

Does Young Women's Empowerment Influence Fertility Intentions?

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Abstract

This study examines associations between young women's empowerment and fertility intentions using data from 10 Demographic and Health Surveys. One challenge is that most measures of empowerment apply only to married adults. We developed a Youth Empowerment (YE) scale with 6 dimensions, suitable for use with youth regardless of marital or school status or age.

This study first describes patterns of YE and two measures of fertility intentions: ideal number of children and use/intention to use contraception. It then uses multivariable regression analysis to assess the association between YE and fertility intentions, controlling for other factors.

YE is lowest in Mali (13% highly empowered) and highest in the Philippines (81%). We find a significant, negative bivariate association between YE and ideal number of children in all 10 study countries, that remains significant in 6 countries in multivariable analysis.

YE is significantly, positively associated with use of contraception and, among non-users, intention to use contraception in 8 of 10 countries. After controlling for other factors, these associations remain significant in 5 and 8 countries, respectively. The largest differences are generally between the high YE and medium YE categories. These findings justify the pursuit of gender equity and YE as programmatic goals.

Key words: empowerment, youth, contraceptive intentions, fertility intentions

Introduction

Fertility intentions can help predict subsequent fertility levels and fertility related behavior fertility (Bongaarts and Casterline 2013; Westoff 2010). Fertility ideation among young cohorts, especially, shape subsequent fertility, for two reasons. First, younger women and girls are less likely to have met or exceeded their desired fertility, in contrast to women in older cohorts, meaning that their intentions are more likely to influence fertility. Secondly, the size of the youth population in many settings means that even relatively minor changes in fertility behavior may have large effects at the population level.

Simultaneously, there is a large and growing evidence base indicating that women's empowerment is related to a range of reproductive health outcomes and fertility behaviors (Al-Riyami and Afifi 2003; Mason and Smith 2000; Upadhyay et al. 2014). Women lacking empowerment are more likely to have had more children, closer spacing between pregnancies, and less likely to use contraception, particularly modern temporary methods for spacing (Al-Riyami and Afifi 2003; Bongaarts and Casterline 2013; Cleland, Machiyama, and Casterline 2020; DeRose and Ezeh 2010; Kabir et al. 2005; Kishor 2000; Leon 2012; Loll et al. 2019; Mason and Smith 2000; Upadhyay et al. 2014). Given this, it is plausible that empowerment similarly influences fertility intentions among young women.

One challenge for examining empowerment among youth is that many measures of direct empowerment (i.e. agency (Kabeer 1999)) describe power within dyadic relationships and are applicable only to married adults (Ewerling et al. 2017; Ewerling et al. 2019) or rely on items that are not relevant markers of the adolescent experience but to older stages of the life cycle (Yount et al. 2020).

Using nationally representative data in 10 countries, this study explores associations between young women's empowerment and two measures of fertility intentions: ideal number of children and use/intention to use contraception. To facilitate this analysis, the study developed and validated a measure of youth empowerment (YE) that is suitable for use with youth, regardless whether married or unmarried, in-school or out-of-school, and of younger and older ages. The study presents patterns in YE and our two outcomes by marital status, school-going status, and age and test for associations between YE and the outcomes in multivariable regression analyses that control for these and other socio-economic factors.

Methods

This study uses data on young women from 10 Demographic and Health Surveys (DHS) conducted since 2015 with data made publicly available by fall 2020 and a sample of all women (rather than restricted to ever-married or currently married women). These surveys are: Ethiopia 2016, Haiti 2016-17, Malawi 2015-16, Mali 2018, Nepal 2016, Nigeria 2018, Philippines 2017, Senegal 2019, Uganda 2016, and Zambia 2018. This study restricts its analysis to women age 15-29, in keeping with the USAID definition of youth (age 10-29). Sample sizes range from 4,944 women in Senegal to 22,538 women in Nigeria.

This study first describes patterns in fertility intentions and youth empowerment, disaggregating by age, marital status, and school-going status. Next we present bivariate analysis and finally multivariable regression models to assess the association with young women's empowerment, first on its own, and then controlling for other factors that could confound the observed bivariable association. Control variables entered into the adjusted models are: age, current marital status, in-school/out-of-school status, urban/rural residence, educational attainment, and household wealth quintile.

This study examines two fertility intention outcomes as they relate to young women's empowerment: (1) Ideal number of children and (2) Use and intention to use contraception. Ideal number of children and current use of contraception are measured among all young women, while intention to use contraception is measured among non-users only.

We used exploratory factor analysis to develop a YE scale from 41 possible items (MacQuarrie 2021a). The final YE scale with 22 items in 6 domains (overall Cronbach's $\alpha=0.726$) was tested through confirmatory factor analysis across the 10 country samples and, within each country, across subsamples of never, formerly, and currently married youth, in-school and out-of-school youth, and age 15-19, 20-24, and 25-29. The 6 domains of the YE scale (presented in Table 1) are: (1) Violence attitudes; (2) Digital connectedness: Banking and internet; (3) Work and earnings; (4) Health facility access; (5) Major asset ownership; and (6) Reproductive health knowledge and thus include both empowerment resources (Kabeer 1999) and injunctive empowerment norms (Yount et al. 2020).

Table 1 Domains and items in the Youth Empowerment scale

Item stem	Response code or unit
Domain 1: Violence attitudes	
Wife beating is justified if ^[1] :	
Wife goes out without telling husband	no/yes
Wife neglects the children	no/yes
Wife argues with husband	no/yes
Wife refuses to have sex with husband	no/yes
Wife burns the food	no/yes
Domain 2: Digital connectedness: Banking and internet	
Owens a mobile telephone	no/yes
Uses mobile phone for financial transactions	no/yes
Has an account in a bank or other financial institution	no/yes
Use of internet	never; yes but not in last 12 months; yes in last 12 months
Frequency of internet use in last month	not at all; less than once a week; at least once a week; almost every day
Domain 3: Work and earnings	
Currently working (aside from own housework)	no/yes
Worked in last 12 months	no/yes
Earnings	no earnings; in-kind earnings; cash earnings
Domain 4: Health facility access	
The following is a big problem to get medical advice/treatment when sick:	
Getting permission to go	big problem/not a problem
Getting money needed for treatment	big problem/not a problem
Distance to health facility	big problem/not a problem
Not wanting to go alone	big problem/not a problem
Domain 5: Major asset ownership	
Owens house alone or jointly	no/yes
Owens land alone or jointly	no/yes
Domain 6: Reproductive health knowledge	
Knows ovulatory cycle	no/yes
Knows postpartum fecundability	no/yes
Knowledge of contraceptive methods	none; only traditional/folkloric method; modern method

^[1] Items in this domain have a negative valence on the overall scale.

Using regression factor scores, we construct country-specific YE terciles with approximately 1/3 of each survey sample in the low empowerment, medium empowerment, and high empowerment categories. (A pooled YE terciles measure is also constructed to facilitate cross-country comparisons but the country-specific YE scale is used as the key explanatory variable in separate country regressions.)

Data are weighted to account for sampling probability and non-response and *svy* commands are used to adjust for the multi-stage, clustered sampling design of DHS surveys.

Results

Table 2 displays the characteristics of the 10 analytic samples. The samples are roughly evenly distributed across the three age groups or slightly weighted toward younger respondents age 15-19. The majority of the sample are never married in just three countries Haiti (64%), the Philippines (61%), and Zambia (51%). In the other seven countries, the majority are currently married with 7 in 10 young women in Mali being married.

Table 2 Characteristics of analytic samples of women age 15-29 (percentages and means)

	Ethiopia	Haiti	Malawi	Mali	Nepal	Nigeria	Philippines	Senegal	Uganda	Zambia
Ideal # of children (<i>mean</i>)	3.9	2.6	3.2	5.7	2.0	5.8	2.5	5.2	4.3	4.0
Currently using contraception	22.4	21.5	38.1	14.9	23.0	10.2	21.4	11.6	25.7	29.9
Intends to use contraception (among non-users)	69.8	65.1	79.5	47.3	90.7	46.9	48.4	33.4	69.5	72.5
Age										
15-19	37.2	38.3	36.6	35.0	37.2	37.5	38.3	38.6	38.3	37.6
20-24	30.4	34.4	35.9	31.5	32.2	30.3	32.6	33.5	34.3	34.3
25-29	32.5	27.3	27.5	33.4	30.6	32.2	29.1	28.0	27.4	28.1
Marital status										
Never in union	42.2	64.4	35.1	26.8	36.9	43.2	60.7	48.0	41.0	50.5
Currently in union/living with a man	51.7	32.5	56.4	71.8	62.2	54.8	37.3	49.8	50.8	42.9
Formerly in union	6.1	3.1	8.5	1.4	0.8	2.1	2.0	2.2	8.2	6.6
School status										
Out of school	75.3	54.3	77.4	85.7	71.6	78.4	64.1	72.0	77.4	76.9
Attending school	24.7	45.7	22.6	14.3	28.4	21.6	35.9	28.0	22.6	23.1
Residence										
Rural	75.8	52.7	80.8	72.2	37.7	55.6	50.1	51.5	71.7	52.8
Urban	24.2	47.3	19.2	27.8	62.3	44.4	49.9	48.5	28.3	47.2
Education										
No education	29.9	4.4	5.6	54.5	15.4	30.8	0.4	35.5	3.6	4.4
Primary	46.4	27.9	63.2	15.7	15.6	11.0	8.1	20.6	56.6	38.6
Secondary	16.6	60.4	28.2	27.4	47.7	49.1	56.0	39.5	31.7	52.5
Higher	7.1	7.3	3.0	2.3	21.3	9.2	35.5	4.4	8.1	4.4
Household wealth quintile										
Poorest	15.7	14.4	19.5	15.5	16.8	17.2	17.5	16.6	17.0	17.6
Poorer	18.1	17.3	20.0	18.0	19.6	20.2	18.3	18.0	18.3	17.1
Middle	18.2	19.3	18.6	19.3	20.9	20.3	20.6	19.2	17.9	17.8
Richer	19.1	23.9	18.0	21.4	22.6	21.8	21.8	22.0	19.5	22.6
Richest	28.8	25.1	24.0	25.8	20.1	20.6	21.9	24.1	27.3	24.9
Age at first sex										
Never had sex	38.8	29.0	20.0	17.3	36.8	29.5	53.8	45.8	23.9	22.3
Age <18	38.6	48.8	54.9	64.4	35.0	47.2	16.4	28.6	51.4	56.3
Age ≥18	22.5	22.2	25.2	18.3	28.2	23.4	29.8	24.4	24.7	21.5
Sexually active in last 30 days	71.7	51.6	59.1	71.5	54.7	69.8	63.7	55.8	60.1	56.4
Weighted N	9,099	8,270	14,375	6,009	6,984	22,538	12,789	4,944	11,137	7,971

Except in Nepal and the Philippines, the majority reside in rural areas, ranging from 52% in Senegal to 81% in Malawi. In the Philippines, the sample is evenly divided between rural and urban areas while 62% of

young women in Nepal live in urban areas. The samples are roughly evenly distributed across wealth quintiles or somewhat tilted toward the richer and richest quintiles.

The majority of young women (54% in Haiti to 78% in Nigeria) are out of school. A plurality has completed primary school in Ethiopia (46%), Malawi (63%), and Uganda (57%), while a plurality of young women has completed secondary or higher education in most of the other countries. In contrast, 55% of young women in Mali have no education. It is important to note, however, that information on educational attainment is censored for a sizable proportion of women, predominantly the youngest women, who are still attending school and whose ultimate level of school completion is yet unknown.

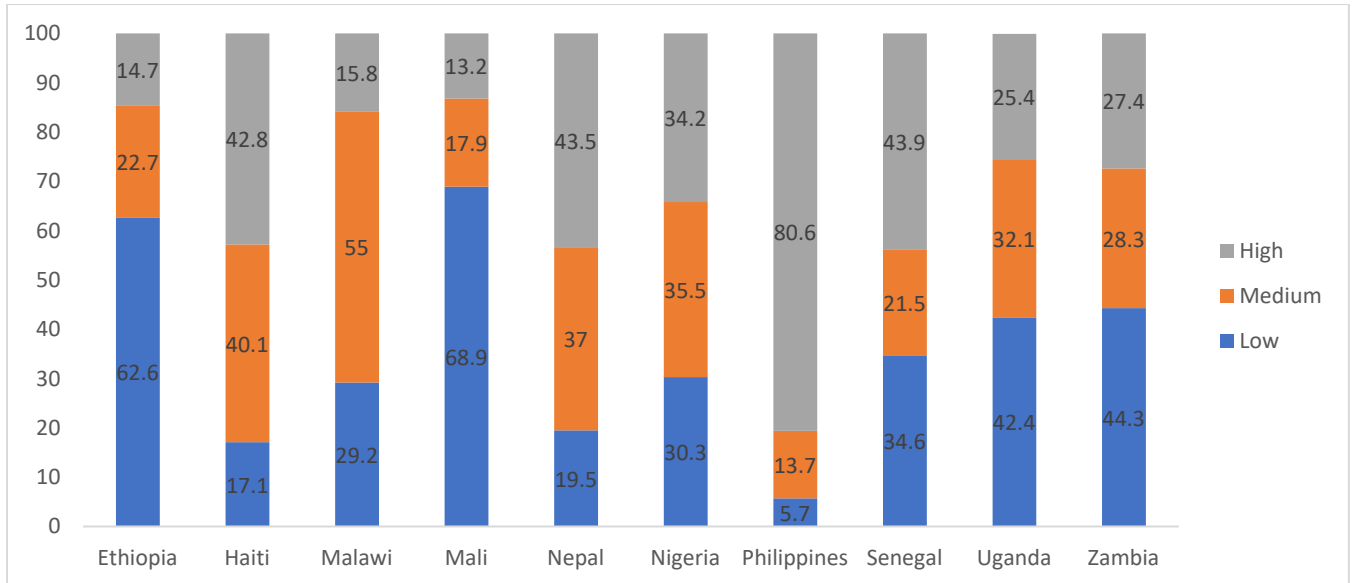
Table 3 shows descriptive statistics on the items that comprise the YE scale. These items show considerable variability across study countries. For example, the level of mobile phone ownership ranges from 33% of young women in Ethiopia to 88% in the Philippines. The proportion with access to cash earnings ranges from 21% in Malawi to 50% in Uganda (where 7 in 10 young women worked in the last 12 months). Acceptance of wife-beating if a woman argues with her husband ranges from 3% in Haiti to 68% in Mali. This variability contributes to our rationale to use a country-specific measure of YE for within-country analyses.

Table 3 Youth empowerment items among analytic sample of women age 15-29

	Ethiopia	Haiti	Malawi	Mali	Nepal	Nigeria	Philippines	Senegal	Uganda	Zambia
Youth empowerment (survey-specific terciles)										
Low	39.6	32.2	35.7	35.6	32.5	32.3	27.1	27.5	31.9	30.4
Medium	34.8	30.9	34.2	34.5	32.2	33.5	34.2	32.6	32.9	33.1
High	25.6	37.0	30.1	29.9	35.4	34.2	38.7	39.9	35.2	36.5
Wife beating is justified if:										
Wife goes out without telling husband	41.7	12.1	8.1	53.0	10.7	22.9	4.7	29.0	31.7	29.8
Wife neglects the children	46.8	11.4	10.5	51.8	25.4	23.2	11.1	30.1	41.1	36.0
Wife argues with husband	40.7	2.6	8.1	67.8	8.6	21.1	3.8	32.3	28.3	36.2
Wife refuses to have sex with husband	34.0	4.5	9.8	62.1	2.9	22.4	3.9	31.5	19.5	34.2
Wife burns the food	38.2	4.7	6.6	23.3	3.3	15.7	2.8	18.9	15.2	24.8
Owns a mobile telephone	32.8	54.9	29.4	59.6	75.0	50.9	88.4	64.7	40.2	48.2
Uses mobile phone for financial transactions	1.6	11.5	8.4	18.2	8.9	12.1	9.8	23.1	29.8	24.7
Has an account in a bank or other financial institution	13.9	9.5	7.4	3.2	29.0	16.8	16.2	3.9	9.5	8.2
Use of internet										
Never	93.0	63.3	92.4	80.7	66.7	80.3	15.7	47.1	87.5	84.5
Yes, not in last 12 months	0.7	2.8	1.0	1.6	1.3	1.8	1.9	1.5	1.5	1.6
Yes, in last 12 months	6.3	33.9	6.6	17.7	32.0	17.9	82.3	51.4	10.9	13.8
Frequency of internet use in last month										
Not at all	94.1	69.1	93.8	82.4	69.3	82.8	18.5	49.3	89.6	86.5
Less than once a week	1.3	4.7	0.8	1.8	3.4	2.9	11.4	10.9	1.8	2.0
At least once a week	2.5	8.9	1.7	5.8	9.6	5.4	24.4	17.7	3.2	4.2
Almost every day	2.1	17.2	3.8	10.0	17.8	8.9	45.7	22.1	5.4	7.3
Currently working	30.4	26.9	54.2	47.3	48.7	52.0	32.7	31.4	64.8	32.9
Worked in last 12 months	46.9	38.4	59.2	51.2	60.3	55.5	41.0	40.6	70.1	39.6
Has earnings										
No earnings	74.8	62.0	76.6	64.0	73.2	57.4	64.3	75.3	46.6	69.4
In-kind earnings	3.0	0.4	2.4	1.2	1.6	1.4	0.4	0.9	3.6	0.8
Cash	22.2	37.6	21.0	34.8	25.2	41.2	35.3	23.8	49.8	29.8
The following is a big problem to get medical advice/treatment when sick										
Getting permission to go	31.7	10.9	16.6	25.1	24.6	11.9	9.8	10.3	6.0	3.9
Getting money needed for treatment	51.8	71.7	50.9	36.6	51.9	44.9	45.2	45.7	41.2	19.2
Distance to health facility	48.9	36.9	54.4	27.0	52.5	25.4	23.2	26.3	35.0	27.3
Not wanting to go alone	42.8	22.6	31.0	19.2	68.8	17.9	25.5	19.1	21.0	13.8
Owns house alone or jointly	34.8	10.1	44.4	25.7	2.3	5.3	13.7	5.8	24.7	21.3
Owns land alone or jointly	27.4	11.6	45.2	25.5	4.1	6.4	5.0	2.7	20.7	16.6
Knows ovulatory cycle	24.5	24.3	15.8	25.8	26.4	21.3	19.5	19.9	20.1	19.0
Knows postpartum fecundability	41.1	38.3	50.6	38.1	63.4	54.4	54.1	27.2	45.2	41.8
Knowledge of contraceptive methods										
None	1.9	0.2	2.6	8.1	0.1	10.0	1.7	11.0	1.4	2.1
Only traditional/folkloric method	0.0	0.0	0.0	0.2	0.0	0.5	0.1	0.1	0.1	0.0
Modern method	98.1	99.8	97.4	91.7	99.9	89.5	98.3	88.9	98.5	97.9
Weighted N	9,099	8,270	14,375	6,009	6,984	22,538	12,789	4,944	11,137	7,971

Using the pooled YE scale, Figure 1 indicates the YE is lowest in Mali and Ethiopia (where 13% and 15% of young women, respectively, fall in the high empowerment category) and is highest in the Philippines (where 81% of young women are considered to be highly empowered).

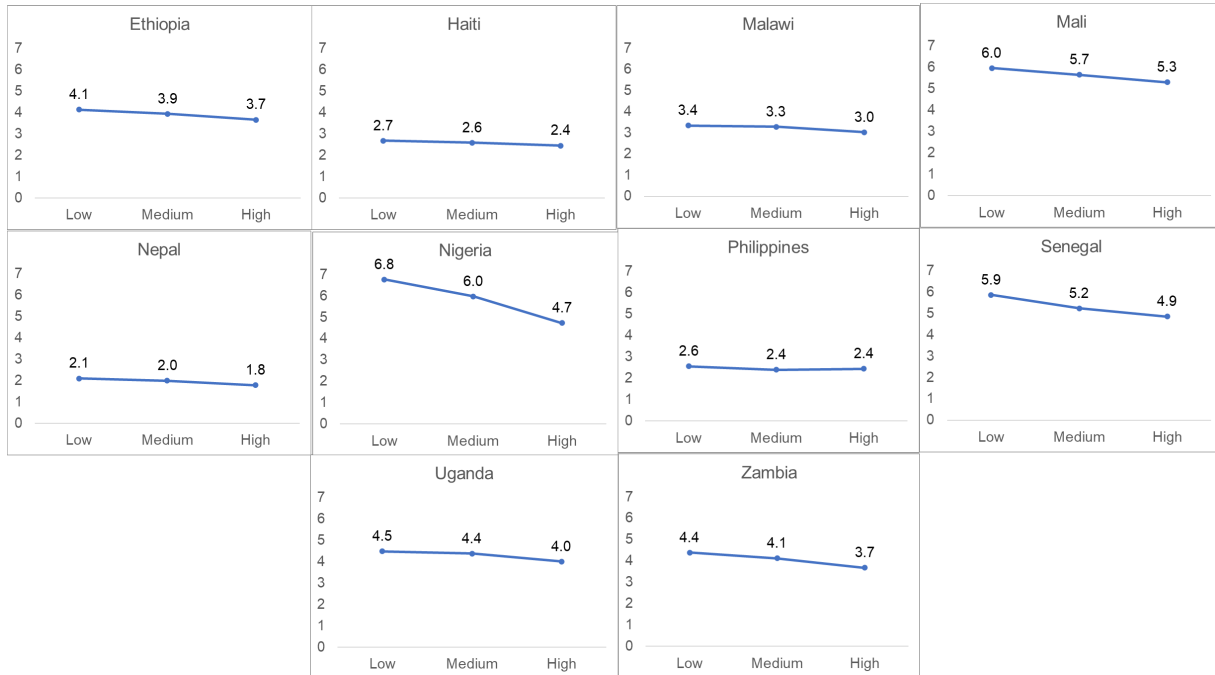
Figure 1. Youth empowerment by country



YE increases with age, with the largest differences between those age 15-19 and those age 20-24 (data not shown). It is typically lowest among currently married youth. YE is significantly higher among young women who attended school in the previous school year in 4 countries and among out-of-school in 6 countries.

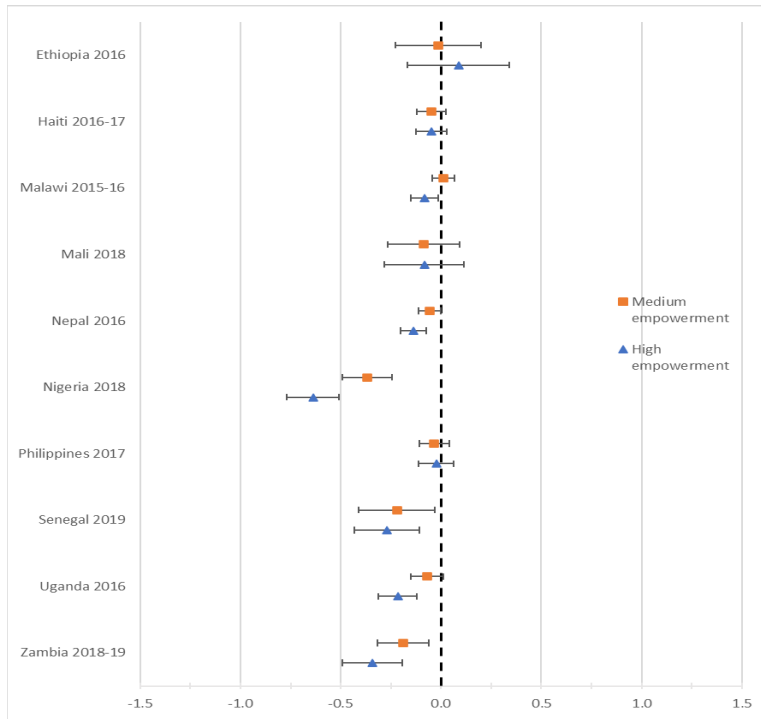
We see a consistent, negative association between ideal number of children and YE that is statistically significant in all 10 study countries (Figure 2). Typically, the largest difference in ideal number of children is between the highest YE tercile as compared to those in the low or medium YE terciles. The Philippines and Senegal are exceptions to this general pattern. In these two countries, the difference between the low and medium terciles is larger than between the medium and high terciles. The largest differences are in Nigeria, where young women in the low empowerment tercile prefer, on average, 6.8 children compared to 4.7 children in the high empowerment tercile ($p < 0.001$), followed by Senegal where there is a difference of 1 child between these groups ($p < 0.001$).

Figure 2. Ideal number of children by levels of youth empowerment



These associations remain significant in 6 countries in multivariable models (Figure 3). These are: Malawi, Nepal, Nigeria, Senegal, Uganda, Zambia), though no longer significant in Ethiopia, Haiti, Mali, and the Philippines. Young women in the medium YE tercile want between 0.06 (Nepal, $p < 0.05$) and 0.37 (Nigeria, $p < 0.001$) fewer children than those in the low tercile, and young women in the high YE tercile want between 0.08 (Malawi, $p < 0.01$) and 0.64 (Nigeria, $p < 0.001$) fewer children compared to those with low YE (reference), controlling for other factors. In five countries, young women's ideals in both the medium and high empowerment categories differ from the low empowerment group. However, in Malawi, only the high empowerment group has significantly lower ideal number of children.

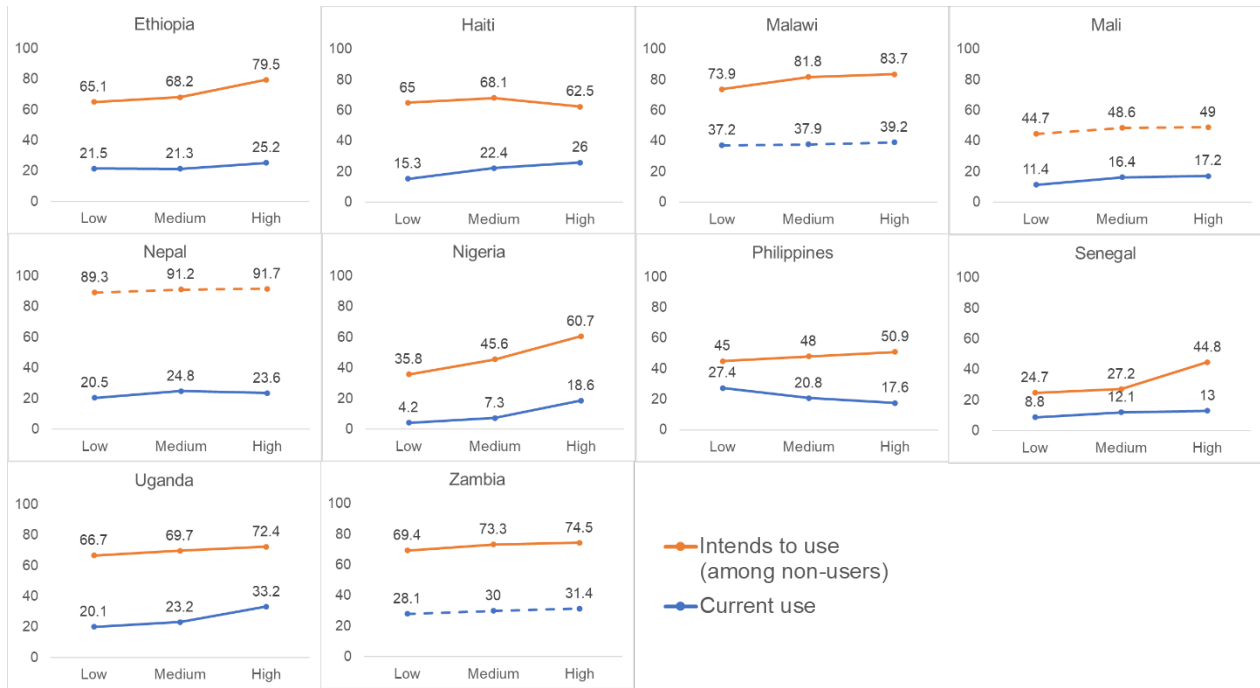
Figure 3. Youth empowerment coefficients for ideal number of children from multivariable regression models



Models control for: age, marital status, residence, educational attainment, and household wealth.

Contraceptive use (blue) and intentions to use (orange, among non-users) both vary significantly with YE in 8 of 10 surveys (Figure 4) and generally increase with increasing levels of YE. Contraceptive use is not significant in Malawi or Zambia and intention to use is not significant in Mali and Nepal. Note the negative association with use in the Philippines. The biggest differences in use are in Nigeria (over 16 points), Uganda (13 points) and Haiti (nearly 11 points). The largest differences in intention to use are also in Nigeria (25 points), and in Senegal (20 points) and Ethiopia (over 14 points).

Figure 4. Contraceptive use and intentions to use contraception (among non-users) by levels of youth empowerment

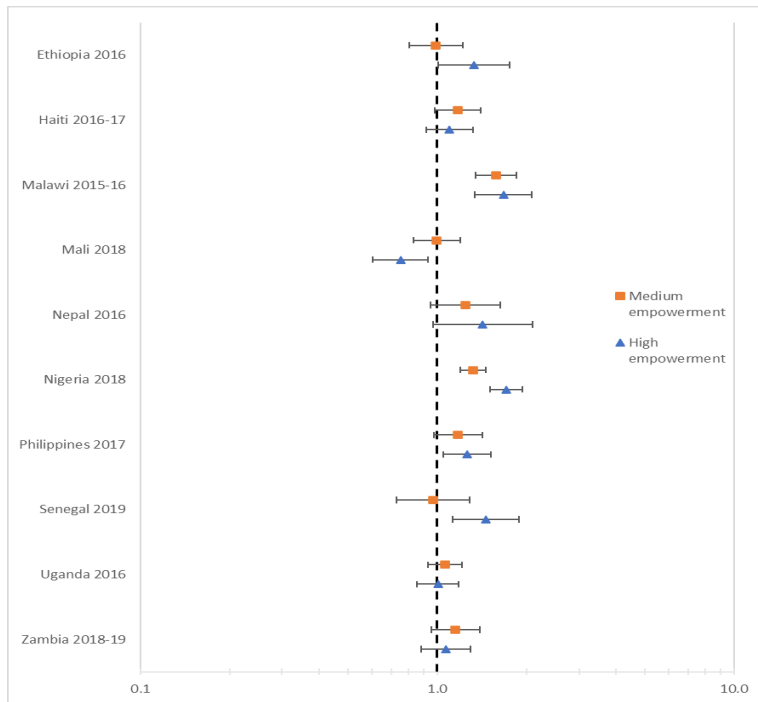


YE's association with contraceptive use holds in multivariable models in Ethiopia, Haiti, Malawi, Nigeria, and Senegal. The odds of using contraception are between 1.13 (Malawi) and 1.74 (Senegal) times higher among youth with medium empowerment than youth with low YE, and between 1.16 (Malawi) and 2.16 (Nigeria) times higher among youth in the high empowerment tercile as compared to those in the low empowerment tercile. These results indicate that, generally, the odds of contraceptive use increase with increasing levels of empowerment, with the largest effect appearing among the high empowerment group.

Among contraceptive non-users, the association of YE with intention to use contraception remains statistically significant in 8 countries (Figure 5). Uganda and Zambia are the exceptions. The odds of the intention to use contraception are between 1.17 (Haiti and the Philippines) and 1.58 (Malawi) times higher among those in the medium empowerment tercile than low tercile, and between 1.26 (Philippines) and 1.70 (Nigeria) times higher among those with high empowerment compared with low empowerment. In Mali, the direction reverses and young women with high empowerment have 25% lower odds (OR=0.075) of intending to use contraception than those with low empowerment. Interestingly, the bivariate relationship in Mali

and Nepal did not appear to be significant, but emerged as significant in multivariable analysis. This suggests that one or more control variables may play a moderating or mediating role in the positive association in Nepal and negative association in Mali.

Figure 5. Youth empowerment adjusted odd ratios for intention to use contraception from multivariable regression models



Models control for: age, marital status, residence, educational attainment, and household wealth.

Conclusion

This study presents an innovative method for measuring youth empowerment, one that applies to young women regardless of age, marital status, or school status (MacQuarrie 2021b). This is a methodological improvement over previous empowerment measures which, even among those purporting to be tailored for youth, are frequently relevant only for married women (Breakthrough Research 2021; Moreau et al. 2020; Rettig, Fick, and Hijmans 2020). This advance helps us to analyze fertility intentions for a broad swath, rather than a narrow and selective subset, of young people.

This study provides evidence that youth empowerment is negatively associated with ideal number of children (10 out of 10 study countries). A similar finding has been found among

adults (Atake and Ali 2019; El-Zeini 2008; Upadhyay and Karasek 2012; Upadhyay et al. 2014; Woldemicael 2009). Understanding the determinants of young people's ideal number of children has received less attention than have other aspects of adolescent sexual and reproductive health and behaviors. One available multi-country study suggests that unmarried young women hold a preference for fewer children than do their married counterparts, though results by age were mixed (MacQuarrie 2014). Another study points to the enduring role of education (sometimes used as a crude proxy for empowerment) in shaping preferences for fewer children (Behrman 2015). Here, we show that controlling for education and marital status, YE remains associated with ideal family size among young women in six countries.

This study further identified a positive association between youth empowerment and young women's intention to use contraception in the future (in 8 out of 10 study countries). This finding is consistent with a study in Pakistan that found, among young married women, marriage decision-making power was associated with intention to use contraception (Hamid, Stephenson, and Rubenson 2011). It also comports with results from a study among adult women that found perceived self-efficacy to be associated with intention to use contraception in Kenya and Nigeria (Babalola et al. 2015).

The association between youth empowerment and current use of contraception is weaker, but present in 5 out of 10 study countries. This link has been established among adult women's empowerment and contraceptive use in a variety of settings (e.g., DeRose and Ezeh 2010; Kabir et al. 2005; Kishor 2000; Leon 2012; Nadeem et al. 2021; Woldemicael 2009). It is not fully clear why the link between empowerment and contraceptive use should be weaker and less universal among youth than among adult women. A study among young women in Ghana found that reproductive autonomy decision-making, but not reproductive autonomy communication, was associated with contraceptive use (Loll et al. 2019). While we cannot rule out issues with measurement of empowerment—or the dimensions of empowerment that we measure—one likely explanation is that there are sufficiently high numbers of young women, at all levels of the empowerment scale, who are not in the types of sexual relationships that would make contraceptive use salient, obscuring the extent of the association between empowerment and contraceptive use. The effect of empowerment on contraceptive use may well be conditioned on young women having a sexual partner and desiring to avoid pregnancy in the short term. For

example, one study in Nigeria restricted to married young women and using a measurement of empowerment specific to this subpopulation found that empowerment was associated with greater use of contraception (Breakthrough Research 2021).

These findings support the importance of programmatic and policy interventions to foster gender equity and to build and maintain young women's empowerment as a mechanism towards achieving their fertility intentions. However, it is equally important to ensure that young women are able to realize their intentions, whatever they are, regardless of their levels of empowerment in other domains.

4.2 Limitations

This study has several limitations to note. First, the YE scale is restricted to data that were available in DHS surveys for all youth. The development of this measure took, by necessity, a data-driven approach rather than a conceptually driven approach (MacQuarrie 2021b). The resulting scale may weakly measure—or miss entirely—some domains that are nonetheless salient expressions of youth empowerment (Yount, Peterman, and Cheong 2018). For example, it is missing household decision-making items because these items are only available for married women, even though youth may face more constraints on such decision-making than other members of the household. For adolescents, particularly unmarried adolescents, who may be subject to adult authority, such decision-making items need to include other actors beyond the spouse/partner and the respondent as possible locus of control (Gage 2000). Further, it also excludes any measures regarding decisions to stay in school, pursue an education, or when and whom to marry, although these are key life decisions for many young women (Sandøy et al. 2016).

This study shares a limitation common to many studies of youth populations. Accurately measuring educational attainment is difficult where our observed measure is truncated for part of the sample. Some youth, particularly 15-, 16-, and 17-year-olds, may go on to complete secondary school, but are categorized as having completed primary only, because they are still in school due to their age at the time of the survey. We attempt to correct for this by also including a measure of in-school or out-of-school status. This increases our confidence that we are accurately estimating the association between young women's empowerment and our fertility

intention outcomes. We do not take the extra step of entering interaction terms between educational attainment and school status because we treat them as control variables. We are less concerned with the association of education on our outcomes than with the confounding effect their omission would have on the observed association of youth empowerment with our outcomes.

There is a small possibility that young women's fertility intentions are not correctly classified according to the measures used in this study. The risk of incorrect classification may be greatest among young people for whom any childbearing is anticipated only in the distant future rather than the immediate or short-term future (Yeatman, Sennott, and Culpepper 2013). Young women who are not now in a sexual relationship, or immediately foresee a sexual relationship, may not currently articulate a future intention to use contraception, though they may do so in the future. School-age girls who are preoccupied with present concerns such as their education, friendships, and life in their natal home may not have crisply articulated visions for their adult lives, including their desired family size. They may disproportionately report zero or a non-numeric response as their ideal number of children if the concept does not have immediate salience. While such misclassification, if present, would create additional "noise", the risk of any systemic bias to statistical inference is low, so long as such responses do not vary systematically with respondents' empowerment or its predictors. We suggest that the ways in which young women understand and articulate fertility preferences is an area ripe for further research.

Finally, a common limitation to any cross-sectional data is that we assess correlations but cannot infer causation. These data have been presented as if young women's empowerment influences their fertility intentions. Nonetheless, we cannot rule out the reverse direction, that holding certain fertility intentions leads to empowerment. Nor can we rule out selection/confounding effects in the scenario that one's ideal number of children or intention to use contraception and empowerment are caused by the same set of factors.

4.3 Conclusion

This study presents a novel and effective method for measuring empowerment among young women. We find young women's empowerment is largely negatively associated with ideal number of children (six countries) and positively associated with intention to use contraception

(eight of ten countries) after controlling for other factors. The association between young women's empowerment and current use of contraception is weaker but present in five of ten countries. These findings suggest the importance of programmatic and policy interventions that build and maintain young women's empowerment as a mechanism for both shaping fertility intentions and helping young women achieve them.

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Appendix Table A1. Factors associated with ideal number of children among women age 15-29. Coefficients (95% confidence intervals) from separate multivariable linear regression models.

Variables	Ethiopia 2016	Haiti 2016-17	Malawi 2015-16	Mali 2018	Nepal 2016
Youth empowerment tercile					
(ref: low)					
Medium	-0.014 (-0.228 - 0.200)	-0.048 (-0.121 - 0.024)	0.012 (-0.043 - 0.067)	-0.085 (-0.265 - 0.094)	-0.056 ** (-0.112 - -0.000)
High	0.087 (-0.168 - 0.341)	-0.049 (-0.126 - 0.028)	-0.082 ** (-0.150 - -0.014)	-0.083 (-0.282 - 0.116)	-0.138 *** (-0.201 - -0.076)
Age (ref: 15-19)					
20-24	0.022 (-0.199 - 0.243)	0.050 (-0.014 - 0.114)	0.185 *** (0.114 - 0.256)	-0.029 (-0.195 - 0.137)	-0.099 *** (-0.159 - -0.040)
25-29	0.286 ** (0.011 - 0.561)	0.240 *** (0.144 - 0.336)	0.519 *** (0.441 - 0.596)	0.264 *** (0.075 - 0.453)	-0.082 ** (-0.149 - -0.014)
Marital status					
(ref: never married)					
Currently married	0.447 *** (0.246 - 0.649)	0.038 (-0.037 - 0.113)	0.227 *** (0.152 - 0.302)	0.255 ** (0.051 - 0.459)	0.122 *** (0.059 - 0.185)
Formerly married	-0.297 * (-0.635 - 0.041)	0.040 (-0.184 - 0.265)	0.068 (-0.029 - 0.165)	-0.201 (-0.647 - 0.244)	-0.174 (-0.455 - 0.107)
Attended school during current school year (ref: out of school)					
In school	-0.087 (-0.324 - 0.151)	0.037 (-0.035 - 0.108)	0.055 (-0.020 - 0.129)	-0.157 (-0.384 - 0.070)	-0.051 * (-0.106 - 0.004)
Residence (ref: urban)					
Rural	-0.007 (-0.354 - 0.339)	-0.011 (-0.088 - 0.066)	0.218 *** (0.140 - 0.296)	0.194 (-0.052 - 0.441)	0.102 *** (0.032 - 0.172)
Completed education (ref: no schooling)					
Primary	-0.503 *** (-0.769 - -0.237)	-0.194 ** (-0.384 - -0.005)	-0.246 *** (-0.355 - -0.137)	-0.057 (-0.265 - 0.152)	-0.131 *** (-0.230 - -0.033)
Secondary	-0.631 *** (-0.917 - -0.345)	-0.239 ** (-0.432 - -0.047)	-0.501 *** (-0.621 - -0.381)	-0.324 *** (-0.499 - -0.150)	-0.403 *** (-0.504 - -0.303)
Higher	-0.644 *** (-0.971 - -0.316)	-0.399 *** (-0.610 - -0.189)	-0.732 *** (-0.904 - -0.560)	-0.894 *** (-1.228 - -0.560)	-0.448 *** (-0.554 - -0.342)
Household wealth quintile (ref: poorest)					
Poorer	-0.928 *** (-1.314 - -0.542)	-0.147 *** (-0.251 - -0.042)	-0.045 (-0.115 - 0.025)	0.142 (-0.159 - 0.443)	0.082 ** (0.011 - 0.153)
Middle	-0.889 *** (-1.264 - -0.513)	-0.308 *** (-0.424 - -0.192)	-0.085 ** (-0.164 - -0.005)	-0.187 (-0.455 - 0.081)	0.132 *** (0.052 - 0.212)
Richer	-0.943 *** (-1.350 - -0.536)	-0.380 *** (-0.502 - -0.258)	-0.106 ** (-0.187 - -0.025)	-0.525 *** (-0.800 - -0.249)	0.097 ** (0.021 - 0.173)
Richest	-1.050 *** (-1.496 - -0.603)	-0.409 *** (-0.539 - -0.279)	-0.191 *** (-0.284 - -0.098)	-0.639 *** (-0.949 - -0.329)	0.069 (-0.018 - 0.156)
Observations	8,432	8,263	14,268	5,572	6,983

95% confidence intervals in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Continued...

Appendix Table A1. Continued

Variables	Nigeria 2018	Philippines 2017	Senegal 2019	Uganda 2016	Zambia 2018-19
Youth empowerment tercile					
(ref: low)					
Medium	-0.368 *** (-0.490 - -0.246)	-0.034 (-0.108 - 0.040)	-0.220 ** (-0.410 - -0.029)	-0.069 * (-0.151 - 0.013)	-0.189 *** (-0.319 - -0.060)
High	-0.639 *** (-0.771 - -0.508)	-0.023 (-0.111 - 0.065)	-0.270 *** (-0.432 - -0.108)	-0.216 *** (-0.312 - -0.120)	-0.342 *** (-0.490 - -0.194)
Age (ref: 15-19)					
20-24	0.021 (-0.090 - 0.133)	0.182 *** (0.096 - 0.267)	0.210 ** (0.030 - 0.389)	0.127 *** (0.048 - 0.206)	0.294 *** (0.176 - 0.412)
25-29	0.119 * (-0.014 - 0.251)	0.338 *** (0.238 - 0.438)	0.152 (-0.083 - 0.387)	0.449 *** (0.346 - 0.551)	0.530 *** (0.395 - 0.666)
Marital status					
(ref: never married)					
Currently married	0.611 *** (0.500 - 0.723)	0.271 *** (0.196 - 0.346)	0.367 *** (0.157 - 0.576)	0.306 *** (0.208 - 0.404)	0.462 *** (0.349 - 0.575)
Formerly married	0.064 (-0.229 - 0.357)	-0.238 ** (-0.445 - -0.031)	-0.229 (-0.663 - 0.206)	-0.082 (-0.212 - 0.049)	0.000 (-0.168 - 0.169)
Attended school during current school year					
(ref: out of school)					
In school	0.023 (-0.089 - 0.135)	0.130 ** (0.030 - 0.230)	-0.157 (-0.362 - 0.048)	0.092 * (-0.013 - 0.197)	0.040 (-0.079 - 0.158)
Residence (ref: urban)					
Rural	0.058 (-0.074 - 0.191)	0.039 (-0.034 - 0.112)	0.476 *** (0.263 - 0.689)	0.101 (-0.024 - 0.226)	0.186 *** (0.051 - 0.321)
Completed education					
(ref: no schooling)					
Primary	-1.002 *** (-1.169 - -0.835)	-0.058 (-0.613 - 0.496)	-0.322 *** (-0.526 - -0.119)	-1.135 *** (-1.527 - -0.743)	-0.043 (-0.300 - 0.214)
Secondary	-1.757 *** (-1.913 - -1.601)	-0.198 (-0.781 - 0.384)	-0.696 *** (-0.899 - -0.494)	-1.364 *** (-1.757 - -0.971)	-0.211 (-0.471 - 0.050)
Higher	-1.840 *** (-2.051 - -1.630)	-0.046 (-0.630 - 0.537)	-0.825 *** (-1.165 - -0.486)	-1.550 *** (-1.949 - -1.151)	-0.551 *** (-0.856 - -0.246)
Household wealth quintile					
(ref: poorest)					
Poorer	-0.253 *** (-0.431 - -0.074)	-0.274 *** (-0.371 - -0.177)	-0.300 ** (-0.553 - -0.046)	-0.175 *** (-0.302 - -0.049)	-0.029 (-0.181 - 0.123)
Middle	-0.511 *** (-0.690 - -0.331)	-0.318 *** (-0.424 - -0.212)	-0.574 *** (-0.900 - -0.248)	-0.130 * (-0.263 - 0.003)	-0.267 *** (-0.425 - -0.108)
Richer	-0.831 *** (-1.033 - -0.629)	-0.334 *** (-0.446 - -0.222)	-0.465 *** (-0.788 - -0.141)	-0.311 *** (-0.454 - -0.167)	-0.362 *** (-0.541 - -0.182)
Richest	-1.209 *** (-1.413 - -1.006)	-0.256 *** (-0.383 - -0.129)	-0.653 *** (-0.975 - -0.331)	-0.478 *** (-0.642 - -0.313)	-0.541 *** (-0.742 - -0.340)
Observations	21,957	12,626	4,179	10,921	7,787

95% confidence intervals in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table A2. Factors associated with current contraceptive use among women age 15-29. Odds ratios from separate multivariable logistic regression models (95% confidence intervals in parentheses).

Variables	Ethiopia 2016	Haiti 2016-17	Malawi 2015-16	Mali 2018	Nepal 2016
Youth empowerment tercile					
(ref: low)					
Medium	1.047 (0.842 - 1.303)	1.254 ** (1.046 - 1.503)	1.129 * (0.988 - 1.290)	1.233 (0.947 - 1.605)	1.062 (0.878 - 1.284)
High	1.368 ** (1.050 - 1.783)	1.551 *** (1.252 - 1.923)	1.155 ** (1.003 - 1.331)	1.062 (0.812 - 1.389)	0.939 (0.731 - 1.207)
Age (ref: 15-19)					
20-24	1.242 * (0.963 - 1.602)	2.225 *** (1.769 - 2.800)	1.915 *** (1.649 - 2.223)	2.028 *** (1.588 - 2.589)	1.546 *** (1.201 - 1.991)
25-29	1.314 ** (1.024 - 1.686)	2.331 *** (1.800 - 3.018)	2.392 *** (2.047 - 2.796)	2.333 *** (1.810 - 3.008)	2.741 *** (2.144 - 3.503)
Marital status					
(ref: never married)					
Currently married	28.300 *** (19.920 - 40.200)	3.111 *** (2.585 - 3.745)	6.237 *** (5.122 - 7.596)	1.329 * (0.976 - 1.812)	639.900 *** (154.000 - 2,660.000)
Formerly married	9.922 *** (6.036 - 16.310)	1.398 * (0.962 - 2.032)	3.499 *** (2.759 - 4.438)	1.221 (0.611 - 2.440)	68.350 *** (9.289 - 503.000)
Attended school during current school year (ref: out of school)					
In school	0.570 ** (0.363 - 0.893)	0.967 (0.761 - 1.229)	0.616 *** (0.475 - 0.798)	0.634 *** (0.463 - 0.867)	1.038 (0.744 - 1.448)
Residence (ref: urban)					
Rural	0.680 * (0.436 - 1.061)	0.638 *** (0.508 - 0.802)	0.844 ** (0.718 - 0.991)	0.957 (0.697 - 1.313)	0.799 ** (0.661 - 0.967)
Completed education (ref: no schooling)					
Primary	1.143 (0.922 - 1.418)	1.045 (0.775 - 1.410)	1.257 ** (1.015 - 1.557)	1.146 (0.876 - 1.498)	1.034 (0.812 - 1.317)
Secondary	1.262 (0.931 - 1.712)	1.026 (0.748 - 1.406)	1.254 * (0.960 - 1.640)	2.380 *** (1.860 - 3.045)	1.208 * (0.986 - 1.479)
Higher	1.782 *** (1.182 - 2.687)	1.141 (0.735 - 1.772)	1.123 (0.741 - 1.701)	2.792 *** (1.666 - 4.676)	1.179 (0.910 - 1.527)
Household wealth quintile (ref: poorest)					
Poorer	1.649 *** (1.191 - 2.283)	0.867 (0.690 - 1.090)	1.166 ** (1.008 - 1.349)	0.880 (0.596 - 1.301)	0.998 (0.783 - 1.272)
Middle	2.159 *** (1.521 - 3.066)	1.284 * (0.983 - 1.677)	1.108 (0.948 - 1.294)	1.466 ** (1.030 - 2.087)	0.803 * (0.622 - 1.037)
Richer	2.787 *** (2.017 - 3.851)	1.031 (0.759 - 1.401)	1.024 (0.863 - 1.215)	1.980 *** (1.342 - 2.922)	0.903 (0.692 - 1.180)
Richest	2.534 *** (1.621 - 3.961)	0.839 (0.588 - 1.196)	0.894 (0.733 - 1.092)	1.572 * (0.994 - 2.487)	1.420 ** (1.044 - 1.933)
Observations	9,246	8,282	14,343	6,084	7,022

95% confidence intervals in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Continued...

Appendix Table A2. Continued

Variables	Nigeria 2018	Philippines 2017	Senegal 2019	Uganda 2016	Zambia 2018-19
Youth empowerment tercile					
(ref: low)					
Medium	1.487 *** (1.218 - 1.816)	1.171 (0.949 - 1.444)	1.739 *** (1.283 - 2.358)	1.007 (0.881 - 1.151)	1.077 (0.914 - 1.270)
High	2.158 *** (1.778 - 2.619)	0.924 (0.710 - 1.202)	1.431 * (0.975 - 2.101)	1.125 (0.961 - 1.316)	1.081 (0.881 - 1.326)
Age (ref: 15-19)					
20-24	3.264 *** (2.659 - 4.006)	2.564 *** (1.892 - 3.475)	2.855 *** (1.886 - 4.323)	1.967 *** (1.622 - 2.386)	1.667 *** (1.365 - 2.036)
25-29	4.356 *** (3.436 - 5.524)	2.720 *** (1.984 - 3.727)	3.566 *** (2.439 - 5.214)	2.651 *** (2.176 - 3.229)	2.001 *** (1.615 - 2.479)
Marital status					
(ref: never married)					
Currently married	1.467 *** (1.241 - 1.734)	43.040 *** (29.020 - 63.830)	7.992 *** (5.220 - 12.230)	2.521 *** (2.126 - 2.988)	4.013 *** (3.298 - 4.883)
Formerly married	0.993 (0.620 - 1.590)	3.187 *** (1.633 - 6.219)	4.288 *** (2.042 - 9.003)	2.351 *** (1.897 - 2.913)	2.135 *** (1.585 - 2.875)
Attended school during current school year					
(ref: out of school)					
In school	0.690 *** (0.556 - 0.856)	0.614 ** (0.388 - 0.972)	0.524 ** (0.311 - 0.882)	0.513 *** (0.396 - 0.664)	0.317 *** (0.243 - 0.413)
Residence (ref: urban)					
Rural	1.121 (0.968 - 1.300)	0.971 (0.817 - 1.154)	0.675 ** (0.500 - 0.912)	0.911 (0.770 - 1.078)	0.933 (0.769 - 1.133)
Completed education					
(ref: no schooling)					
Primary	2.847 *** (2.214 - 3.660)	4.078 *** (1.563 - 10.640)	1.512 ** (1.101 - 2.078)	1.658 *** (1.206 - 2.278)	1.893 *** (1.447 - 2.476)
Secondary	3.731 *** (3.029 - 4.597)	5.161 *** (1.952 - 13.640)	1.588 *** (1.184 - 2.129)	2.245 *** (1.606 - 3.137)	2.194 *** (1.644 - 2.928)
Higher	3.430 *** (2.623 - 4.485)	5.021 *** (1.888 - 13.350)	1.926 * (0.990 - 3.746)	2.327 *** (1.587 - 3.413)	2.154 *** (1.340 - 3.464)
Household wealth quintile					
(ref: poorest)					
Poorer	1.326 * (0.968 - 1.818)	1.039 (0.847 - 1.274)	0.898 (0.617 - 1.305)	1.553 *** (1.298 - 1.857)	1.023 (0.839 - 1.248)
Middle	1.892 *** (1.430 - 2.503)	0.843 (0.663 - 1.072)	1.129 (0.704 - 1.809)	1.545 *** (1.272 - 1.877)	1.273 ** (1.043 - 1.554)
Richer	2.384 *** (1.777 - 3.197)	0.809 (0.603 - 1.086)	1.027 (0.607 - 1.737)	1.828 *** (1.484 - 2.251)	1.166 (0.901 - 1.510)
Richest	2.438 *** (1.767 - 3.364)	0.719 ** (0.523 - 0.988)	0.901 (0.520 - 1.561)	1.775 *** (1.401 - 2.248)	0.935 (0.684 - 1.278)
Observations	22,470	12,719	5,043	11,072	7,965

95% confidence intervals in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table A3. Factors associated with intention to use contraception (among non-users) among women age 15-29. Odds ratios from separate multivariable logistic regression models (95% confidence intervals in parentheses).

Variables	Ethiopia 2016	Haiti 2016-17	Malawi 2015-16	Mali 2018	Nepal 2016
Youth empowerment tercile					
(ref: low)					
Medium	0.989 (0.802 - 1.218)	1.171 * (0.982 - 1.397)	1.577 *** (1.347 - 1.845)	0.995 (0.829 - 1.195)	1.240 (0.947 - 1.624)
High	1.327 ** (1.008 - 1.747)	1.100 (0.915 - 1.322)	1.668 *** (1.341 - 2.075)	0.751 *** (0.606 - 0.931)	1.419 * (0.965 - 2.087)
Age (ref: 15-19)					
20-24	1.203 (0.947 - 1.528)	1.150 * (0.980 - 1.350)	1.051 (0.875 - 1.262)	1.032 (0.869 - 1.226)	1.002 (0.692 - 1.450)
25-29	0.790 * (0.620 - 1.006)	0.981 (0.770 - 1.251)	0.683 *** (0.552 - 0.845)	0.903 (0.747 - 1.092)	0.635 * (0.391 - 1.032)
Marital status					
(ref: never married)					
Currently married	1.180 (0.934 - 1.491)	1.160 (0.932 - 1.443)	1.609 *** (1.308 - 1.980)	0.942 (0.769 - 1.154)	2.784 *** (2.063 - 3.757)
Formerly married	1.032 (0.695 - 1.530)	1.024 (0.683 - 1.535)	1.272 * (0.956 - 1.694)	1.329 (0.735 - 2.403)	0.104 *** (0.053 - 0.204)
Attended school during current school year					
(ref: out of school)					
In school	1.043 (0.818 - 1.330)	0.861 (0.708 - 1.048)	0.888 (0.734 - 1.074)	1.044 (0.820 - 1.327)	1.364 * (0.965 - 1.927)
Residence (ref: urban)					
Rural	1.167 (0.844 - 1.611)	0.969 (0.761 - 1.233)	0.813 (0.628 - 1.053)	0.729 * (0.528 - 1.006)	1.263 (0.886 - 1.801)
Completed education					
(ref: no schooling)					
Primary	2.327 *** (1.868 - 2.899)	1.259 (0.907 - 1.749)	1.773 *** (1.364 - 2.306)	1.341 *** (1.100 - 1.636)	1.168 (0.797 - 1.711)
Secondary	3.186 *** (2.317 - 4.380)	1.173 (0.841 - 1.636)	2.735 *** (1.971 - 3.797)	1.713 *** (1.407 - 2.086)	1.995 *** (1.325 - 3.004)
Higher	3.454 *** (2.371 - 5.033)	0.985 (0.635 - 1.528)	2.253 *** (1.377 - 3.686)	2.575 *** (1.540 - 4.305)	2.765 *** (1.663 - 4.596)
Household wealth quintile					
(ref: poorest)					
Poorer	2.048 *** (1.508 - 2.782)	0.961 (0.738 - 1.250)	0.865 (0.696 - 1.075)	1.055 (0.810 - 1.374)	0.854 (0.580 - 1.259)
Middle	2.220 *** (1.602 - 3.076)	0.847 (0.643 - 1.117)	0.853 (0.672 - 1.084)	1.361 ** (1.040 - 1.783)	0.637 ** (0.418 - 0.970)
Richer	1.876 *** (1.336 - 2.634)	0.811 (0.584 - 1.126)	0.821 (0.647 - 1.042)	1.384 ** (1.017 - 1.882)	0.726 (0.469 - 1.123)
Richest	1.960 *** (1.366 - 2.812)	0.607 *** (0.439 - 0.841)	0.678 *** (0.507 - 0.908)	1.605 ** (1.096 - 2.351)	0.369 *** (0.234 - 0.583)
Observations	7,494	6,560	8,861	5,278	5,392

95% confidence intervals in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Continued...

Appendix Table A3. Continued

Variables	Nigeria 2018	Philippines 2017	Senegal 2019	Uganda 2016	Zambia 2018-19
Youth empowerment tercile					
(ref: low)					
Medium	1.322 *** (1.198 - 1.460)	1.172 * (0.971 - 1.414)	0.967 (0.727 - 1.286)	1.063 (0.933 - 1.211)	1.152 (0.957 - 1.387)
High	1.704 *** (1.505 - 1.928)	1.259 ** (1.046 - 1.515)	1.457 *** (1.129 - 1.881)	1.006 (0.856 - 1.183)	1.071 (0.885 - 1.297)
Age (ref: 15-19)					
20-24	1.220 *** (1.103 - 1.350)	1.064 (0.810 - 1.398)	1.278 ** (1.037 - 1.574)	1.194 * (0.993 - 1.437)	1.130 (0.937 - 1.362)
25-29	1.216 *** (1.096 - 1.350)	0.881 (0.671 - 1.156)	1.416 *** (1.120 - 1.790)	1.011 (0.829 - 1.233)	0.830 (0.665 - 1.037)
Marital status					
(ref: never married)					
Currently married	0.838 *** (0.755 - 0.931)	1.710 *** (1.414 - 2.068)	1.480 *** (1.180 - 1.856)	1.810 *** (1.537 - 2.131)	1.500 *** (1.138 - 1.978)
Formerly married	0.945 (0.752 - 1.186)	1.038 (0.684 - 1.573)	1.514 (0.789 - 2.905)	1.386 ** (1.045 - 1.839)	1.131 (0.780 - 1.640)
Attended school during current school year (ref: out of school)					
In school	1.012 (0.914 - 1.120)	0.842 (0.676 - 1.048)	1.234 * (0.960 - 1.586)	0.788 *** (0.671 - 0.925)	0.779 ** (0.621 - 0.977)
Residence (ref: urban)					
Rural	0.885 ** (0.795 - 0.985)	1.067 (0.892 - 1.277)	0.552 *** (0.415 - 0.734)	0.907 (0.758 - 1.084)	1.206 (0.917 - 1.588)
Completed education (ref: no schooling)					
Primary	1.587 *** (1.392 - 1.809)	2.882 *** (1.353 - 6.143)	1.293 * (0.980 - 1.705)	2.166 *** (1.609 - 2.914)	1.412 ** (1.038 - 1.921)
Secondary	2.154 *** (1.903 - 2.437)	4.382 *** (2.055 - 9.343)	1.866 *** (1.505 - 2.314)	3.136 *** (2.258 - 4.354)	2.307 *** (1.649 - 3.226)
Higher	2.903 *** (2.405 - 3.504)	5.651 *** (2.596 - 12.300)	3.633 *** (1.795 - 7.350)	3.429 *** (2.216 - 5.307)	2.520 *** (1.496 - 4.246)
Household wealth quintile (ref: poorest)					
Poorer	1.135 * (0.991 - 1.299)	0.990 (0.817 - 1.199)	0.978 (0.747 - 1.281)	0.943 (0.797 - 1.116)	1.290 ** (1.024 - 1.625)
Middle	1.226 *** (1.059 - 1.419)	1.034 (0.827 - 1.293)	1.185 (0.831 - 1.691)	0.979 (0.818 - 1.172)	1.689 *** (1.308 - 2.179)
Richer	1.092 (0.921 - 1.295)	0.754 ** (0.593 - 0.961)	0.950 (0.661 - 1.365)	1.162 (0.969 - 1.394)	1.073 (0.776 - 1.484)
Richest	1.039 (0.857 - 1.259)	0.713 *** (0.566 - 0.898)	1.068 (0.733 - 1.557)	0.824 * (0.662 - 1.027)	1.373 * (0.948 - 1.989)
Observations	20,265	9,985	4,421	8,334	5,602

95% confidence intervals in parentheses

*** p<0.01, ** p<0.05, * p<0.1