - 2.18
Place of residence (ref. Urban)										
Rural	0.85	0.58 - 1.25	0.83	0.56 - 1.22	0.85	0.58 - 1.25	0.88	0.59 - 1.30	0.83	0.56 - 1.22
Wealth quintile (ref. Lowest)										
Second	0.77	0.50 - 1.19	0.76	0.48 - 1.20	0.77	0.50 - 1.19	0.82	0.53 - 1.28	0.76	0.48 - 1.20
Middle	1.26	0.84 - 1.91	1.33	0.88 - 2.00	1.26	0.84 - 1.91	1.18	0.79 - 1.77	1.33	0.88 - 2.00
Fourth	1.46	0.85 - 2.50	1.56	0.91 - 2.68	1.46	0.85 - 2.50	1.60	0.92 - 2.78	1.56	0.91 - 2.68
Highest	1.23	0.66 - 2.30	1.36	0.73 - 2.53	1.23	0.66 - 2.30	1.52	0.90 - 2.59	1.36	0.73 - 2.53
WOMEN'S HEALTH-RELATED VARIABLES										
Ever had a terminated pregnancy (ref. No)										
Yes			1.77***	1.29 - 2.43					1.77***	1.29 - 2.43
Uses any type of tobacco (ref. No)										
Yes			2.03**	1.23 - 3.35					2.03**	1.23 - 3.35
At least one problem in accessing health care (ref. No)										
Yes			1.08	0.75 - 1.54					1.08	0.75 - 1.54
Lifetime number of sexual partners (ref. 1)										
2			1.06	0.69 - 1.62					1.06	0.69 - 1.62
3			1.41	0.96 - 2.07					1.41	0.96 - 2.07
4+			2.22***	1.47 - 3.34					2.22***	1.47 - 3.34
Correct knowledge of fertile period (ref. No)										
Yes			0.98	0.71 - 1.35					0.98	0.71 - 1.35
Obese BMI (ref. No)										
Yes					NA	NA			NA	NA
PARTNER'S CHARACTERISTICS										
Age							1.07***	1.05 - 1.09		
Education (ref. None)										
Primary							0.82	0.49 - 1.39		
Secondary +							1.06	0.64 - 1.75		
Observations (unweighted)	4,120		4,116		4,120		3,944		4,116	

Note: NA - Data not available. *p<0.05, **p<0.01, ***p<0.001.