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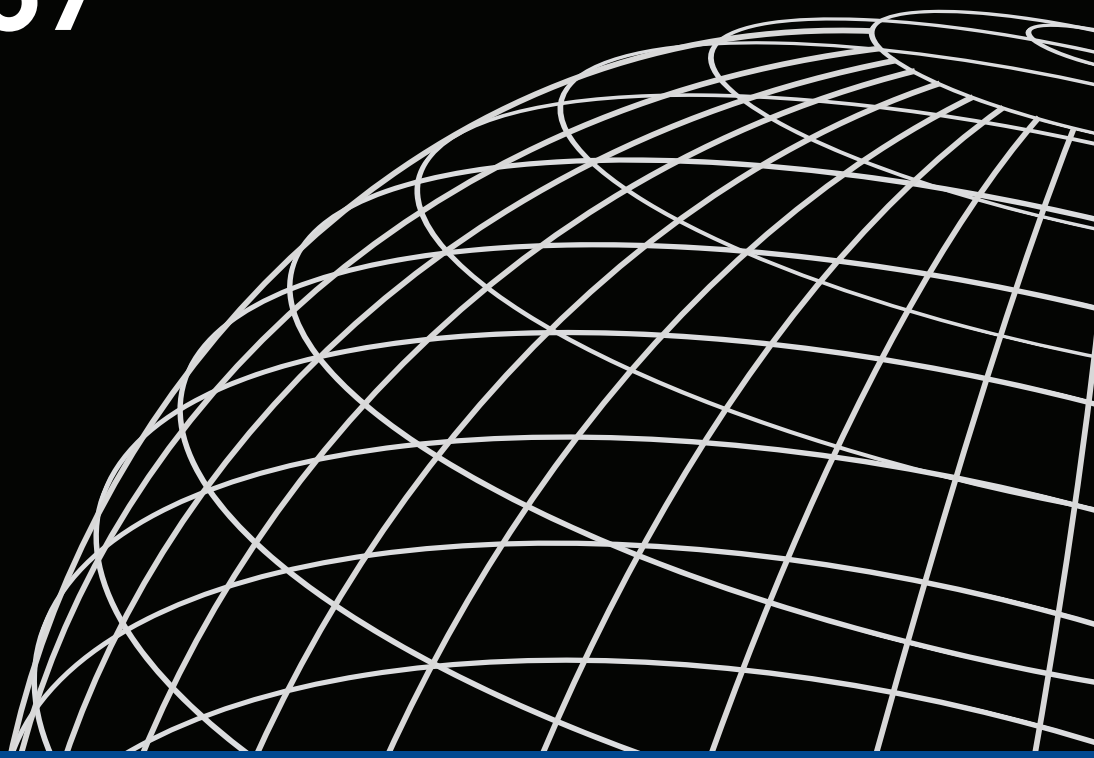

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Intimate Partner Violence and Interruption to Contraceptive Use

Kerry L.D. MacQuarrie[1]

Lindsay Mallick[1]

Sunita Kishor[2]

ICF International

Rockville, Maryland, USA

August 2016

[1] The DHS Program, Avenir Health
[2] The DHS Program, ICF International

Corresponding author: Kerry L.D. MacQuarrie, The DHS, ICF International, 530 Gaither Road, Suite 500, Rockville, MD 20850, USA; phone: +1 301-572-0282; fax: +1 301-407-6501; email: Kerry.macquarrie@icfi.com

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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 the DHS Analytical Studies 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

This study explores the relationship between intimate partner violence (IPV) and contraceptive discontinuation using data from 11 Demographic and Health Surveys. The study uses detailed data in the reproductive calendars and the domestic violence module of the survey to co-locate contraceptive and IPV experience in the same 12-month observation period. The study examines the odds of discontinuation while still in need (DWSIN) among contraceptive users in relation to the experience of IPV and compares this to discontinuation due to no further need and total discontinuation. The study examines three forms of violence separately—emotional, physical, and sexual violence—and any IPV combined. It finds limited evidence of association between IPV and DWSIN. Where associations exist, they are often weakly significant, of small magnitude, or inconsistent in direction. Emotional violence is associated with greater odds of DWSIN in Egypt and nearly associated in Honduras and Kenya. In the Kyrgyz Republic, emotional violence is nearly significantly associated with lower odds of DWSIN. Findings also vary with the form of violence assessed. Associations between emotional violence and DWSIN are more commonly detected than other forms or any IPV. Sexual violence is positively associated with DWSIN in Jordan and negatively associated with DWSIN in Tajikistan. Positive associations between physical violence (Egypt) or any form of violence (Egypt and Honduras) are of borderline significance. The overall finding that associations are country-specific, rather than global in nature, suggests that the approach to incorporating IPV into family planning programs should likewise take a country-specific approach.

Executive Summary

While there is a robust demographic literature examining contraceptive dynamics such as contraceptive discontinuation, this literature seldom addresses experience of intimate partner violence (IPV). Literature on gender-based violence, meanwhile, more frequently investigates the association of IPV with current use of contraception, rather than the adherence to contraceptive use over time. Prior studies suggest IPV is associated with less contraceptive use. Meanwhile, studies emerging from the literature on reproductive control and coercion indicate that women who experience IPV and a partner's controlling behaviors face interference in their contraceptive practices and greater difficulty avoiding unintended pregnancy. Based on this extant literature, the authors of this study hypothesize that women who experience intimate partner violence would be more likely to experience interruptions in their contraceptive use, namely, that they would be more likely to experience discontinuation while still in need (of contraception).

This study takes advantage of detailed data in the reproductive calendars and psychometrically tested measures of various forms of IPV found in The Demographic and Health Surveys Program surveys to test this hypothesis in 11 countries. We co-locate contraceptive and IPV experience in the same 12-month observation period. More specifically, we examine discontinuation in the 12 months preceding the survey among samples of contraceptive users in relation to the experience of IPV following the start of their contraceptive use. We examine the odds of discontinuation while still in need (DWSIN) and compare this to discontinuation due to no further need and total discontinuation. We examine the effects of three forms of violence separately—emotional violence, physical violence, and sexual violence—and the experience of any of these forms of violence on discontinuation in the preceding 12 months.

The modern contraceptive prevalence rate is greater than 25% in all study countries. A range of contraceptive methods, some LARC and some non-LARC, dominates the method mix. The prevalence of IPV (any form) ranges from 24% (Tajikistan) to 59% (Uganda). There is no difference in the method type (LARC or non-LARC method) based on experience of violence, except in Kenya, where women who experience IPV are more likely to be using a LARC method compared to women with no experience of IPV in the preceding 12 months. In the other 10 countries, regardless of IPV experience, LARC use exceeds non-LARC use in Egypt, Jordan, the Kyrgyz Republic, and Tajikistan while non-LARC use exceeds LARC use in Cambodia, Honduras, Rwanda, Uganda, Zambia, and Zimbabwe.

In contrast to our expectations, we find limited evidence of association between the experience of violence and discontinuation while still in need. Where associations are found, they are often weakly significant or of small magnitude. Additionally, they are inconsistent across countries in the direction of the association. For example, the experience of emotional violence in the previous 12 months is associated with a greater likelihood of discontinuation while still in need in the preceding 12 months in Egypt (where IUDs are the most common method). This same association is of borderline significance in Honduras and Kenya, where injections are the most common reversible method. In the Kyrgyz Republic, however, where IUDs are also common, the experience of emotional violence is nearly significantly associated with a lower likelihood of discontinuation while still in need. No association is detected with emotional violence in the remaining seven countries.

Findings also vary with the form of violence assessed. Associations between emotional violence and discontinuation while still in need are more commonly detected than other forms or any IPV combined. Sexual violence in the preceding 12 months is positively associated with discontinuation while still in need in Jordan and negatively associated with discontinuation while still in need in Tajikistan (where IUDs dominate the method mix). Positive associations between physical violence (Egypt) or any form of violence (Egypt and Honduras) are of borderline significance. No other associations are observed in the other countries.

In contrast to the varying direction of association with IPV and discontinuation while still in need, associations with discontinuation due to no further need are consistently negative where they are detected. However, these associations are not frequently observed. Women who experience emotional violence have significantly lower odds of discontinuing due to no further need in Kenya and the Kyrgyz Republic (and nearly significantly lower odds in Honduras), as do women who experience physical violence in Kenya, sexual violence in Cambodia (where the pill is the most common method) and the Kyrgyz Republic, or any IPV in Honduras, Kenya, and Tajikistan. These associations are not observed elsewhere.

For many countries, using a non-LARC method is independently and positively associated with both discontinuation while still in need and due to no further need, and the magnitude of the effect (where it exists) is generally larger than that of experience with IPV. No clear pattern emerges across countries with regard to other characteristics. For example, age, duration of contraceptive use prior to the observation period, and household wealth quintile are associated with discontinuation while still in need in some countries, but not in others. These findings would suggest that, like IPV, the factors influencing discontinuation while still in need (or due to no further need) are country-specific.

This study attempts to fill a gap in the separate demographic literatures on contraceptive dynamics and on gender-based violence to explore the relationship between IPV and contraceptive discontinuation. Our primary finding is that these associations are generally modest and weak and are country-specific, rather than global in nature. This overall finding suggests that the approach to screening for IPV and tailoring family planning programs to meet the needs of clients who may be at risk of IPV should likewise take a country-specific approach. Furthermore, service providers should be mindful of the potential for other forms of abuse—marital control, emotional violence, and sexual violence—and not only physical violence, as our findings indicate that discontinuation may be associated with one form of violence and not all forms equivalently.

1. Background

Intimate partner violence (IPV) and other forms of gender-based violence, in their own right, present significant public health concerns and gross violations of women's human rights. Appropriately, a substantial and growing body of literature documents the prevalence and patterns of such violence (Djamba and Kimuna 2015; Garcia-Moreno et al. 2006; Hindin, Kishor, and Ansara 2008; Kishor and Bradley 2012; Krug et al. 2002; MacQuarrie, Winter, and Kishor 2014; Solotaroff and Pande 2014). Attention also has focused on the poor social and health outcomes associated with IPV.

The experience of IPV against a woman threatens her physical and mental health (García-Moreno 2013). Physical IPV can be so severe that it can lead to death or cause debilitating injuries to muscles, bones, skin, or the reproductive system. Sexual violence may cause similar physical injury and damage to the reproductive system. The multiple, indirect pathways by which IPV harms a woman's health are even more complicated. For example, these pathways often invoke risky behaviors associated with IPV or negative effects from chronic stress, which may impair immune system functioning or result in mental health or substance abuse problems (Campbell et al. 2008; García-Moreno 2013).

In addition, IPV is also associated with a number of adverse sexual and reproductive health outcomes (Coker 2007; Hasstedt and Rowan 2016). These include sexual risk taking (Collins et al. 2005; Silverman et al. 2001); urinary tract infections, sexually transmitted infections, or HIV (Kishor 2012; MacQuarrie, Winter, and Kishor 2013; Singh, Singha, and Jain 2015); pregnancy loss, miscarriage, or abortion (Garcia-Moreno et al. 2006; Hasstedt and Rowan 2016; Kishor and Johnson 2006; Okenwa, Lawoko, and Jansson 2011; StÖCkl et al. 2012); pelvic pain (Campbell et al. 2002; Champion et al. 2004); and sexual dissatisfaction (Kovac et al. 2003; Parish et al. 2004). Additional research has identified a relationship between IPV and higher parity, unmet need for family planning (Gomez 2011; Kaneda and Smith 2015; Ogunjuyigbe, Akinlo, and Oni 2010), adolescent pregnancy (Baumgartner et al. 2009; Garcia-Moreno et al. 2006), unintended, mistimed, or unwanted pregnancy (Azevêdo et al. 2013; Cripe et al. 2008; Hasstedt and Rowan 2016; Rahman et al. 2012; Raj and McDougal 2015). These findings indicate that women who experience IPV may have greater difficulty controlling their reproduction in ways that align with their fertility aspirations.

An association between IPV and a lack of self-efficacy is well established; IPV is an expression of power and attempt to exert control. Furthermore, IPV is experienced within a gendered context of social norms. Although conceptually distinct from women's agency, IPV and the disempowerment of women have been found to covary, at both an individual and community level (MacQuarrie 2009). Women who experience IPV often are disempowered in other areas of their lives and face restricted life options and poor social outcomes as well as adverse reproductive outcomes. Their lack of self-efficacy may prevent them from being able to engage in health-promoting behaviors such as adopting contraception or sustaining contraceptive use effectively without interruption. Alternately, as an implement of social control, IPV may present as a response when expected gender norms are contested. Such challenges to gender norms may include contraceptive use directly or other behaviors, such as civic engagement, educational pursuits, or participation in work outside of the home, that may be correlated with contraceptive use. The former interpretation would suggest that women who experience IPV may be less motivated to use or able to access contraception while the latter interpretation would lead us to expect violence and contraceptive use to coincide.

A substantial body of literature, related to that on unintended pregnancy, has investigated this association between IPV and contraceptive use. Although conventional wisdom suggests that women who experience IPV may be *less likely* to use contraception, the empirical evidence is inconclusive and suggests such a relationship is far more complex. Without accounting for temporality, numerous studies based on cross-

sectional data finds that women who experienced IPV are *more likely* to use contraception (Alio et al. 2009; Chan and Martin 2009; Dalal, Andrews, and Dawad 2012; Fanslow et al. 2008; Okenwa, Lawoko, and Jansson 2011; Raj and McDougal 2015), with some researchers positing that women who experience IPV may be more motivated to avoid pregnancy, particularly if they can access discreet methods of contraception that can be used covertly. Dalal (2012) and Okenwa (2011) find a positive association between contraceptive use and physical violence but not sexual violence in Bangladesh and Nigeria, respectively. In contrast, Raj and McDougal (2015) do find spousal sexual violence to be positively associated with modern contraceptive method use. Raj and colleagues (2015) also examined IPV by specific contraceptive methods in Bangladesh, India, and Nepal and found partner sexual violence to be a key predictor of increased use of a temporary method—in particular, oral contraceptive pills.

On the other hand, other cross-sectional research finds that women who experienced IPV are *less likely* to use contraception (Fantasia et al. 2012; Kacanek et al. 2013; Laanpere et al. 2013; Scribano, Stevens, and Kaizar 2013). Yet other research finds *no association* with IPV and contraceptive use (Adjiwanou and N'Bouke 2015; Oluwaseyi and Latifat 2015; Williams, Larsen, and McCloskey 2008). A multi-country study using Demographic and Health Surveys (DHS) data finds that women who have ever in their lifetime experienced IPV are more likely to have ever used modern contraception at some point in their lives than those who have not reported IPV, but among women in most of the ten developing countries studied, there was no significant association between IPV and current contraceptive use (Kishor and Ansara 2009). Findings from several studies indicate that the length of time a woman experiences IPV, or the chronicity of IPV, affects a woman's contraceptive choices (Fantasia et al. 2012; Kacanek et al. 2013; Salazar Torres 2011).

Mixed results are also seen even when studies attempt to isolate the timing of violence in relation to specific contraceptive behavior. Some research suggests that contraception can lead to violence if a woman is discovered using contraception without her partner's consent (Wilson-Williams et al. 2008), although most research that includes components of temporality position measures of violence and contraception in the other sequence, with IPV preceding contraceptive behavior outcomes. The direction of the association is not consistent, or always significant in these studies. For example, a study by Fanslow (2008) that examined the association between IPV in the last twelve months and current contraceptive use found little to no significant association. Two studies in India found a negative association between IPV and initiation or adoption of contraception; women who have experienced spousal physical violence were less likely to start using contraception (Stephenson, Koenig, and Ahmed 2006; Stephenson et al. 2008). Stephenson and colleagues (2008) add that IPV is also associated with a higher likelihood of having an unwanted pregnancy. A recent systematic review and meta-analysis conducted by Maxwell et al (2015) reviewed longitudinal studies in which IPV preceded contraceptive use. With the exception of one study by Salazar and colleagues (2012), the study found that use of contraception, particularly condom use, was negatively associated with IPV, although that association varied by whether the form of IPV was physical or sexual.

The empirical literature on the relationship between IPV and contraception generally examines current or recent contraceptive use, with less focus on other aspects of contraception. Another emerging body of literature that investigates reproductive coercion and control provides possible insight into the potential pathways between IPV and reproductive outcomes.

Reproductive coercion is male partners' behavior, intended to maintain power and control in a relationship by controlling contraceptive and pregnancy outcomes of their female partners or otherwise enforcing their own reproductive intentions, whether in direct conflict with or without regard for the woman's intentions and desires (Clark et al. 2014; Miller and McCauley 2013; Moore, Frohwirth, and Miller 2010; Obstetricians and Gynecologists 2013). Reproductive coercion is considered to be a form of IPV by some (Falb et al. 2014; Maxwell et al. 2015; Moore, Frohwirth, and Miller 2010; Park et al.

2016), while others conceptualize reproductive coercion as distinct from IPV, although possibly associated with or co-occurring with IPV (Gee et al. 2009; Hall et al. 2014). Reproductive coercion and control consists of contraception sabotage, pregnancy coercion, sexual and pregnancy pressure, and attempts to control the outcome of a pregnancy (Moore, Frohwirth, and Miller 2010; Park et al. 2016; Silverman and Raj 2014). Moore et al. (2010) propose that reproductive control reduces women's reproductive empowerment and leads to decreased contraceptive use and unwanted pregnancy. In their review and meta-analysis, Maxwell et al (2015) suggest that women may circumvent contraceptive sabotage by discreetly using contraception. This literature suggests one pathway by which women who experience IPV may be less able to use contraception consistently in pursuit of their reproductive goals and to experience more interruptions in their contraceptive use.

With the possible exception of reproductive coercion studies, the IPV literature has seldom delved further beyond contraceptive status into the nuances or the dynamics of contraceptive behavior, such as interruptions in use, abandonment, or discontinuation. One exception are studies linking IPV with inconsistent condom use (e.g., Kacanek et al. 2013; Van Horne et al. 2009), although this literature is often framed as one of sexually risky behaviors and disease prevention, rather than reproductive aspirations. Another exception is one U.S. study in which the experience of any IPV (emotional, physical, or sexual violence), either of short or long duration, was related to more changes in contraceptive method. The same study also found that women in the United States who experienced IPV over longer periods of time were more likely to use covert, long-acting methods such as injections, implants, IUDs, or sterilization (Fantasia et al. 2012). Another U.S. study found that women who experienced violence— emotional, physical, or sexual— as an adult did not discontinue contraception at faster rates if they were using a long-acting, reversible (LARC) method; but such women who were using a shorter-term method were more likely to discontinue sooner than women who had not experienced violence (Allsworth et al. 2013).

Although IPV research has not investigated the more nuanced aspects of contraceptive use more extensively, there is an established demographic literature on contraceptive dynamics such as method-switching and discontinuation. This literature has focused on documenting contraceptive discontinuation rates, comparison of discontinuation among specific contraceptive methods, reasons for discontinuation, and determinants of discontinuation (e.g., Ali and Cleland 2010a; Ali, Cleland, and Shah 2012; Blanc et al. 2009; Bradley, Schwandt, and Khan 2009; Castle and Askew 2015; Haddad et al. 2013; Jain et al. 2013; Staveteig, Mallick, and Winter 2015). This literature has found that side effects/health concerns, as well as cost and availability are reasons for discontinuation or method switching. Further, discontinuation rates vary consistently by method type (Ali and Cleland 1995; Ali, Cleland, and Shah 2012; Bradley, Schwandt, and Khan 2009; Maslyanskaya et al. 2016; Modey, Aryeetey, and Adanu 2014; Steele and Curtis 2003). Individual factors commonly associated with discontinuation include fertility desires, parity education, socio-economic status, and sometimes age. However, this demographic literature has seldom examined the experience of IPV as a possible predictor of contraceptive discontinuation. One study that attempted to do so in Bolivia was limited by small sample sizes and found that side effects, not IPV, influenced discontinuation behavior (McCarraher, Martin, and Bailey 2006).

This study seeks to fill a void left by the intersection of the demographic and IPV literatures on women's contraceptive behavior. The study is informed by the IPV and reproductive coercion literature that demonstrated that women experiencing IPV disproportionately experience unintended pregnancies, thereby suggesting greater difficulty in succeeding in their attempts to control their fertility. This study explores whether and to what degree women who experience IPV have greater difficulty using contraception consistently without interruption until a pregnancy is desired. Specifically, this study analyzes contraceptive discontinuation by experience of IPV in 11 countries with recent data from DHS surveys. We use time-bound measures of IPV experience and contraceptive behavior to collocate these experiences in the same 12-month window. We assess experience of multiple forms of violence

(emotional, physical, sexual, or any IPV) with contraceptive discontinuation behavior. We focus specifically on discontinuation while still in need of contraception (DWSIN) and compare this to discontinuation due to no further need and total discontinuation in study countries. We hypothesize that women who experience IPV will be more prone to discontinuation and, more specifically, discontinuation while still in need of contraception and that this effect will be most pronounced among women who use shorter-term, non-LARC methods of contraception.

2. Methods and Data

This study uses data from 11 recent Demographic and Health Surveys with 5 from sub-Saharan Africa, 2 from North Africa/West Asia, 2 from Central Asia, 1 from Southeast Asia, and 1 from Latin America and the Caribbean. For inclusion in the study, we required that surveys meet the following conditions: conducted since 2010; data publicly available by June 2016; survey has a two-column reproductive calendar; survey has a domestic violence module with a full complement of items assessing emotional, physical, and sexual violence; and, to ensure a sufficient number of cases for analysis, a minimum sample size of 2,000 women completing the domestic violence module and a modern contraceptive prevalence rate of at least 25%. The DHS surveys included in the analysis are: Cambodia 2014, Egypt 2014, Honduras 2011-12, Jordan 2012, Kenya 2014, Kyrgyz Republic 2012, Rwanda 2014-15, Tajikistan 2012, Uganda 2011, Zambia 2013-14, and Zimbabwe 2011-11. Sample parameters for the study's surveys are found in Table 1.

Table 1. Selected characteristics for surveys included in the analysis

Country	Year of survey	Sample type	# of women interviewed (unweighted)	Eligible woman response rate	Sample design for violence module	# of women interviewed with violence module (un-weighted)	Violence module response rate
Cambodia	2014	All women	17,578	97.6	one-third of selected households	4,307	99.3
Egypt	2014	Ever-married	21,762	99.4	one-third of selected households	6,693	97.4
Honduras	2011-12	All women	22,757	93.2	all selected households	15,833	99.9
Jordan	2012	Ever-married	11,352	97.3	two-thirds of selected households	7,027	92.1
Kenya	2014	All women	31,079	96.6	two-thirds of selected households	5,657	99.7
Kyrgyz Republic	2012	All women	8,208	99.1	all selected households	6,022	99.4
Rwanda	2014-15	All women	13,497	99.5	one-fourth of selected households	2,679	99.4
Tajikistan	2012	All women	9,656	98.6	all selected households	5,547	99.6
Uganda	2011	All women	8,674	93.8	two-thirds of selected households	2,056	99.3
Zambia	2013-14	All women	16,411	96.2	all selected households	11,778	99.6
Zimbabwe	2010-11	All women	9,171	93.3	all selected households	6,694	98.0

Notes:

Only one eligible respondent per household is randomly selected for interview with the domestic violence module, regardless of the number of eligible respondents present in the household.

Of the 31,079 women interviewed in Kenya, 14,741 were interviewed with the 'full questionnaire' that includes the reproductive calendar and 16,338 were administered the 'short questionnaire' that excluded the reproductive calendar.

Sample sizes for the domestic violence module range from 2,056 (Uganda) to 15,833 (Honduras). In most surveys, all eligible women are interviewed without regard to marital status. In two surveys, Egypt and Jordan, only ever-married women are interviewed. Nevertheless, data on the forms of IPV that we investigate are from ever-married women only. The violence module was administered in every selected household in approximately half of the surveys. The module was administered in two-thirds of selected households in 3 surveys; in one-third of selected households in two surveys, and in every fourth selected household in the Rwanda DHS survey. Response rates for both the violence module and the survey exceed 90% in all 11 surveys.

DHS surveys are nationally representative, population-based household surveys that employ standardized questionnaires and modules for household, women's, and men's interviews (ICF International 2011). The surveys employ multistage, clustered area sampling techniques. In the first sampling stage, the country is stratified into major sub-national regions from which census-based enumeration areas are selected with probability proportional to size. The major regions may or may not coincide with administrative units (as in Uganda) and consist of provinces or groups of provinces (Cambodia, Zambia, and Zimbabwe), governorates (Egypt and Jordan), departments (Honduras), or oblasts (Kyrgyz Republic and Tajikistan). The Kenya 2014 and Rwanda 2014-15 surveys stratified districts in the first sampling stage. Urban areas and less populous areas are typically oversampled in the first sampling stage in order to produce reliable regional estimates and rural-urban comparisons of health indicators. A mapping and household listing exercise is then implemented in each selected enumeration area. In the second sampling stage, households are randomly selected from the household list within each enumeration area.

Pre-calculated sampling weights included in the datasets are applied. These weights account for both sampling probability and non-response. In this study, we apply the weight that accounts for sample selection and non-response for the domestic violence module. In addition, we use the complex survey (svy) commands available within Stata 14.1 to account for the clustered sampling design and to estimate robust standard errors as the basis for the 95% confidence intervals reported in the following sections.

2.1. Data Structure

2.1.1. Reproductive calendar

We base our analyses of discontinuation and other interruptions to contraceptive use on data obtained through the reproductive calendar[1]. The reproductive calendar is an instrument in DHS surveys that records month-by-month, retrospective information on episodes of contraceptive use or non-use, live births, pregnancies, and terminations[2] for, typically, the five completed years preceding the survey[3]. The reproductive calendar has become the primary data source for estimating contraceptive discontinuation rates and the analysis of other contraceptive dynamics such as contraceptive failure, switching, and postpartum adoption of contraception (Ali, Cleland, and Shah 2012; Bradley et al. 2012; MacQuarrie et al. 2014; Staveteig, Mallick, and Winter 2015; Winfrey and Rakesh 2014).

Occasionally, the reproductive calendar is reduced to its simplest form: a single column calendar that records only monthly data on reproductive events and contraceptive use. The core questionnaire for DHS-

[1] Because of its prominence to the study of contraceptive dynamics, the calendar is often referred to as the "contraceptive calendar" although it captures a broader range of reproductive events than contraceptive use and is, in actuality, a "reproductive calendar". The terms are used interchangeably in this study.
[2] Terminations may include induced abortions, miscarriages, and stillbirths.
[3] The exact length of the reproductive calendar is determined by the duration of data collection and the month in which the respondent is interviewed.

7, the current phase of The DHS Program, stipulates a two-column calendar (ICF International 2015). This more common form of the reproductive calendar is comprised of monthly data on reproductive events and contraceptive use in column 1 and the reason for discontinuation in column 2. A sample two-column reproductive calendar is displayed in Figure 1. We make use of these data on discontinuation, which requires that all surveys in this study include the two-column calendar. On rare occasions, the reproductive calendar is modified with three or four columns to obtain additional monthly, retrospective data on marital or union status at the time of reproductive events and/or the source of the contraceptive method. The Egypt 2014 DHS is one such example of the expanded calendar (MoHP, El-Zanaty and Associates, and ICF International 2015). The analyses in this study do not use these data from additional calendar columns.

The first column of the calendar records (1) pregnancies, births, and terminations followed by (2) episodes of contraceptive use, and (3) episodes of no contraceptive use. In each case, this involves working from the month of the interview to the beginning of the calendar period. An alphabetic P, B, or T code indicates that the respondent experienced a pregnancy, birth, or termination in that month. A numeric code 1-9 or alphabetic code J-Y indicates the method of contraception being used. The numeric code 0 indicates that the respondent was not using any method of contraception, and was not experiencing a pregnancy, birth, or termination. Only one method of contraception is recorded in each row (month) in the first column. If a respondent used more than one method in a given month, the code corresponding to the more effective method is recorded (Hatcher et al. 2011; ICF International 2012; World Health Organization Reproductive Health and Research (WHO/RHR) and Johns Hopkins Bloomberg School of Public Health Center for Communitation Programs (JHU/CCP) 2011). The interviewer uses the following prompts to establish the starting and ending month for each episode of contraceptive use and to ensure that all segments of the calendar period are completed (ICF International 2012, 2015):

- *When was the last time you used a method? Which method was that?*

- *Between the (EVENT1) in (MONTH/YEAR) and the (EVENT2) in (MONTH/YEAR), did you or your (husband/partner) use a method of contraception? Which method was that?* Note that EVENT1 may be the birth of a child, the termination of a pregnancy, the end of a prior episode of contraceptive use, and EVENT2 may be the start of a pregnancy or the beginning of a later episode of contraceptive use.

- *When did you start using that method? How many months after (EVENT1)/birth of (NAME) did you start using that method?*

- *How many months did you use (METHOD)?*

- *What happened when you stopped using that method: did you not use any method, did you start using a different method, or did you become pregnant?*

- IF DELIBERATELY STOPPED TO BECOME PREGNANT: *How many months did it take you to get pregnant after you stopped using (METHOD)?*

Figure 1. Sample DHS reproductive calendar

INSTRUCTIONS:
ONLY ONE CODE SHOULD APPEAR IN ANY BOX.
COLUMN 1 REQUIRES A CODE IN EVERY MONTH.

CODES FOR EACH COLUMN:

COLUMN 1: BIRTHS, PREGNANCIES, CONTRACEPTIVE USE (2)

B BIRTHS
P PREGNANCIES
T TERMINATIONS

0 NO METHOD

1 FEMALE STERILIZATION
2 MALE STERILIZATION
3 IUD
4 INJECTABLES
5 IMPLANTS
6 PILL
7 CONDOM
8 FEMALE CONDOM
9 EMERGENCY CONTRACEPTION
J STANDARD DAYS METHOD
K LACTATIONAL AMENORRHEA METHOD
L RHYTHM METHOD

M WITHDRAWAL
X OTHER MODERN METHOD
Y OTHER TRADITIONAL METHOD

COLUMN 2: DISCONTINUATION OF CONTRACEPTIVE USE

0 INFREQUENT SEX/HUSBAND AWAY
1 BECAME PREGNANT WHILE USING
2 WANTED TO BECOME PREGNANT
3 HUSBAND/PARTNER DISAPPROVED
4 WANTED MORE EFFECTIVE METHOD
5 SIDE EFFECTS/HEALTH CONCERNS

6 LACK OF ACCESS/TOO FAR
7 COSTS TOO MUCH
8 INCONVENIENT TO USE
F UP TO GOD/FATALISTIC
A DIFFICULT TO GET PREGNANT/MENOPAUSAL
D MARITAL DISSOLUTION/SEPARATION
X OTHER

_____
(SPECIFY)

Z DON'T KNOW

(1) Year of fieldwork is assumed to be 2015. For fieldwork beginning in 2016, all references to calendar years should be increased by one; for example, 2009 should be changed to 2010, 2010 should be changed to 2011, 2011 should be changed to 2012, and similarly for all years throughout the questionnaire.

(2) Response categories may be added for other methods, including fertility awareness methods.

				COL. 1	COL. 2	
	12	DEC	01			
	11	NOV	02			
	10	OCT	03			
2	09	SEP	04			2
	08	AUG	05			
0	07	JUL	06			0
	06	JUN	07			
1	05	MAY	08			1
	04	APR	09			
5	03	MAR	10			5
(1)	02	FEB	11			
	01	JAN	12			
	12	DEC	13			
	11	NOV	14			
	10	OCT	15			
2	09	SEP	16			2
	08	AUG	17			
0	07	JUL	18			0
	06	JUN	19			
1	05	MAY	20			1
	04	APR	21			
4	03	MAR	22			4
	02	FEB	23			
	01	JAN	24			
	12	DEC	25			
	11	NOV	26			
	10	OCT	27			
2	09	SEP	28			2
	08	AUG	29			
0	07	JUL	30			0
	06	JUN	31			
1	05	MAY	32			1
	04	APR	33			
3	03	MAR	34			3
	02	FEB	35			
	01	JAN	36			
	12	DEC	37			
	11	NOV	38			
	10	OCT	39			
2	09	SEP	40			2
	08	AUG	41			
0	07	JUL	42			0
	06	JUN	43			
1	05	MAY	44			1
	04	APR	45			
2	03	MAR	46			2
	02	FEB	47			
	01	JAN	48			
	12	DEC	49			
	11	NOV	50			
	10	OCT	51			
2	09	SEP	52			2
	08	AUG	53			
0	07	JUL	54			0
	06	JUN	55			
1	05	MAY	56			1
	04	APR	57			
1	03	MAR	58			1
	02	FEB	59			
	01	JAN	60			
	12	DEC	61			
	11	NOV	62			
	10	OCT	63			
2	09	SEP	64			2
	08	AUG	65			
0	07	JUL	66			0
	06	JUN	67			
1	05	MAY	68			1
	04	APR	69			
0	03	MAR	70			0
	02	FEB	71			
	01	JAN	72			

For the first column, a completed calendar is one in which there is a single code entered in every row from the start of the calendar and including the row corresponding to the month of interview. Unlike the first column, the second column of the calendar is not completed with a discontinuation code in every row; the number of codes in column 2 is the same as the number of interruptions of method use the respondent experiences in column 1. A discontinuation code appears only in those rows that correspond to the last month of each episode of contraceptive use, when the respondent stopped using the method of contraception. This code records the reason for discontinuation; only the primary reason for discontinuation is recorded. The interviewer uses the following questions to establish the reason for discontinuation (ICF International 2012, 2015):

- *Why did you stop using (METHOD)?*
- IF A PREGNANCY FOLLOWED: *Did you become pregnant while using (METHOD), did you stop to get pregnant, or did you stop for some other reason?*

2.1.2. Structure of the calendar data

In the standard individual recode data files available from The DHS Program[4], data from the reproductive calendar are recorded in a series of string variables (vcal variables) for each of the columns in the calendar (ICF International 2013). Each string variable allows up to 80 characters, with each character representing a single month in the calendar period. The first character in each variable represents the most recent month (month of interview) and is preceded by blank spaces for points in time after the date of interview, while the character in the last position represents data for January of the year in which the calendar started.

To facilitate analysis of the calendar data, data in the string variables were transformed into event data files, in which each reproductive event in the calendar—pregnancy, birth, termination, episode of contraceptive use, or non-use—becomes one observation in the dataset. Thus, each respondent (case) may contribute more than one observation in the data file. In addition to a variable that classifies the type of reproductive event, each observation (row) in the data file includes variables that code the start date, end date (in century-month codes), and duration of the event. Each observation also contains data from the second column of the calendar that describes how the observation ended (e.g. if the observed episode of contraceptive use is discontinued or if the observation is censored) and the reason for discontinuation, as well as the previous and successive event types. We used CSPro to transform the data and create event data files for analysis in Stata 14.1.

2.2. Domestic Violence Module

This study uses the domestic violence module (ICF International 2016), which is a module first developed and standardized by The DHS Program in 2000 and is now commonly contained in DHS surveys. The domestic violence module has been included in 93 surveys since the module's inception and in 40 of 58 of the DHS surveys[5] conducted since 2010. The domestic violence module is frequently administered to a sub-sample of DHS survey respondents, e.g. in every second or third household. In contrast to the DHS survey, which interviews all eligible respondents in the household, the domestic violence module is administered to just one randomly selected eligible respondent in each selected household as an added ethical precaution, in accordance with the WHO guidelines on the ethical conduct of domestic violence research (ICF International 2016; World Health Organization 2001). The domestic violence module is

[4] Available from http://www.dhsprogram.com/data/available-datasets.cfm.
[5] This figure includes standard DHS, continuous DHS, and special DHS surveys.

approved by the internal review board (IRB) at ICF International, along with the full DHS survey questionnaire.

The domestic violence module investigates multiple forms of violence: emotional violence, physical violence, sexual violence, and marital control (both suspicion and isolating controlling behaviors). Previous comparative analysis has shown that these five forms of violence are distinct domains or factors across diverse sociocultural settings, with emotional and physical violence being related sub-factors to a common violence factor and with suspicion and isolation being related sub-factors to a common marital control factor (MacQuarrie, Winter, and Kishor 2013, 2014). The experience of emotional, physical, and sexual forms of violence is captured through the use of an abbreviated version of the conflict tactics scales (CTS) (Straus 1979, 1990; Straus et al. 1996). One advantage of the CTS scale approach is that the items that comprise it refer to specific behavioral acts, regardless of whether they are understood to constitute violence in a given cultural setting (Kishor and Bradley 2012). The violence instrument collects data on these items in a common manner across surveys. The instrument includes questions that ask ever-married women whether their current or most recent (if divorced, separated, or widowed) husband[6] has *ever* perpetuated a series of behavioral items. Women who respond in the affirmative to a particular item are then asked about the frequency with which they have experienced that violent behavior (often, sometimes, or not at all) in the 12 months preceding the interview, as depicted in Figure 2.

This study focuses on emotional, physical, and sexual violence—hereafter referred to collectively as IPV—perpetrated by the current spouse. We exclude marital control (suspicion and isolation) from our analysis because these items are not time-bound[7]. Elsewhere in the violence module, women are asked about their experience with physical and sexual forms of violence perpetuated by actors other than their current/most recent husband. Marital control by one's spouse and physical and sexual violence by other actors are excluded from the present study.

Figure 2. Emotional, physical, and sexual violence items in the DHS Domestic Violence Module

DOMESTIC VIOLENCE MODULE

NO.	QUESTIONS AND FILTERS			CODING CATEGORIES			SKIP
DV04	Now I need to ask some more questions about your relationship with your (last) (husband/partner). A. Did your (last) (husband/partner) ever:			B. How often did this happen during the last 12 months: often, only sometimes, or not at all?			
		EVER		OFTEN	SOME-TIMES	NOT IN LAST 12 MONTHS	
	a) say or do something to humiliate you in front of others?	YES NO	1 2	1	2	3	
	b) threaten to hurt or harm you or someone you care about?	YES NO	1 2	1	2	3	
	c) insult you or make you feel bad about yourself?	YES NO	1 2	1	2	3	

Continued

[6] The term husband refers equally to the woman's legal spouse or partner who lives with her as if married. The two types of unions are not differentiated in this study.

[7] Unlike emotional, physical, and sexual violence, we cannot discern from DHS data whether women experienced marital control often or sometimes in the last 12 months, ever in the past but not during the last 12 months, or never.

Figure 2—*Continued*

DOMESTIC VIOLENCE MODULE

NO.	QUESTIONS AND FILTERS			CODING CATEGORIES			SKIP
DV05	A. Did your (last) (husband/partner) ever do any of the following things to you:			B. How often did this happen during the last 12 months: often, only sometimes, or not at all?			
		EVER		OFTEN	SOME-TIMES	NOT IN LAST 12 MONTHS	
	a) push you, shake you, or throw something at you?	YES NO	1 2	1	2	3	
	b) slap you?	YES NO	1 2	1	2	3	
	c) twist your arm or pull your hair?	YES NO	1 2	1	2	3	
	d) punch you with his fist or with something that could hurt you?	YES NO	1 2	1	2	3	
	e) kick you, drag you, or beat you up?	YES NO	1 2	1	2	3	
	f) try to choke you or burn you on purpose?	YES NO	1 2	1	2	3	
	g) threaten or attack you with a knife, gun, or other weapon?	YES NO	1 2	1	2	3	
	h) physically force you to have sexual intercourse with him when you did not want to?	YES NO	1 2	1	2	3	
	i) physically force you to perform any other sexual acts you did not want to?	YES NO	1 2	1	2	3	
	j) force you with threats or in any other way to perform sexual acts you did not want to?	YES NO	1 2	1	2	3	

2.3. Analytic Strategy

The goal of this study is to investigate if IPV is associated with more interruptions to continuous and effective contraceptive use. Specifically, the study investigates whether women who experience IPV are more likely to discontinue contraception while still in need.

2.3.1. Period of observation and unit of analysis

This study uses data on the experience of IPV in the past 12 months as well as data from the reproductive calendar on contraceptive use. The term "period of observation" refers to the period during which we assess women's exposure to the risk of contraceptive discontinuation. We define our period of observation as the 12 months preceding the interview, and exclude contraceptive episodes that occur in prior spells of the calendar. By restricting our period of observation in this manner, we are able to co-position our measures of contraceptive discontinuation and IPV in the same 12-month window.

Because the phenomenon of interest in this study is contraceptive discontinuation, we limit ourselves to episodes in which women were using contraception at the start of our period of observation (12 months prior to interview). This means that our measures of IPV refer to the experience of violence after contraception has been adopted[8].

We further restrict our analysis to the first episode of contraceptive use in our period of observation. This restriction means that each woman contributes a single episode to our analysis and eliminates potential

[8] Women who experience IPV during our period of observation may also have experienced such violence prior to the period of observation.

unobserved effects from multiple episodes contributed by a single woman. Among the surveys included in this study, the proportion of women with more than one episode of contraceptive use in the period of observation ranges between 1.2% (Rwanda 2014-15) and 4.8% (Honduras 2011-12).

In addition, a 12-month window is not likely to be sufficient to observe both the initiation of a subsequent episode of contraceptive use (which most likely occurs well into our 12-month observation period, after the first episode of contraceptive use has concluded) and whether or how that episode concludes. A recent study of contraceptive discontinuation in 60 countries indicates that 38% of episodes are discontinued within 12 months whereas the median duration of contraceptive use before discontinuation approaches 24 months (Ali, Cleland, and Shah 2012). A second advantage to restricting our analysis to the first episode of contraceptive use is that we remove those episodes that are most likely to be censored, or incomplete, because discontinuation occurs at some point after we stop observing them.

Our unit of analysis is episodes of contraceptive use. However, since each woman contributes one episode, this is equivalent to using women as the unit of analysis. For ease of interpretation, this study refers to *women* or *contraceptive users* rather than episodes of contraceptive use.

2.3.2. Sample restriction

Table 2 presents information on the derivation of the analytic sample. The figures presented here are weighted numbers. The number of women interviewed in the DHS surveys included in this study range from 8,208 in the Kyrgyz Republic to 22,757 in Honduras. The Kenya survey interviewed a total of 31,079 women; however, we exclude 16,338 women who were interviewed with the short questionnaire rather than the full questionnaire that included the 2-column reproductive calendar.

We restrict our analysis to currently married women. We exclude never-married women because the survey questions on intimate partner violence by the husband are not applicable to them. We exclude formerly married women because their marriages, by definition, have dissolved by the time of the interview and they could not have been exposed to IPV by their last husband throughout the 12-month observation period. Furthermore, formerly married women may not be exposed to the risk of discontinuation while still in need within the observation period if the change in their marital status conveys a change in their need status. Preliminary analyses conducted on samples including formerly married women yielded results similar to those restricted to currently married women and are not presented in this study. The weighted number of currently married women in the study surveys ranges from 5,256 in Kyrgyz Republic to 20,460 in Egypt.

Since the probability of selection for the domestic violence module varies across surveys, the weighted number of currently married women with data on their experience of IPV ranges from 1,307 in Uganda to 8,390 in Honduras.

Finally, we restrict our analysis to currently married women who are using a modern, temporary method of contraception at the start of the observation period. We exclude women who/whose husbands were sterilized at the start of the observation period because these women are not at risk of discontinuation. The varying prevalence of modern, temporary contraceptive use across study surveys results in final analytic sample sizes range from 228 women in Uganda to 3,345 women in Egypt.

Table 2. Derivation of the analytic samples

Survey	weighted # of women interviewed	weighted # of currently married women	weighted # of currently married women with the violence module	weighted # of currently-married women using modern, temporary contraception 12 months prior to interview (Analytic Sample)
Cambodia 2014	17,578	11,898	2,977	931
Egypt 2014	21,762	20,460	6,272	3,345
Honduras 2011-12	22,757	12,847	8,930	3,283
Jordan 2012	11,352	10,801	6,714	2,646
Kenya 2014	14,741	8,503	3,352	1,437
Kyrgyz Republic 2012	8,208	5,256	3,833	1,084
Rwanda 2014-15	13,497	6,982	1,415	585
Tajikistan 2012	9,656	6,504	3,812	879
Uganda 2011	8,674	5,418	1,307	228
Zambia 2013-14	16,411	9,859	7,145	2,422
Zimbabwe 2010-11	9,171	5,703	4,094	1,899

Note:
Kenya figures include only those women respondents who were interviewed with the 'full questionnaire' that included the reproductive calendar. They exclude 16,338 women respondents who were administered the 'short questionnaire'. A total of 31,079 women were interviewed with either the full or short questionnaire.

2.3.3. Statistical analyses

In the following sections of this report, we present descriptive data on contraceptive use, the experience of IPV, and contraceptive discontinuation in the 12-month observation period. Discontinuation data are disaggregated by discontinuation while still in need and discontinuation due to no further need. Our discussion of the study results focuses on discontinuation while still in need.

Subsequently, we examine the bivariate associations between discontinuation while still in need and the experience of IPV. We assess these associations using unadjusted logistic regression models of discontinuation regressed over measures of IPV and present odds ratios. We evaluate associations of discontinuation with several measures of IPV: three separate forms of violence, the experience of any IPV, and the experience of multiple forms of violence (the latter is presented in the appendix).

Finally, we estimate multivariate models of discontinuation while still in need. Multivariate models take the form of logistic regressions, with discontinuation while still in need regressed over the aforementioned measures of IPV, individual socio-demographic characteristics, and known correlates of discontinuation. These models also control for duration of contraceptive use prior to the observation period.

While some studies of contraceptive discontinuation apply hazards models, such research neither does so consistently nor has it reached consensus on the shape of the hazard to be modeled, with studies applying Weibull, Gompertz, Cox, or discrete time models, among others (Ali and Cleland 2010b; Bradley, Schwandt, and Khan 2009; MacQuarrie et al. 2014; Staveteig, Mallick, and Winter 2015). We opt for logistic models rather than hazard models for several reasons. We have already taken steps to limit right censoring of episodes of contraceptive use by limiting our analysis to the first episode in the observation

period. In addition, our substantive focus is on whether women discontinue contraception—and specifically whether women who experience IPV are more or less likely to discontinue contraception than are women who do not—in the period of observation rather than on the timing of discontinuation. Finally, our measures of IPV refer to the 12-month period of observation; we are unable to introduce violence as a time-varying variable into a discrete-time hazard model with time intervals shorter than one year (e.g. in months). A hazard model with a single unit of time approximates a logistic model. The estimation of a logistic model rather than a hazards model may underestimate discontinuation and underestimate the true association of discontinuation with IPV if censoring is severe; however, this is a less egregious error than overestimating their true association.

In all analyses presented in this study, each survey is analyzed in separate models. Data are not pooled across surveys.

2.4. Measures

2.4.1. Modern, temporary contraceptive use

We restrict our analysis to women who are using modern, temporary contraception at the start of the observation period. The following methods are considered modern, temporary contraceptive methods: oral contraceptive pill, intrauterine device (IUD), injection, implants, male condom, female condom, lactational amenorrhea method (LAM), emergency contraception, standard days method, and vaginal methods such as diaphragm, foam, and jelly. We exclude male and female sterilization since these are not temporary methods and periodic abstinence, withdrawal, and other traditional/folk methods since these are not modern methods. For the remainder of this report, the term "contraceptive use" refers to the use of modern, temporary methods of contraception.

Methods of contraception

The contraceptive method used is a consistent and strong predictor of discontinuation (Ali and Cleland 1995; Ali, Cleland, and Shah 2012; Bradley, Schwandt, and Khan 2009; Maslyanskaya et al. 2016; Modey, Aryeetey, and Adanu 2014; Steele and Curtis 2003). In our multivariate analysis, we control for contraceptive method with a variable that classifies methods as long-acting, reversible contraceptive methods (LARCs) and non-LARC methods, i.e. shorter term methods. LARCs include IUDs and implants. After insertion, LARCs offer highly effective protection against pregnancy for a period of several years, which is longer than the study's period of observation. Although injections are sometimes categorized as a LARC method (Bertrand et al. 2014; Darroch 2013; Staveteig, Mallick, and Winter 2015), we classify them as a non-LARC method in this study. We exclude them from the LARC category because they typically offer protection for three months, which is a far shorter period of protection than IUDs and implants. A one-month injection is also available in Egypt. Non-LARCs include injections, pills, condoms, and other modern methods.

Another feature of LARCs is that, after insertion, they require that the user go to a health provider to remove the method in order to stop its use. Thus, their discontinuation requires action on the part of the user (active discontinuation). In contrast, IPV may interfere with the active discontinuation of LARC methods in the same way that it may interfere with women's actions to adopt contraception, by interfering with a woman's ability to access desired services in a timely manner.

Users of non-LARCs, in contrast, may discontinue contraceptive use by simply failing to continue taking action to contracept, that is, by not having the next injection when due or by stopping taking the pill. This is called passive discontinuation. Prior evidence consistently shows higher discontinuation rates among non-LARC users than users of LARCs (Ali, Cleland, and Shah 2012; Bradley, Schwandt, and Khan

2009). We hypothesize that women who use non-LARC methods and who experience IPV are more likely to discontinue contraceptive use than are women who use LARC methods and who do not experience IPV. Therefore, we control for the use of a LARC or non-LARC method. We also estimated additional models that interacted LARC/non-LARC method use and IPV experience (not shown). In these analyses, the interaction term was seldom statistically significant and its inclusion did not alter the interpretation of the base variables. Therefore, this study shows only the more parsimonious models that omit this interaction term.

2.4.2. Discontinuation

We define discontinuation as the interruption of contraceptive use for one month or longer. Most women who discontinue contraception, abandon contraception and do not resume contraceptive use during the observation period. More than 95% of our samples in all study countries have a single episode of contraceptive use. We operationalize our discontinuation outcome as a dichotomous variable, coded 1 for women who are using contraception 12 months prior to the survey, but who cease using contraception before the completion of the observation period and coded 0 otherwise. We further disaggregate this overall discontinuation into two types of discontinuation.

Discontinuation due to no further need

Women may discontinue contraception while still in need (DWSIN) or they may discontinue due to no further need. All women who discontinue contraception are asked the reason they discontinued. Women are considered to have discontinued due to no further need if they report that they stopped using contraception because they wanted to become pregnant or for any of these other fertility-related reasons for discontinuation:

1. *Infrequent sex/husband away*

2. *Marital dissolution/separation*

3. *Difficult to get pregnant/menopausal*

Discontinuation due to no further need is operationalized similarly to overall discontinuation: women who stopped using contraception due to these fertility-related reasons during the period of observation are coded 1; women who discontinued for other reasons or did not discontinue are coded 0.

Discontinuation while still in need

Discontinuation while still in need (DWSIN) refers to discontinuing for reasons other than wanting to become pregnant or no longer being at risk of becoming pregnant. These include:

1. *Health concerns/side effects*

2. *Method inconvenient to use*

3. *Wanted a more effective method*

4. *Costs too much*

5. *Lack of access/too far*

6. *Other reasons, such as husband opposition to contraception*

In our study, DWSIN is operationalized in a parallel manner as the other discontinuation variables: women who stopped using contraception for one of the above reasons during the period of observation are coded 1; women who discontinued for fertility-related reasons or did not discontinue are coded 0. DWSIN is this study's focal outcome. In subsequent sections of this report, data on DWSIN are either presented next to data on discontinuation due to no further need and total discontinuation for purposes of comparison or only DWSIN data are presented in the results sections, with supplemental data on discontinuation due to no further need and total discontinuation available in the appendices.

2.4.3. Intimate partner violence

Emotional, physical, and sexual violence

Three forms of IPV are considered in this study: emotional violence, physical violence, and sexual violence perpetrated by the current spouse. We examine these three forms of IPV separately and in combination. Since marital control may also exert an influence to the same degree as these forms of IPV—and the literature on reproductive coercion suggests more so—on women's ability to continue contraceptive use, we do not analyze either suspicion or isolation domains of marital control because we cannot place their experience in the same 12 month window as our period of observation.

We create a dichotomous measure of each of these three forms of violence. Currently married women who report experiencing any item of emotional violence in the 12 months prior to the survey—either 'sometimes' or 'often'—are coded as 1; women who have not experienced any emotional violence item in the 12 months prior to the survey are coded as 0. Items that constitute emotional violence are those found in question DV04 of Figure 2, and are confirmed by prior factor analyses to load on this form of violence with robust factor loadings (MacQuarrie, Winter, and Kishor 2013, 2014). The reference category (0) includes women who have never experienced emotional violence, and also includes women who may have experienced either physical or sexual violence—but not emotional violence—in the prior 12 months, as well as women who may have experienced emotional violence in the period before the study's observation period but not within the prior 12 months.

Separate measures of physical and sexual violence are coded in an identical manner. Actions that constitute physical violence are items found in Figure 2, question DV05 a-h. All were determined to load robustly onto a physical violence factor, except DV05g, which loaded more inconsistently and weakly (MacQuarrie, Winter, and Kishor 2013, 2014). Items that constitute sexual violence are DV05j-k, and are all highly loading on this factor (MacQuarrie, Winter, and Kishor 2013, 2014).

Any intimate partner violence

Any IPV is a composite variable in which women who have experienced one or more of emotional, physical, or sexual violence in the prior 12 months are coded as 1 and women who have not are coded as 0. Unlike the separate measures for the individual forms of violence, the reference category for this variable (0) excludes women with experience of any form of violence in the past 12 months. Like the separate measures, this variable includes in the reference category the women who may have experienced one or more forms of violence prior to the study's observation period.

Multiple forms of violence

A second composite variable captures the concurrent experience of multiple forms of violence. Women are coded as 1 if they experience any combination of two or more forms of violence in the 12 months prior to the survey: emotional and physical violence, physical and sexual violence, emotional and sexual violence, or all three forms of violence. Women with no experience of violence or who experienced a

single form of violence in the prior 12 months are coded as 0. These bivariate results are not presented in the main text but can be found in Appendix Table 17.

Alternate measures of violence

Because the IPV variables are our key independent variables of interest, we conducted sensitivity analyses that tested several alternate constructions of IPV. In bivariate analyses, we regressed our discontinuation outcomes (any discontinuation, DWSIN, discontinuation due to no further need) on the following alternatives: (1) in lieu of dichotomous variables capturing *any* versus *no* experience of violence in the prior 12 months, a 3-category variable that distinguished experiencing violence *often*, *sometimes*, or *not at all* (reference category) in the prior 12 months (Appendix Table 18). This variation disaggregates the "yes" category by frequency of the IPV experience; (2) in lieu of dichotomous variables, a 3-category variable with categories for experience of emotional (for example) violence in the prior 12 months, experience of other forms of violence but not emotional (for example) violence, versus *no violence at all* as the reference category (Appendix Table 19). This variation disaggregates the reference category to ensure no women experience any other form of violence are included in the reference group; (3) a series of variables that considers prior experience of violence, with categories that indicate experience of IPV *in the prior 12 months*, experience of IPV *before* the observation period but not during the prior 12 months, and *never* any experience of IPV (reference category). This variation adds precision to the timing of IPV (Appendix Table 20). These last alternate construction of variables were also tested in their association with using contraception at the start of the observation period, to test for selection bias if prior experience of IPV influenced the likelihood of using or not using contraception (Appendix Table 16). In testing all 3 alternate constructions of IPV, we tested each separate form of violence (emotional, physical, and sexual violence), the experience of any IPV, and the experience of multiple forms of IPV in separate models.

Since none of these alternate constructions led to substantively different conclusions about the relationship between IPV and the discontinuation of contraception, we present findings using the original construction in the main text. Results of the sensitivity testing are found in Appendix Tables 16-21.

2.4.4. Duration of contraceptive use

In our models, we include as a control a measure for the duration of contraceptive use because the likelihood of discontinuation increases the longer that a woman has been using a method of contraception. Our measure calculates from the calendar data, in months, the duration of continuous contraceptive use prior to the start of the observation period. This measure is then collapsed into three categories, with approximately one-third of women in each survey falling into each tercile. These are: 1-12 months of use before the observation period; 13-36 months of use before the observation period; and more than 37 months of use before the observation period.

2.4.5. Socio-demographic controls

In addition to measures for IPV experience in the last 12 months, use of a non-LARC method, and duration of contraceptive use, discontinuation models also include a range of socio-demographic controls. These are: age, wealth, residence, religion, education, number of living children, and employment. Each of these variables are standard in DHS surveys and comparable across countries.

Age

The age variable captures age of the respondent at the time of the survey and is categorized in five-year age groups. The 15-19 year age group serves as the reference category.

Household wealth quintile

We use household wealth quintile as a measure of relative wealth. This measure is calculated based on ownership of a range of assets and housing materials. The construction of this measure, now standard in DHS surveys, is described in detail elsewhere (Rutstein 2008; Rutstein and Johnson 2004). The poorest wealth quintile serves as the reference category.

Place of residence

Place of residence captures whether the respondent resides in a rural or an urban area at the time of the survey, based on a priori classification of primary sampling units selected for the survey. Urban is the reference category.

Religion

A variable that captures the respondent's religion is available in eight of 11 study surveys. The surveys that do not contain a religion variable are Jordan, Kyrgyz Republic, and Tajikistan. To make this variable comparable across study surveys, country-specific religious categories are combined into major religious groupings of Christian, Muslim, and other. Christian is used as the reference category because it is the majority religious grouping in 6 of the 8 country surveys that include a religion measure.

Education

Women's education at the time of the survey is categorized as no education, primary, secondary, and higher education. No education is used as the reference category.

Employment status

The employment variable assesses women's employment status at the time of the survey and is categorized as not employed, not employed for cash, and employed for cash. Not employed is the reference category.

Number of children

We use a count of the number of a woman's living children at the time of the survey. This variable is categorized as follows: no children, 1-2 children, 3-4 children, and 5 or more children. The reference category is 0 children.

Marital duration

Marital duration is calculated from two measures collected in DHS surveys: age at the time of marriage, subtracted from age at the time of the survey, in completed years. This measure in whole years is further reduced to 5-year categories as a standard variable in the standard recode datasets. The categories are: 0-4 years, 5-9 years, 10-14 years, 15-19 years, 20-24 years, 25-29 years, and 30 years or more. Women in the shortest category of marital duration (0-4 years) serve as the reference category. This measure is included in bivariate analyses but excluded from multivariate analyses because of multicollinearity with number of children.

2.4.6. Other interruptions to contraceptive use

In this study on interruptions to contraceptive use, we analyze contraceptive discontinuation (and specifically, discontinuation while still in need). Discontinuation, however, is not the only type of interruption that contracepting women may experience. Women may experience contraceptive failure by becoming pregnant while using contraception, for example. Women may also experience a temporary hiatus, by stopping contraceptive use for one month or more and later resuming to use contraception, or they may abandon contraceptive use altogether. We define discontinuation as the interruption of contraceptive use for one month or longer. Therefore, we do not distinguish in the main analyses presented here between discontinuation that is abandonment of or a hiatus in use.

Exploratory analyses displayed in Appendix Table 21 show the percentage of women using contraception who experienced any interruption to their contraceptive use in the 12 months prior to the survey, consisting of (a) hiatus in use; (b) abandonment discontinuation (while still in need, due to no further need, and total); (c) failure; and (d) any interruption by experience of any IPV. We define a hiatus as the temporary cessation of contraception for one month or more followed by the resumption of contraceptive use during the 12 month observation period. We define abandonment discontinuation as the cessation of contraception without resumption of contraceptive use during the 12 month observation period. We classified women as experiencing contraceptive failure if they did not report that they discontinued contraception because they wanted to get pregnant but were using contraception at the time they became pregnant. There were few cases of hiatus discontinuation in the study countries. The experience of any IPV is not statistically significantly associated with either hiatus in contraceptive use or contraceptive failure in any of the study countries. The associations of any IPV with abandonment discontinuation are similar to those with discontinuation while still in need, no further need, and total discontinuation—without distinction to hiatus or abandonment—reported elsewhere in this study.

We, further, do not consider method switching to be a type of interruption to contraceptive use. If a woman stops using one method and begins using another method, so long as a method of contraception is being used continuously, we classify her as not having discontinued contraceptive use. Method switching is certainly a change in contraceptive behavior, and one that may be related to a woman's experience of IPV. Matters of method choice and switching methods are deserving of inquiry, but are beyond the scope of the present study.

3. Prevalence of Contraception and Intimate Partner Violence in Study Surveys

3.1. Contraception Profile of Study Surveys

The surveys selected for this study reflect a range of contraceptive experiences. Figure 3 summarizes contraceptive prevalence; specifically, it displays the proportion of currently married women who are using *any* method of contraception and the proportion using a *modern* method of contraception. Figure 4 presents the method mix or, stated otherwise, the contribution of each method of contraception to the overall contraceptive prevalence. Shorter-term, non-LARC methods (injections, pill, and other modern methods) are depicted in shades of blue, LARC and permanent methods (IUD, implants, and sterilization) in reds, and traditional/folk methods in green.

One widely used measure of the intensity of family planning programming in a given country is the Family Planning Effort Index score. These scores have been calculated at periodic intervals since 1972 (Kuang and Brodsky 2016; Ross and Stover 2001; Ross and Smith 2011) and are based on data obtained from 10-15 experts in each country with a structured questionnaire[9]. Experts rate national family planning programs on items that align with four components:

- Policies—national policies on fertility reduction and family planning, the legal age of marriage, the support of public officials, program leadership and funding environment, and regulations affecting contraceptive supplies.

- Services—service delivery mechanisms (e.g. private sector involvement, social marketing, postpartum integration, home visits, and community-based distribution (CBD), among others), administrative structure, training, personnel performance, logistics, supervision, and incentives/disincentives for contraceptive adoption.

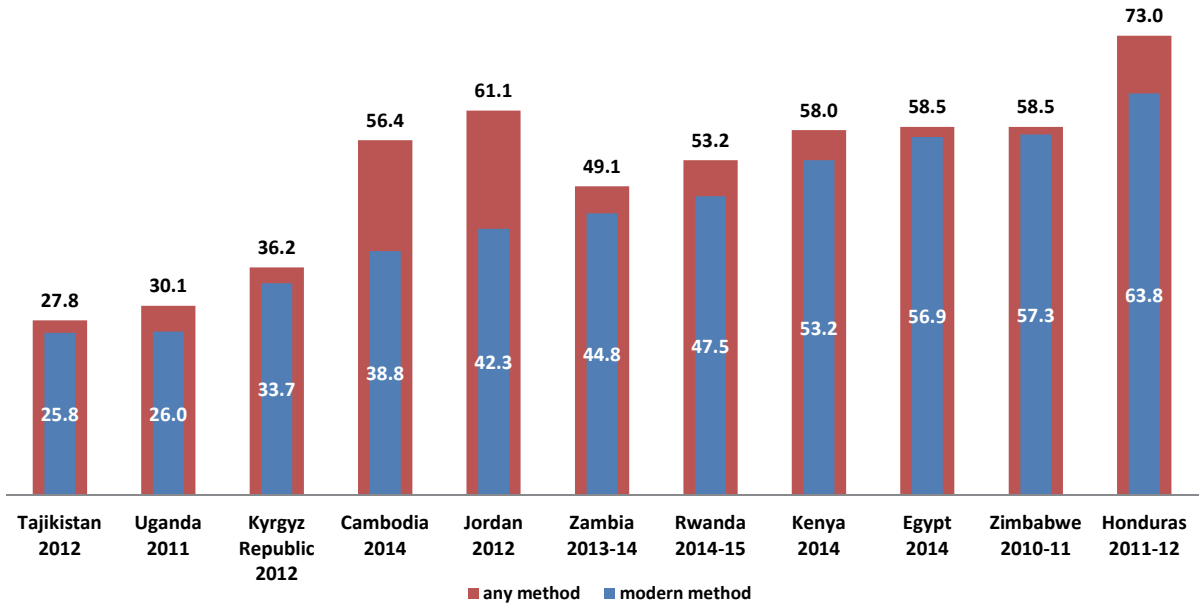
- Evaluation—record-keeping, evaluation, and use of data by management.

- Access—access to specific contraceptive methods, access to safe abortion, reversibility of long-acting and permanent methods, and overall quality of family planning services.

Index scores are standardized to range from 1 to 100 for each component and combined into an overall score, with 100 representing the maximum possible family planning program effort (Kuang and Brodsky 2016; Ross and Stover 2001; Ross, Stover, and Adelaja 2007). Figure 5 displays the Family Planning Effort Index scores for each study country, as calculated by Avenir Health for 2014. In our study countries, Family Planning Effort Index scores range from 44 (Zambia) to 74 (Rwanda), out of a possible 100 point index.

[9] The Family Planning Effort questionnaire and data are available from Avenir Health at http://www.track20.org/pages/data/FPE.

Figure 3. Proportion of currently married women age 15-49 currently using contraception



Note: Modern contraceptive methods include female/male sterilization and the following temporary methods: oral contraceptive pill, intrauterine device (IUD), injection, implants, male/female condom, lactational amenorrhea method (LAM), emergency contraception, standard days method, and vaginal methods like diaphragm, foam, and jelly. Traditional methods consist of: periodic abstinence, withdrawal, and other traditional/folk methods.

One inclusion criterion for this study was a modern contraceptive prevalence rate (mCPR) equal to or greater than 25%. Figure 4 shows that, among currently married women, the mCPR ranges from approximately 26% in Tajikistan and Uganda to 64% in Honduras. Similarly, the overall CPR ranges from approximately 30% to 73% in these countries, respectively. The difference between these two indicators is greatest in Cambodia and Jordan, where the use of traditional/folk methods is substantial. The modern contraceptive rate exceeds 50% in Kenya, Egypt, and Zimbabwe.

Figure 4 indicates that it is not uncommon for one or two methods to be the majority of all contraceptive use. However, there is diversity among the study countries in terms of the dominant method. The IUD and injections are the most commonly used methods in four countries. Injections are predominately used in several of the African countries, while IUDs are more commonplace in North African/Middle East/Central European countries. Pills are the most commonly used method in two countries, Zimbabwe—where they are used by 7 out of 10 contraceptive users—and Cambodia, and closely follow injections use in Zambia. The most commonly used method in Honduras is female sterilization, followed by injections.

3.1.1. Cambodia

Cambodia has a Family Planning Effort Index score of 55.4, which is near the median for countries included in this analysis and has remained steady since scores were last calculated in 2009. Its highest component score is for family planning policies (61) and lowest is in evaluation (53). More than half

(56%) of currently married women are using some method of contraception. Substantially fewer women—39%—are using a modern method.

Shorter-term methods represent just over half of all contraceptive use. The most common method—pills—are used by 18% of women and contribute nearly one-third of all contraceptive use. Also available in the Cambodian contraceptive market is a monthly oral contraceptive pill, produced by a Chinese manufacturer; this method is not as common as its more traditional daily counterpart (National Institute of Statistics, Directorate General for Health, and ICF International 2015). Traditional methods (predominantly withdrawal) closely follow pill use and also make up nearly one-third of all contraceptive use. Injections are the second most common modern method and contribute 16% to overall contraceptive use. LARC and permanent methods (IUD, implants, and sterilization) are not a prominent feature of contraceptive patterns in Cambodia. These three methods and other modern methods combined represent less than a quarter of all contraceptive use.

3.1.2. Egypt

The mCPR in Egypt is 57% among currently married women. Traditional methods are not a substantial portion of the contraceptive regime, raising the total CPR only slightly to 59%. Three in 10 currently married women use the IUD, a LARC method. This makes the IUD the most common contraceptive method in Egypt, followed by two shorter term methods: the pill and injections. The pill had dominated contraceptive use in Egypt until the late 1980's, although expansion of the IUD that began about 30 years ago has displaced the pill as the dominant method. More recently in the last 15 years, there has also been a rapid expansion in injections (MoHP, El-Zanaty and Associates, and ICF International 2015). Together, these three methods now account for more than 93% of contraceptive use in Egypt; use of traditional and other modern methods is negligible.

The Family Planning Effort Index score is 50, which is near the lower end of the continuum of countries in this study. This score has declined more than 10 points since the prior assessment in 2009. All component scores also fell during this period. Egypt receives scores above 50 for its family planning policies and evaluation (down from 72 and 70, respectively), but less than 50 in the services and access components (down from 58 and 51, respectively). After increases throughout the 1980's and 1990's, the CPR has remained relatively steady at about 56-60% since 2000 (MoHP, El-Zanaty and Associates, and ICF International 2015).

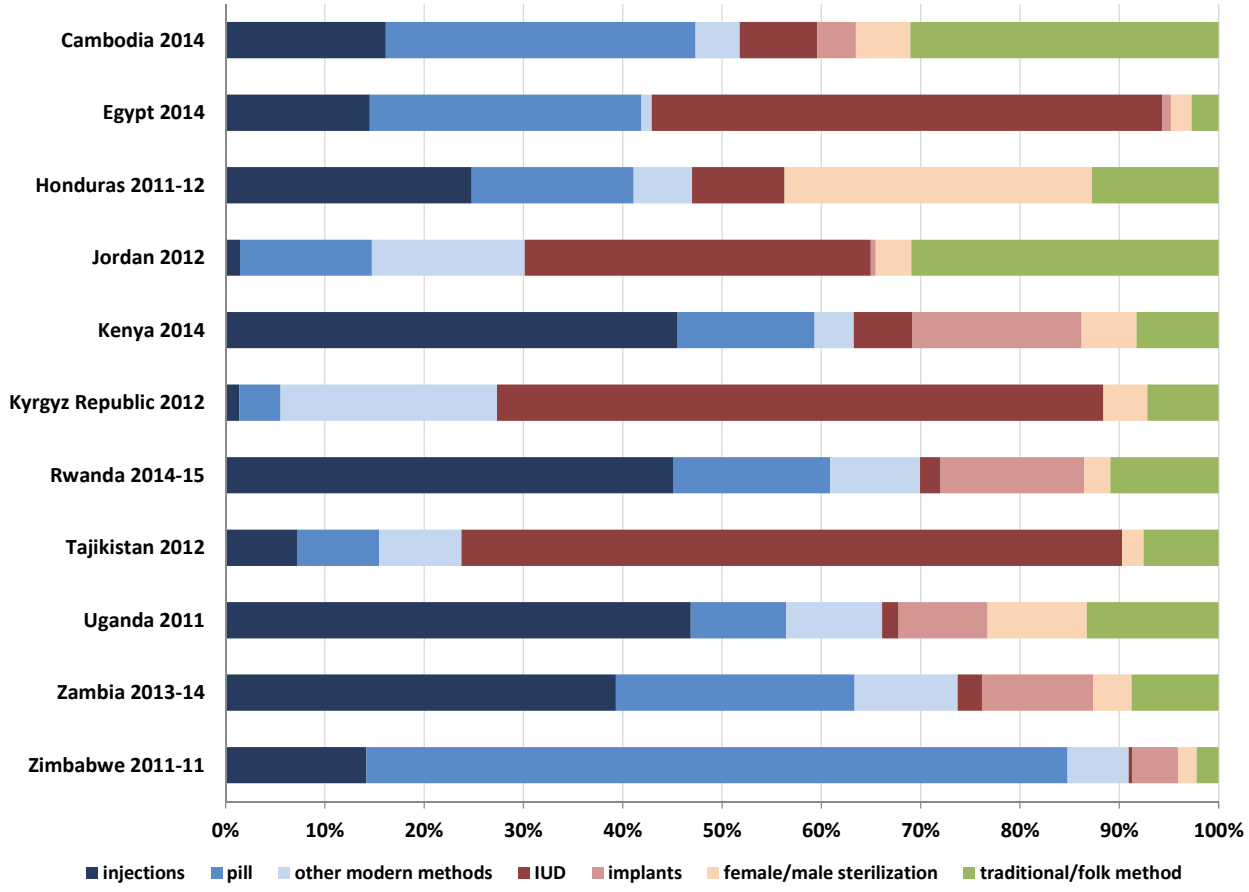
3.1.3. Honduras

Whether considering total (73%) or modern CPR (64%), Honduras has the highest levels of contraceptive use of the countries in the study. Current levels represent approximately an 8 point increase since 2005-06. Much of this increase is attributed to an increase in injection use of more than 4 percentage points, from 13.8% to 18.1% of women using this method (Secretaria de Salud, INE, and ICF International 2013).

Honduras also has a more balanced method mix, with no method representing more than 50% of use. Sterilization (almost entirely female sterilization) is the most common form of contraception, which contributes 31% to total contraceptive use. LARC methods are not prominent among contraceptive use. IUDs contribute less than 10% of contraceptive use and implants, 0%. The second most common method is injections, used by one in four contraceptive users. Pills account for 16% of contraceptive use. Despite the robust mCPR, many women also rely on traditional methods. These methods account for 13% of total contraceptive use.

The Family Planning Effort Index score for Honduras has increased about 4 points since 2009 and is currently at 54, which is about the median for the surveys in this study. Evaluation is the strongest component of its family planning program (65), followed by access (56), family planning policies (55), and lastly services (52).

Figure 4. Dominant method and method mix among currently married women age 15-49 using contraception



3.1.4. Jordan

Jordan has a moderate mCPR of 42%, with an overall CPR of 61%. Like Cambodia, the use of traditional methods (particularly withdrawal) plays an important role in Jordan's contraceptive regime. These methods represent 31% of all contraceptive use. This share of contraceptive use has increased slightly over time (Department of Statistics [Jordan] and ICF International 2013). Traditional methods are outpaced only by IUD use, which represents 5% of all contraception use. The use of IUDs increased rapidly during the 1990's and has remained steady since about 2000. The use of pills and other modern methods lags behind at about 13-15% of total use. The proportion of currently married women who use condoms has increased over time, although this method is not a major contributor to contraceptive prevalence. Thus, Jordan has achieved a relatively well-balanced method mix. Shorter-term methods, LARC and permanent methods, as well as traditional methods account for almost equal portions of all contraceptive use.

Jordan has one of the higher Family Planning Effort Index scores among the countries in the study, at 60 points, with robust scores across all four components. Reflecting a common pattern, Jordan's scores for

policies (62) and evaluation (63) outpace those for services (54) and access (58). These scores represent an increase above the 2009 calculations. Improvements have been most notable in the services component, which has risen from 42 points in 2009 (Avenir Health 2015a).

3.1.5. Kenya

Kenya was an early adopter of strong family planning programs, although the priority of family planning in the national agenda slipped in the 1990s. Nevertheless, its Family Planning Effort Index score has remained steady at about 50 points since 2009 (Avenir Health 2015b). Kenya's family planning policies component score, now at 62, and to a lesser extent its access score (47) have improved over the last 5 years while its evaluation score has decreased. Services remain its weakest component, scored at 42 points.

Nonetheless, Kenya's mCPR is 53% among currently married women. With an overall CPR of 58%, traditional methods do not make a substantial contribution to contraceptive patterns in the country. The shorter-term methods are most of all contraceptive use (63%); LARC and permanent methods (28%) and traditional methods (8%) are much less. Injections are the dominant method, which accounts for nearly 46% of all use. Along with Rwanda and Zambia, Kenya is one of the few countries in which prevalence of implants is notable. Implants are the second most common method that represent 17% of all contraceptive use, followed by pills at 14%.

3.1.6. Kyrgyz Republic

Total and modern CPR are closely aligned with a little more than one-third of currently married Kyrgyz women using contraception. The method mix is highly skewed with a single method accounting for well over half of all contraceptive use. Sixty-one percent of all women who use contraception are using the IUD. However, use of implants, the other LARC method, is not measurable while the use of sterilization stands at just 4%. The methods included in the category "other modern methods" (mostly male condoms) contribute 22% of all contraceptive use, with use of other non-LARC methods and traditional methods lagging well behind.

The Family Planning Effort Index score has increased approximately 9 points to 51 points between 2009 and 2014. The Kyrgyz Republic receives particularly high marks for evaluation (74), although component scores for access and services are below 50 points.

3.1.7. Rwanda

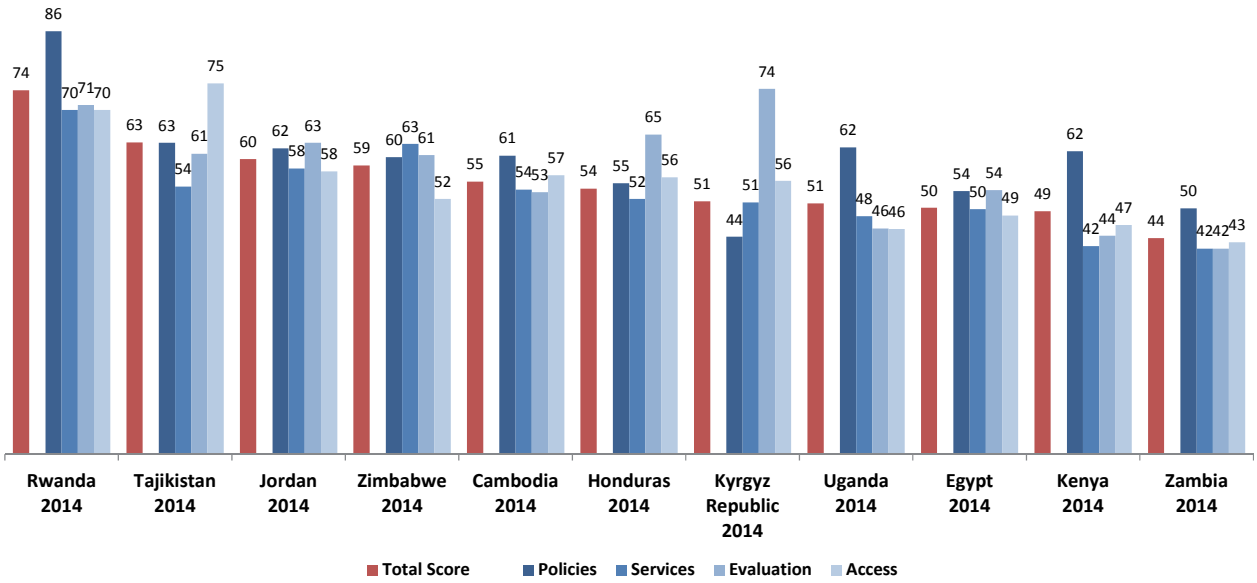
Nearly 48% of currently married women in Rwanda are using a modern method of contraception. More than half of married women (53%) are using contraception when traditional methods are included. Shorter-term methods combine to dominate the method mix, with 7 out of 10 contraceptive users using a non-LARC method. Two of 10 women use a LARC or permanent method (typically implants) and one-tenth uses a traditional method.

Injections are the single most common method in Rwanda, with a 45% contribution to all contraceptive use. This is followed by the pill (16%) and implants (15%). Thus, Rwanda is the second of three countries with implant use that exceeds 10% of all contraception. The use of IUDs, sterilization, and other modern methods are negligible in Rwanda.

Rwanda has the highest Family Planning Effort Index score—74—of all the countries included in the analysis. A score was not calculated for Rwanda in 2009, but the current score represents a near doubling of the 2004 score, which is a remarkable increase (Avenir Health 2015c). Rwanda has its highest

component score for family planning policies (86), with component scores for family planning services, evaluation, and access at about 70. Only Tajikistan has a higher score for access and the Kyrgyz Republic for evaluation. Rwanda has the highest policies and services scores of the countries in this study.

Figure 5. Family Planning Effort Index scores



Sources: Avenir Health. 2009. Family Planning Effort Index: Scores from 1972 to 2009. Retrieved on July 1, 2016 from http://www.track20.org/pages/data/FPE

Avenir Health. 2015. Family Planning Effort Scores in 2014: Rwanda. Track20 FPE Policy Brief Series. Retrieved on July 1, 2016 from http://www.track20.org/pages/resources/track20_resources#FPEPolicyBriefs

Kuang and Brodsky. 2016. "Global Trends in Family Planning Programs, 1999-2014." *International Perspectives on Sexual and Reproductive Health* 42(1): 33-44.

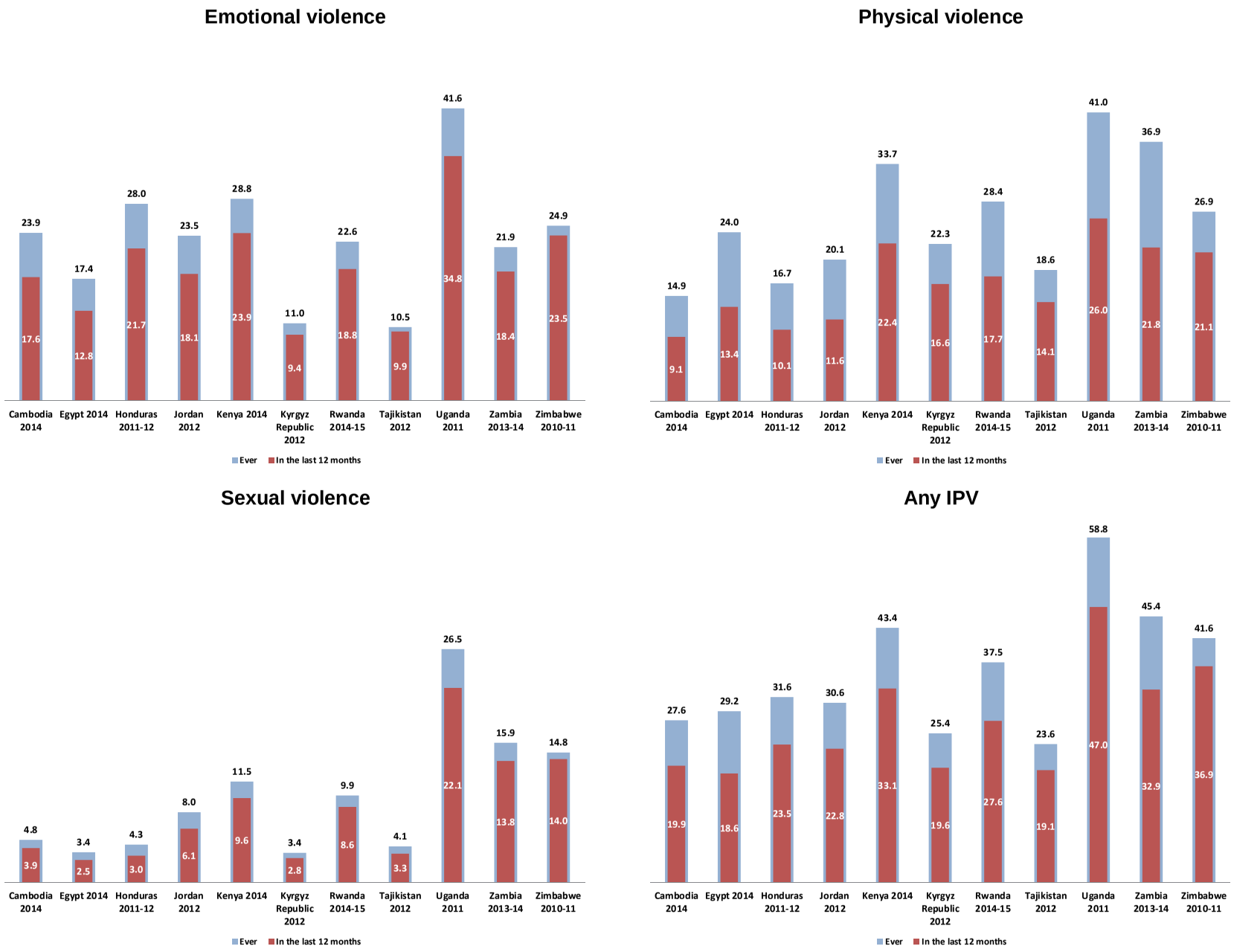
3.1.8. Tajikistan

Tajikistan has the second highest Family Planning Effort Index score of the countries in this study, at 63 points. This score has remained steady since 2009. Its highest component score is in access to family planning (74), followed by family planning policies (53), evaluation (61), and services (54).

In spite of these high Effort Index scores, Tajikistan has the lowest mCPR and CPR of the study countries. Nearly 26% of currently married women use a modern method of contraception. Two percent of currently married women use a traditional method, which brings the total CPR to just under 28%.

Tajikistan has perhaps the most skewed method mix of the countries in our study. Use of IUDs is more than two-thirds of all contraceptive use. Implant use is not measurable in Tajikistan and sterilization accounts for just 2%. Shorter-term methods combine to contribute nearly one-quarter of all contraceptive use (24%), although neither injections, pills, or other modern methods represent more than 10% of use.

Figure 6. Percentage of currently married women age 15-49 who experienced emotional, physical, sexual, and any intimate partner violence



3.1.9. Uganda

Uganda has the second lowest mCPR (26%) and total CPR (30%) of study countries. Shorter term methods account for two thirds of all contraceptive use. Injections are the most common method, accounting for 47% of all use. Pill use, implants, sterilization, and other modern methods contribute about 10% of contraceptive use. Traditional methods account for a slightly larger share: 13%, whereas IUDs less than 2%.

Uganda's Family Planning Effort Index score is 51, which is a slight increase over the 2009 score (Avenir Health 2015d). Uganda scores highest in the family planning policies component (62), followed by family services (48), evaluation (46), and access (46).

3.1.10. Zambia

Zambia has the lowest Family Planning Effort Index score (44 points) of the countries in the study. Zambia receives its highest score—50—in the family planning policies component. Scores in the services, evaluation, and access components all are lower at about 42 points (Avenir Health 2015e).

Zambia has an mCPR of 45%, which places it at about the median among countries in this analysis. Non-LARC methods constitute nearly three-quarters of contraceptive use, although no single method dominates more than 50% of the method mix. The most common method is injections at 40% of contraceptive use, followed by pills, which constitute 24% of contraceptive use. Although the combined use of LARC and permanent methods account for fewer than two in 10 contraceptive users, implant use is not uncommon in Zambia, since it accounts for 11% of all contraceptive use. Traditional methods represent 9% of all use.

3.1.11. Zimbabwe

Zimbabwe has the second highest mCPR of the countries in this analysis at 58%. Traditional method use is negligible bringing the total CPR to 59%. The method mix is highly skewed, with shorter term methods accounting for more than 90% of all contraceptive use. LARC and permanent methods account for less than 7% of contraceptive use. The method mix is dominated by a single method, with pills accounting for 71% of all contraceptive use. The second most common method, injections, account for 14% of all use.

The 2014 Family Planning Effort Index score for Zimbabwe is 59, barely unchanged from the score of 60 calculated for 2009 (Avenir Health 2015f). Zimbabwe's highest component score is in the area of family planning services (63). The scores for each of the other three components are approximately 60.

3.2. IPV Profile

As shown in Figure 6, 19.9% of currently married women age 15-49 in Cambodia reported experiencing any type of IPV in the last 12 months while 27.6% reported ever experiencing IPV. The most common type of violence in Cambodia was emotional violence (17.6% in the past 12 months and 23.9% ever) followed by physical and sexual violence.

An estimated 18.5% of currently married women age 15-49 in Jordan reported experiencing IPV in the last 12 months and 29.2% reported ever experiencing IPV. Significantly more women reported ever experiencing physical violence than emotional or sexual violence. However, there was no significant difference between the proportion of women reporting emotional violence and the proportion of women reporting physical violence in the last 12 months (both at approximately 13%).

In Kenya, approximately a third of currently married women age 15-49 reported experiencing any IPV in the last 12 months before the survey. This estimate increased to 43.4% for ever experiencing IPV. There was no significant difference between the proportion of women reporting emotional and physical violence in the last 12 months (both were between 22-23%). However, significantly more women reported ever experiencing physical violence (33.7%) compared to emotional violence (28.8%). Approximately 1 in 10 women reported experiencing sexual violence both in the last 12 months and ever experiencing.

In the Kyrgyz Republic, approximately 1 in 5 currently married women age 15-49 reported experiencing any IPV in the last 12 months before the survey and a quarter of the women reported ever experiencing any IPV. Significantly more women reported experiencing physical violence compared to emotional violence (16.6% compared to 9.4% in the last 12 months and 22.3% compared to 11.0% for ever experiencing, respectively). Between 2-3% of women reported experiencing sexual violence both in the last 12 months and ever experiencing.

Approximately a third (27.6%) of Rwandan currently married women age 15-49 reported experiencing any IPV in the last 12 months before the survey and more than a third (37.5%) reporting ever experiencing IPV. There was no significant difference between the proportion of reported emotional and physical violence in the last 12 months before the survey (approximately 18% for each type). However, significantly more women reported ever experiencing physical violence compared to emotional violence (28.4% and 22.6% respectively). Between 9-10% of women reporting experiencing sexual violence both in the last 12 months and ever experiencing.

In Tajikistan, approximately 1 in 5 currently married women age 15-49 reported experiencing any IPV in the last 12 months before the survey and approximately a quarter of the women reported ever experiencing any IPV. Significantly more women reported experiencing physical violence compared to emotional violence (14.1% compared to 9.9% in the last 12 months and 18.6% compared to 10.5% for ever experiencing, respectively). Between 3-4% of women reported experiencing sexual violence both in the last 12 months and ever experiencing.

Almost half of Ugandan currently married women age 15-49 reported experiencing any IPV in the last 12 months and more than half (58.8%) reported ever experiencing any IPV. Significantly more women reported experiencing emotional compared to physical violence in the last 12 months (34.8% and 26.0% respectively) while an estimated 41% reported ever experiencing emotional and physical violence each. More than 1 in 5 women reported experiencing sexual violence in the last 12 months and more than a quarter of Ugandan women reported ever experiencing this type of violence.

In Zambia, almost a third of currently married women age 15-49 reported experiencing any IPV in the last 12 months. This increased to 45.4% of women who reported ever experiencing any IPV. Approximately 1 in 5 women reported experiencing both emotional and physical violence in the last 12 months before the survey. Significantly more women reported ever experiencing physical violence (38.9%) compared to emotional violence (21.9%).

More than a third (36.9%) of currently married women in Zimbabwe reported experiencing any IPV in the last 12 months before the survey and 41.6% reported ever experiencing any IPV. Slightly more than 1 in 5 women reported experiencing both physical and emotional violence in the last 12 months and approximately a quarter reported ever experiencing these forms of violence. Between 14-15% of women reported experiencing sexual violence both in the last 12 months and ever experiencing.

4. Sample Profile

Women are included in our analytic sample if they were currently married at the time of interview and were using a modern, temporary method of contraception at the start of the observation period (12 months prior to the survey). Table 3 summarizes the background characteristics of the women in this sample.

As Table 3 shows, approximately 80% or more of these women were using a long-acting, reversible contraceptive (LARC) method at the start of the observation period in all countries except Egypt, Jordan, the Kyrgyz Republic, and Tajikistan. The level of LARC use ranges from a low of 25.5% in Tajikistan to 96.4% in Zimbabwe. Details on the prevalence of methods used among women in the sample can be found in Appendix Table 1.

In general, most women in the sample are between 25-34 years of age and have at least a primary level of education. Education levels are higher in Jordan, the Kyrgyz Republic, and Tajikistan compared to the remaining countries with most women in these countries having secondary or higher level education. The distribution of the sample across wealth quintiles is more or less equal except in Kenya and Uganda with less than 10% of the women in the lowest wealth quintile. This may reflect that contraceptive use is concentrated among wealthier quintiles in these countries. Very few women in the sample had no children at the time of interview, with most women having at least one. Other characteristics such as place of residence, employment status, and religion differ greatly across study countries, as shown in Table 3.

Table 3. Background characteristics of the analytic sample: Currently married women age 15-49 using contraception 12 months prior to interview

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-2015	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Method used 12 months prior to survey											
LARC	83.0	44.6	82.1	45.1	77.8	28.2	79.3	25.5	90.1	83.4	96.4
non-LARC	17.0	55.4	17.9	54.9	22.2	71.8	20.7	74.5	9.9	16.6	3.6
Duration of use before the observation period											
1-12 months	27.7	25.7	38.1	33.8	34.7	23	34.3	24.8	57.6	41.5	3.2
13-36 months	30.3	27.3	30.8	32.3	32.9	30.6	36.5	31.6	25.8	39.7	36.1
37+ months	42.1	47.1	31.1	33.9	32.4	46.4	29.2	43.6	16.6	18.7	31.9
Age											
15-19	0.8	0.8	7.4	0.8	0.9	0.1	0.1	0.1	2.1	2.7	2.5
20-24	11.8	9.4	20.6	6.8	14.9	6.2	10.1	8.1	10.5	14.8	20.8
25-29	22.1	20.4	24.3	16.3	28.8	17.5	20.4	17.3	33.0	24.2	25.4
30-34	28.5	22.2	20.5	22.7	23.5	22.3	31.3	21.0	21.6	23.3	21.3
35-39	14.7	20.0	14.0	23.3	16.2	22.9	18.3	23.0	22.3	18.7	16.0
40-44	15.7	16.1	8.6	21.9	10.8	18.3	13.5	21.2	7.3	11.3	9.6
45-49	6.4	11.1	4.6	8.1	4.9	12.8	6.3	9.2	3.1	4.9	4.4
Wealth quintile											
Lowest	19.5	17.1	17.4	16.1	7.4	20.6	14.0	16.9	8.4	12.0	16.1
Second	22.5	19.7	19.2	18.3	17.7	20.3	20.4	18.7	12.9	15.7	17.4
Middle	19.9	22.5	21.9	22.2	20.3	19.2	22.3	15.9	20.0	19.5	18.6
Fourth	20.9	21.0	22.0	22.7	25.5	19.2	21.1	21.6	19.5	24.8	24.1
Highest	17.2	19.7	19.5	20.7	29.1	20.7	22.2	26.9	39.3	28.0	23.7

Continued

Table 3—*Continued*

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-2015	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Place of residence											
Urban	11.9	35.8	49.6	84.1	47.5	33.9	18.6	26.5	25.9	51.7	36.5
Rural	88.1	64.2	50.4	15.9	52.5	66.1	81.4	73.5	74.1	48.3	63.5
Religion											
Muslim	2.5	96.1	0.0	na	2.6	na	3.6	na	17.2	0.7	0.6
Christian	0.7	3.8	86.4	na	96.5	na	96.1	na	80.8	98.8	92.6
Other	96.8	0.1	13.6	na	0.9	na	0.3	na	2.0	0.5	6.8
Education											
No education	14.1	24.1	3.5	1.1	2.2	0.0	13.8	1.6	6.7	6.9	2.4
Primary	57.1	10.7	59.3	5.1	56.7	0.1	75.2	3.2	63.2	51.8	27.4
Secondary	27.4	52.5	30.5	63.8	31.0	53.7	7.9	76.5	23.6	35.3	65.4
Higher	1.5	12.7	6.7	30.0	10.0	46.1	3.0	18.6	6.6	6.0	4.9
Employment											
Not employed	11.9	82.5	47.6	na	18.0	61.3	5.2	58.5	19.9	41.7	50.1
Employed for cash	81.0	14.8	48.7	na	66.6	35.6	61.8	34.3	63.2	42.3	47.5
Employed not for cash	7.0	2.6	3.7	na	15.4	3.2	33.0	7.2	16.9	16.0	2.5
Number of living children											
0	0.5	0.0	5.5	0.1	2.6	0.4	0.3	0.1	1.4	0.6	0.9
1-2	56.5	38.9	58.5	21.5	48.4	34.3	45.9	26.8	23.1	32.0	56.0
3-4	34.0	49.2	26.5	40.8	32.5	51.6	31.9	50.4	37.8	34.2	32.8
5+	9.1	11.8	9.5	37.7	16.5	13.6	21.9	22.7	37.7	33.2	10.3
Marital duration in years											
0-4	12.8	11.4	24	9.8	19.4	9.3	18.3	7.9	8.9	15.8	24.2
5-9	23.9	23.3	24.4	20.5	24.5	17.1	27.6	21.1	21.8	21.1	25.0
10-14	22.9	20.6	21.1	22.9	21.4	20.7	18.9	17.8	25.7	23.3	21.5
15-19	18.6	18.6	14.8	20.5	18.7	21.9	17.2	22.1	26.6	17.7	14.6
20-24	14.0	14.6	9.6	17.5	10.0	21.0	12.1	21.0	12.9	12.0	7.5
25-29	6.7	7.9	4.9	6.4	5.3	8.9	4.6	8.8	3.6	7.7	4.9
30+	1.1	3.6	1.3	2.3	0.7	1.2	1.3	1.2	0.5	2.5	2.3

Notes:

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys.

Data on employment status was not collected in the Jordan 2012 DHS.

5. Experience of Intimate Partner Violence

Figure 7 summarizes the proportion of women in the sample who have experienced IPV in the 12 months prior to the survey. This figure presents Euler-style area proportional Venn diagrams indicating overall prevalence of each form of violence as well as their intersections (Micallef and Rodgers 2014). Women's experience of any form of IPV ranges from 17.6% of currently married women using modern, temporary contraception at the start of the observation period in Egypt to 40.9% in Uganda. Sexual violence is the least frequently reported form of violence. In Cambodia, Honduras, Jordan, Kenya, Uganda, and Zimbabwe, more women report emotional violence compared to physical violence. The highest reported levels of emotional violence is found in Uganda (29.8%), followed by Kenya, Zimbabwe, and Honduras. However, the highest reported levels of physical violence is found in Kenya (23.7%) followed by Zambia, Rwanda, and Zimbabwe with Uganda. Uganda also has the highest reported prevalence of sexual violence (19.3%) followed by Zambia and Zimbabwe both with approximately 15%.

The proportion of women who report experiencing multiple forms of violence is highest in Uganda (21.9%) followed by Kenya, Zambia, and Zimbabwe. In contrast, less than 10% of women in our sample in Egypt, Tajikistan, Cambodia, and the Kyrgyz Republic experience multiple forms of violence. When women experience multiple forms of violence, women most commonly experience emotional and physical violence together. The proportion experiences these two forms of violence range from 7% in Egypt to 16% in Uganda. The combinations of emotional and sexual violence or physical and sexual violence are less common and similar to one another in most countries. The proportion of women who experience all three forms of violence in the 12 months prior to the survey ranges from 1% in Tajikistan to 6% in Kenya and Rwanda and 7% in Uganda.

In general, the lowest levels of IPV are found in Egypt. Many countries, such as Cambodia and Egypt, have consistently low levels of violence across all forms of violence or consistently high levels, such as Uganda and Kenya, across all forms of violence. For some countries, however, one form of violence dominates. For example, the Kyrgyz Republic has low levels of reported emotional (11.2%) and sexual (4.2%) violence, but a relatively high level of physical violence (20.5%). Similarly, Jordan has relatively low reported levels of physical (11.7%) and sexual violence (6.6%), but a high level of emotional violence (20.3%).

Figure 7. Proportion of currently married women age 15-49 in the analytic sample experiencing each form of intimate partner violence in the 12 months prior to the survey

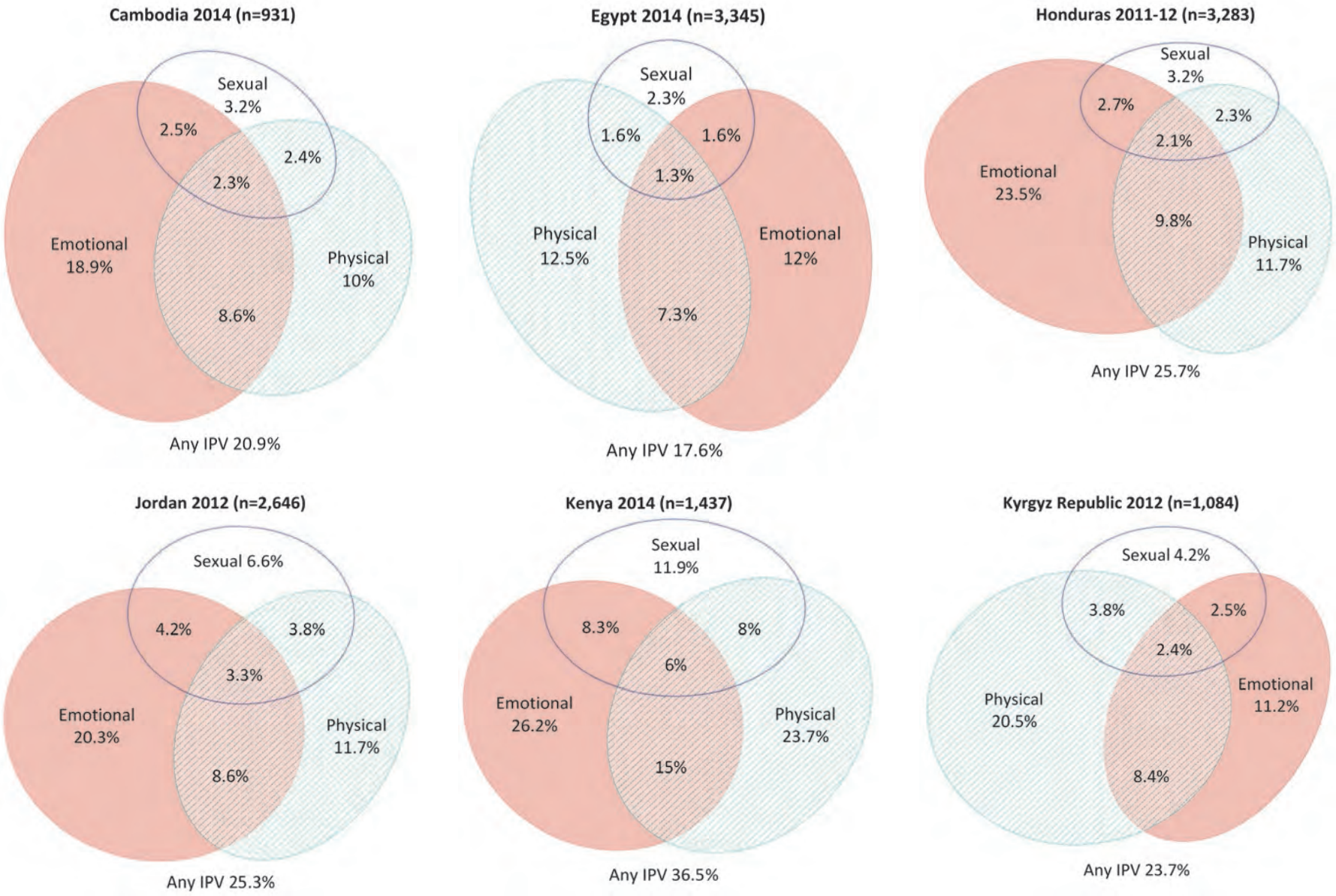


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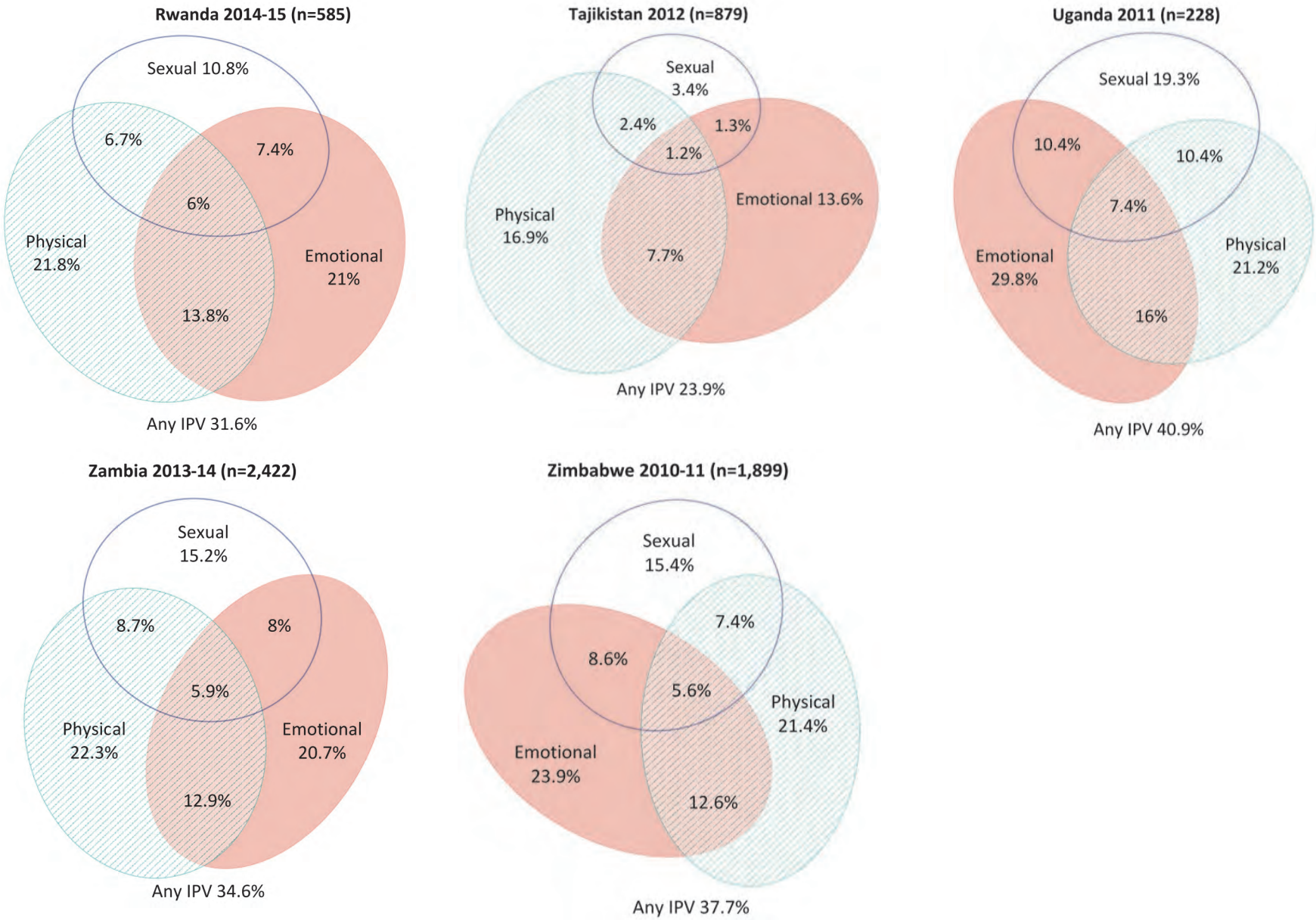
Figure 7—*Continued*



5.1. Contraceptive Use by Experience of IPV

Table 4 shows married women's experience of IPV in the last twelve months, by use of a modern, temporary method twelve months prior to the survey in the first panel and, in the second panel, among women using a method, by LARC or non-LARC method. In addition, the p-values from chi square tests of independence used to determine significant differences between observed and expected values are presented in the table.

Overall, among married women who completed the domestic violence module, approximately half or less are using modern, temporary contraception at the start of the survey. Women in Egypt have the highest proportion of users (53.3%) at this point. In contrast, only 17.4% of women are using modern, temporary contraception at the start of the observation period in Uganda.

In six countries (Honduras, Jordan, Kenya, Kyrgyz Republic, Rwanda, and Tajikistan), there are significant differences in the use of modern, temporary contraception by experience of IPV. A higher proportion of women in these countries who have experienced IPV in the last twelve months are using contraception compared to women who have not experienced violence in the last twelve months. The largest percentage point difference (8.5%) occurs in Rwanda, where 47.5% of women who have experienced IPV in the last twelve months were using modern, temporary contraception compared to 39.0% of women who had not experienced violence during this time.

Near-significant differences ($p \leq 0.10$) in contraceptive use between women with an experience of recent IPV and with no experience of recent IPV appear among women in Uganda and Egypt. However, in these two countries, the direction of the suggested difference is opposite that found elsewhere—that is, in these two countries, contraceptive use is lower among women who experienced recent IPV (50.6% in Egypt and 15.2% in Uganda) versus those with no recent experience of IPV (54.0% in Egypt and 18.4% in Uganda).

Among married women using contraception 12 months prior to the survey—our analytic sample— there seems to be no pattern of significant differences in the method type (use of a LARC or non-LARC method) based on a recent experience of violence. Reinforcing the results seen in Table 3, Table 4 shows that women in Cambodia, Honduras, and four of five sub-Saharan African countries in this study use non-LARCs more than LARC methods, regardless of IPV experience. In contrast, LARC use exceeded non-LARC use in Egypt, Jordan, the Kyrgyz Republic, and Tajikistan. Again, these patterns are found irrespective of IPV experience. The results of the chi square tests show significant differences in method type by IPV only in Kenya, where 26.5% of women who experienced IPV in the previous twelve months were using a LARC method compared to 19.7% among women who had not experienced IPV ($p \leq 0.05$).

A sensitivity analysis further explored differences in contraceptive use and method type (LARC versus non-LARC) with a more finely tuned violence measure that captured the timing of IPV. This measure disaggregated women's IPV experience as either no IPV ever, IPV ever but not in the last 12 months, and IPV in the last twelve months[10]. Appendix Table 16 shows these results. No new patterns of differences in contraceptive use or method type by timing of IPV experience are detected. The results using this measure resemble those of the dichotomous IPV experience measure. Therefore, we continue to use the simpler, dichotomous IPV measure for the remainder of this study's analysis.

[10] DHS data on intimate partner violence can identify women who have a history of ever experiencing violence and, among these women, can distinguish between those who have experienced violence in the past 12 months and those who have ever experienced violence, but not in the past 12 months (i.e. experienced violence prior to the 12 months preceding the survey only). However, among those women experiencing violence in the 12 months prior to the survey, these data cannot distinguish between those who have also experienced violence prior to the previous 12 months and those who have only experienced violence in the preceding 12 months.

Table 4. Proportion of currently married women age 15-49 using contraception at the start of the 12-month observation period and distribution of method type by experience of intimate partner violence

	Using any modern, temporary method				Method type among those using modern, temporary methods			
	No	Yes	p-value	Weighted n	LARC	non-LARC	p-value	Weighted n
Cambodia 2014								
No IPV in the last 12 months	69.1	30.9		2,384	17.3	82.7		736
IPV in the last 12 months	67.2	32.8		592	15.8	84.2		194
Total	68.7	31.3		2,977	17.0	83.0		931
Egypt 2014			†					
No IPV in the last 12 months	46.0	54.0		5,107	56.0	44.0		2,757
IPV in the last 12 months	49.4	50.6		1,164	52.4	47.6		589
Total	46.7	53.3		6,272	55.4	44.6		3,345
Honduras 2011-12			**					
No IPV in the last 12 months	64.3	35.7		6,830	17.3	82.7		2,440
IPV in the last 12 months	59.9	40.1		2,100	19.6	80.4		842
Total	63.2	36.8		8,930	17.9	82.1		3,283
Jordan 2012			*					
No IPV in the last 12 months	61.9	38.1		5,184	54.8	45.2		1,976
IPV in the last 12 months	56.2	43.8		1,529	55.2	44.8		670
Total	60.6	39.4		6,714	54.9	45.1		2,646
Kenya 2014			**				*	
No IPV in the last 12 months	59.4	40.6		2,244	19.7	80.3		912
IPV in the last 12 months	52.7	47.3		1,108	26.5	73.5		525
Total	57.1	42.9		3,352	22.2	77.8		1,437
Kyrgyz Republic 2012			***					
No IPV in the last 12 months	73.2	26.8		3,084	71.2	28.8		827
IPV in the last 12 months	65.7	34.3		750	73.7	26.3		257
Total	71.7	28.3		3,833	71.8	28.2		1,084
Rwanda 2014-15			**					
No IPV in the last 12 months	61.0	39.0		1,025	20.7	79.3		400
IPV in the last 12 months	52.5	47.5		390	20.9	79.1		185
Total	58.7	41.3		1,415	20.7	79.3		585
Tajikistan 2012			**					
No IPV in the last 12 months	78.3	21.7		3,082	73.9	26.1		670
IPV in the last 12 months	71.2	28.8		730	76.4	23.6		210
Total	76.9	23.1		3,812	74.5	25.5		879
Uganda 2011			†					
No IPV in the last 12 months	80.6	19.4		693	10.1	89.9		135
IPV in the last 12 months	84.8	15.2		614	9.6	90.4		93
Total	82.6	17.4		1,307	9.9	90.1		228
Zambia 2013-14								
No IPV in the last 12 months	67.0	33.0		4,796	15.7	84.3		1,585
IPV in the last 12 months	64.3	35.7		2,349	18.3	81.7		838
Total	66.1	33.9		7,145	16.6	83.4		2,422
Zimbabwe 2010-11								
No IPV in the last 12 months	54.2	45.8		2,585	4.1	95.9		1,184
IPV in the last 12 months	52.6	47.4		1,509	3.0	97.0		716
Total	53.6	46.4		4,094	3.6	96.4		1,899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

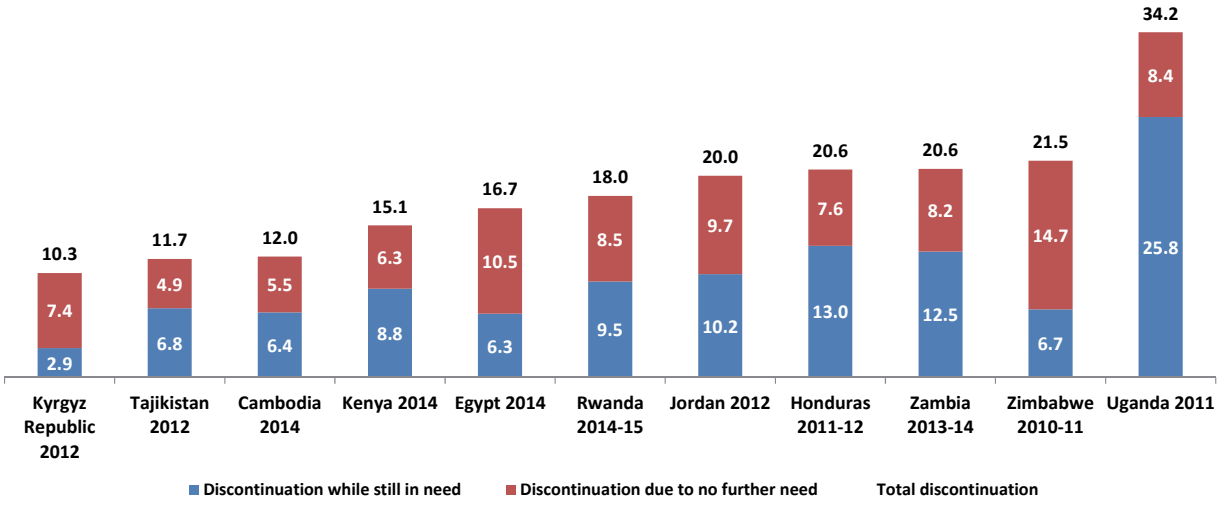
Modern, temporary contraceptive methods include: oral contraceptive pill, intrauterine device (IUD), injection, implants, male/female condom, lactational amenorrhea method (LAM), emergency contraception, standard days method, and vaginal methods like diaphragm, foam, and jelly.

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

6. Discontinuation

Figure 8 shows the proportion of women who have discontinued their contraceptive use during the 12-month observation period. Women may discontinue while still in need or discontinue due to no further need. Details on the reason given for discontinuation in either state of need are presented in Appendix Table 2. The total level of discontinuation (discontinuation while still in need and due to no further need combined) is highest in Uganda (34.2%). Zimbabwe, Honduras, Zambia, and Jordan all have between 20-21% of women discontinuing contraceptive use during the observation period. The lowest total discontinuation levels are found in the Kyrgyz Republic, Tajikistan, and Cambodia, with all between 10-12%.

Figure 8. Proportion of currently married women age 15-49 using contraception 12 months prior to the survey who discontinue their contraceptive use in the past 12 months



Notes:

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined s women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Discontinuation while still in need is the main outcome of interest. Similar to total levels of discontinuation, discontinuation while still in need during the observation period is highest in Uganda (25.8%). This is followed by Honduras, Zambia, and Jordan with proportions of women discontinuing while still in need of 13.0%, 12.5%, and 10.2%, respectively. The total discontinuation in Zimbabwe is relatively high at 21.5%, which is due primarily to women discontinuing due to no further need. The proportion of women in Zimbabwe who discontinued contraception while still in need is 6.7%. The Kyrgyz Republic has the lowest prevalence of discontinuation while still in need at 2.9%. Disaggregated details about discontinuation while still in need among LARC users and non-LARC users can be found in Appendix Table 3.

7. Bivariate Association of IPV with Contraceptive Discontinuation

7.1. Bivariate Associations between IPV and Discontinuation While Still in Need

Figure 9 graphically presents the unadjusted odds of DWSIN—our focal outcome—and experience of IPV in the twelve months prior to the survey from unadjusted logistic regressions. Each panel of the figure demonstrates bivariate results, without accounting for method type or other controls, for a single form of IPV: emotional violence, physical violence, and sexual violence, respectively; the last panel represents any IPV. In the right hand column, a 90% confidence interval draws attention to any borderline significant results, along with those that are statistically significant with the more conventional 95% threshold. The null hypothesis states that the odds of DWSIN do not differ by experience of IPV (OR=1). For comparison purposes, comparable results for discontinuation due to no further need and total discontinuation (DWSIN plus discontinuation due to no further need) are presented in tabular form in Table 5.

7.1.1. Emotional violence

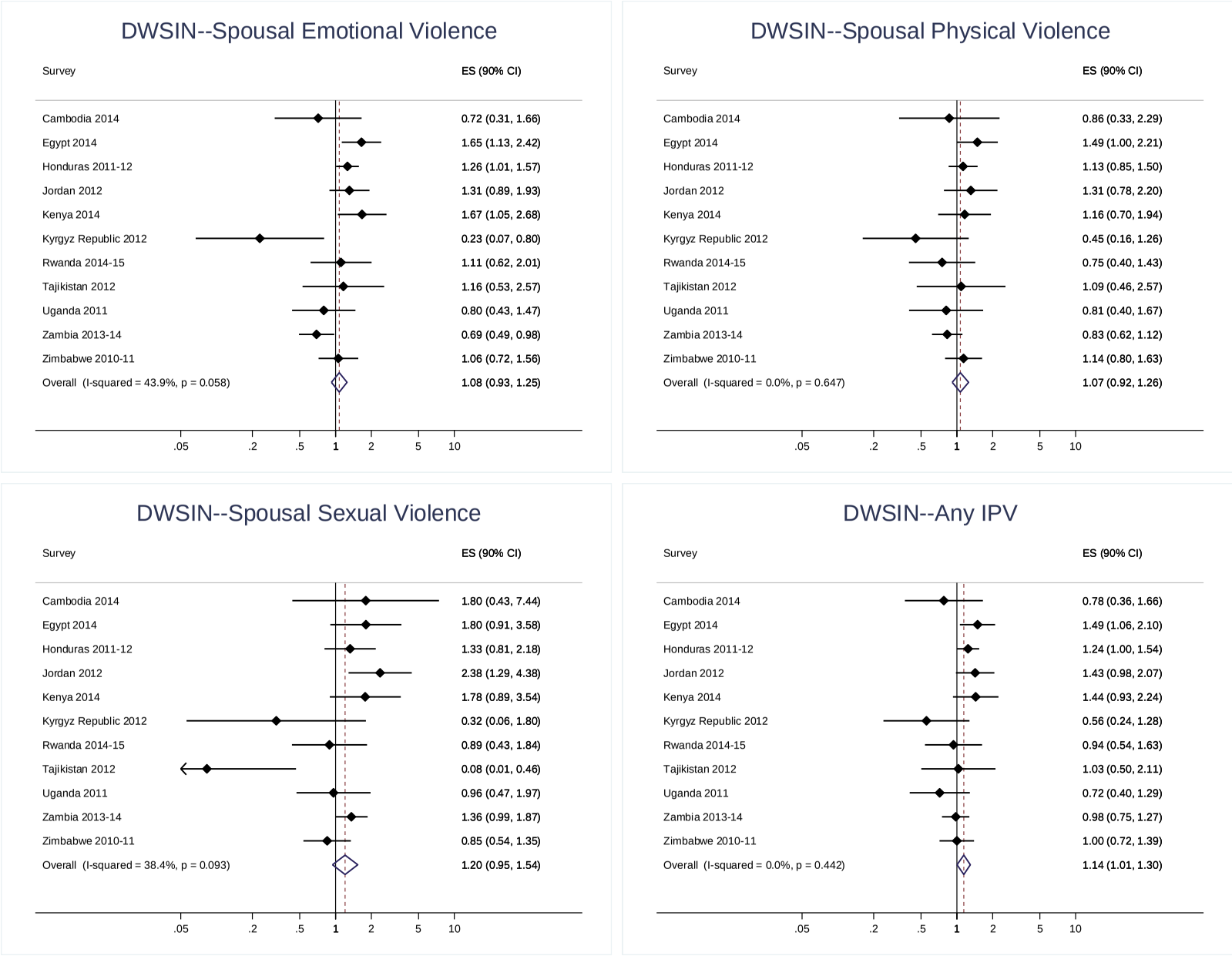
There are few significant associations between recent emotional violence and DWSIN, as seen in Figure 9. Associations are found in 5 of the 11 study countries, although these associations are of borderline significance in four of five of these countries. Overall, a weighted average of each survey's results[11] is suggestive of a positive valence to the association between emotional violence and DWSIN, but the magnitude is small and not statistically significant. Nonetheless, more significant or borderline significant associations are found with emotional violence and discontinuation than other forms of violence.

In three countries, women who have experienced recent emotional violence have higher odds of DWSIN than do women who have not experienced emotional violence. The magnitude of the effect is greatest in Egypt where women who have experienced emotional violence have 65% greater odds of discontinuing while still in need than women who have not (OR= 1.65, $p \leq 0.05$). The effect is somewhat more modest in Honduras (OR = 1.26, $p \leq 0.10$) and Kenya (OR = 1.67, $p \leq 0.10$) where the association is only near-significant.

In contrast, women in two countries demonstrate an opposite, near-significant association. Women who experienced emotional violence had lower odds of discontinuing while still in need than women who did not in the Kyrgyz Republic (OR = 0.23, , $p \leq 0.10$) and Zambia (OR = 0.69, $p \leq 0.10$). There is no association between the experience of emotional violence and DWSIN in Cambodia, Jordan, Rwanda, Tajikistan, Uganda, and Zimbabwe.

[11] Overall results are weighted by sample size.

Figure 9. Unadjusted odds of emotional, physical, sexual, and any intimate partner violence predicting discontinuing while still in need: Odds ratios from logistic regression models



7.1.2. Physical violence

Figure 9 reveals that recent experience of physical violence does not appear to have an association with DWSIN. As with emotional violence, an overall weighted average indicates that a weak, positive association is possible, although this result is also not significant.

Women from only one country, Egypt, have higher odds of DWSIN if they experienced physical violence at the hands of their spouse in the 12 months, as compared to women who have no recent experience of physical violence. However, this relationship only approaches significance (OR = 1.49, $p \leq 0.10$); thus, the null hypothesis that there is no association cannot be rejected with certainty. No association is found in the remaining 10 study countries.

7.1.3. Sexual violence

Two of 11 study countries demonstrate associations between the experience of spousal sexual violence and DWSIN, as seen in Figure 9. Both associations are significant at the $p \leq 0.05$ level. However, the relationships are in different directions.

In Jordan, women who experienced recent sexual violence have almost two and a half times the odds of DWSIN compared to women who have not recently experienced sexual violence (OR= 2.38, $p \leq 0.05$). In Tajikistan, on the other hand, women have 92% lower odds of DWSIN if they have experienced recent sexual violence compared to women who have not (OR = 0.08, $p \leq 0.05$). No statistically significant association is found in the remaining 9 study countries.

An overall weighted average of all 11 separate results reiterates the lack of a clear pattern: a weak, positive relationship is suggested between sexual violence and DWSIN, as is the case with emotional and physical violence; however, as with these other forms, the overall association does not approach statistical significance. It is worth noting that the confidence intervals around the odds ratios are relatively large, perhaps reflecting that this is the least common form of IPV experienced in all study countries.

7.1.4. Any IPV

For experience of any IPV, borderline significant associations with DWSIN are only found among women in two countries, Egypt and Honduras. In both countries, the odds of DWSIN are higher among women who have experienced any form of IPV in the past twelve months than among women who have not. In Egypt, women have one and a half times the odds of DWSIN if they experienced IPV (OR = 1.49, $p \leq 0.10$) and women in Honduras have 1.24 times the odds ($p \leq 0.10$) of DWSIN if they experienced any recent violence compared to women who have not.

A weighted average of individual survey results suggests that, overall, there is likely to be a positive association between experiencing any IPV and DWSIN; this result approaches significance at $p \leq 0.10$. However, the null hypothesis of no relationship cannot be definitively rejected. In contrast to the weak association found in Egypt and Honduras, the remaining 9 countries show no statistically significant association at all and odd ratios that are likely to be negative, were they to be significant, in as many countries as they are likely to be positive.

7.2. Bivariate Associations between IPV and Discontinuation Due to No Further Need

Table 5 presents a comparison of bivariate associations for forms of violence and DWSIN with associations for discontinuation due to no further need and total discontinuation. Results are expressed as odds ratios from logistic regressions. As with discontinuation while still in need, there are few statistically

significant associations between the experience of IPV and discontinuation due to no further need. Unlike with discontinuation while still in need, however, the few significant associations are consistent in direction. Where there is a relationship, women with a recent experience of violence are less likely to discontinue due to no further need.

As was the case with discontinuation while still in need, there are more frequently associations with emotional violence than with any of the other individual form of violence. This relationship is significant in two countries and approaches significance in a third. Women in the Kyrgyz Republic who have experienced emotional violence in the 12 months prior to the survey have 80% lower odds (OR=0.20, p≤0.05) of discontinuing due to no further need in that same period compared with women who have not experienced emotional violence, while women in Kenya who recently experience emotional violence have 63% lower odds (OR = 0.37, p≤0.05). The possible effect is smaller in Honduras where women experiencing emotional violence face 28% lower odds of discontinuing due to no further need (OR=0.72, p≤0.10). In Honduras and Kenya, the direction of the association for discontinuing due to no further need is opposite the direction of the association for discontinuing while still in need. In the Kyrgyz Republic, the direction of the association for both types of discontinuation is negative.

Table 5. Unadjusted odds of emotional, physical, sexual, and any intimate partner violence predicting discontinuation while still in need, discontinuation due to no further need, and total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	DWSIN		Discontinuation due to no further need		Total discontinuation	
	OR	95% CI	OR	95% CI	OR	95% CI
Emotional violence in last 12 months (ref=no emotional violence in last 12 months)						
Cambodia 2014	0.72	(0.26-1.95)	0.71	(0.27-1.87)	0.70	(0.33-1.46)
Egypt 2014	**1.65***	(1.05-2.61)	0.87	(0.56-1.34)	1.16	(0.84-1.61)
Honduras 2011-12	**1.26**†	(0.97-1.64)	**0.72**†	(0.50-1.02)	1.04	(0.83-1.29)
Jordan 2012	1.31	(0.82-2.08)	1.09	(0.61-1.95)	1.23	(0.85-1.78)
Kenya 2014	**1.67**†	(0.95-2.94)	**0.37***	(0.17-0.82)	1.00	(0.63-1.58)
Kyrgyz Republic 2012	**0.23**†	(0.05-1.02)	**0.20***	(0.06-0.68)	**0.20****	(0.07-0.54)
Rwanda 2014-15	1.11	(0.55-2.25)	0.59	(0.27-1.31)	0.83	(0.49-1.43)
Tajikistan 2012	1.16	(0.45-3.00)	0.72	(0.26-1.97)	0.97	(0.43-2.15)
Uganda 2011	0.80	(0.38-1.66)	0.77	(0.27-2.22)	0.76	(0.39-1.46)
Zambia 2013-14	**0.69**†	(0.46-1.04)	0.91	(0.60-1.38)	**0.76**†	(0.55-1.04)
Zimbabwe 2010-11	1.06	(0.67-1.68)	1.02	(0.71-1.46)	1.03	(0.77-1.38)
Physical violence in last 12 months (ref=no physical violence in last 12 months)						
Cambodia 2014	0.86	(0.27-2.76)	0.46	(0.12-1.70)	0.66	(0.26-1.65)
Egypt 2014	**1.49**†	(0.93-2.39)	1.33	(0.91-1.94)	**1.44***	(1.05-1.96)
Honduras 2011-12	1.13	(0.81-1.58)	0.86	(0.54-1.38)	1.03	(0.77-1.37)
Jordan 2012	1.31	(0.71-2.43)	1.21	(0.60-2.43)	1.30	(0.83-2.04)
Kenya 2014	1.16	(0.63-2.14)	**0.29*****	(0.15-0.58)	0.72	(0.44-1.18)
Kyrgyz Republic 2012	0.45	(0.13-1.54)	0.66	(0.27-1.63)	0.59	(0.28-1.24)
Rwanda 2014-15	0.75	(0.35-1.62)	0.65	(0.32-1.35)	0.68	(0.39-1.18)
Tajikistan 2012	1.09	(0.39-3.03)	0.61	(0.22-1.71)	0.87	(0.39-1.91)
Uganda 2011	0.81	(0.35-1.91)	1.23	(0.40-3.77)	0.91	(0.43-1.92)
Zambia 2013-14	0.83	(0.58-1.18)	0.97	(0.66-1.42)	0.87	(0.66-1.14)
Zimbabwe 2010-11	1.14	(0.74-1.75)	1.19	(0.84-1.68)	1.20	(0.89-1.61)

Continued

Table 5—*Continued*

	DWSIN		Discontinuation due to no further need		Total discontinuation	
	OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Sexual violence in last 12 months (ref=no sexual violence in last 12 months)						
Cambodia 2014	1.80	(0.33-9.77)	**0.03*** **	(0.00-0.22)	0.90	(0.17-4.73)
Egypt 2014	1.80	(0.79-4.09)	1.40	(0.62-3.15)	1.64	(0.90-2.99)
Honduras 2011-12	1.33	(0.73-2.40)	1.39	(0.64-3.05)	1.41	(0.85-2.34)
Jordan 2012	**2.38***	(1.15-4.93)	1.06	(0.45-2.48)	**1.82***	(1.02-3.23)
Kenya 2014	1.78	(0.78-4.04)	0.63	(0.21-1.88)	1.26	(0.64-2.51)
Kyrgyz Republic 2012	0.32	(0.04-2.52)	**0.09***	(0.01-0.69)	**0.14***	(0.03-0.66)
Rwanda 2014-15	0.89	(0.37-2.12)	0.76	(0.26-2.19)	0.81	(0.40-1.66)
Tajikistan 2012	**0.08***	(0.01-0.65)	0.60	(0.08-4.21)	0.28	(0.06-1.39)
Uganda 2011	0.96	(0.41-2.27)	1.24	(0.32-4.75)	1.05	(0.46-2.39)
Zambia 2013-14	1.36	(0.93-1.98)	0.75	(0.48-1.16)	1.10	(0.81-1.49)
Zimbabwe 2010-11	0.85	(0.49-1.47)	1.22	(0.81-1.86)	1.10	(0.77-1.58)
Any IPV in last 12 months (ref=no IPV in last 12 months)						
Cambodia 2014	0.78	(0.32-1.92)	0.70	(0.28-1.73)	0.73	(0.37-1.43)
Egypt 2014	**1.49†**	(1.00-2.24)	1.10	(0.78-1.56)	**1.27†**	(0.97-1.68)
Honduras 2011-12	**1.24†**	(0.96-1.61)	**0.68***	(0.48-0.97)	1.01	(0.81-1.25)
Jordan 2012	1.43	(0.92-2.22)	1.07	(0.63-1.81)	1.28	(0.91-1.80)
Kenya 2014	1.44	(0.85-2.44)	**0.37** **	(0.20-0.70)	0.86	(0.57-1.31)
Kyrgyz Republic 2012	0.56	(0.21-1.50)	0.57	(0.23-1.37)	**0.55†**	(0.27-1.10)
Rwanda 2014-15	0.94	(0.49-1.81)	**0.51†**	(0.26-1.00)	0.69	(0.42-1.14)
Tajikistan 2012	1.03	(0.44-2.43)	0.54	(0.22-1.32)	0.80	(0.40-1.59)
Uganda 2011	0.72	(0.36-1.44)	1.32	(0.50-3.46)	0.83	(0.44-1.58)
Zambia 2013-14	0.98	(0.71-1.34)	0.94	(0.66-1.33)	0.96	(0.75-1.23)
Zimbabwe 2010-11	1.00	(0.67-1.49)	1.19	(0.89-1.59)	1.14	(0.89-1.47)

Notes:
† p<0.10, * p<0.05, ** p<0.01, *** p<0.001
Discontinuation is defined as the interruption of contraceptive use for one month or longer.
Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).
Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).
Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.
Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Only among women in Kenya is there is a relationship between the experience of physical violence and discontinuation due to no further need; this relationship is highly significant. Women with a recent experience of physical violence have 71% lower odds (OR=0.29, p≤0.001) of discontinuing due to no further need in the last 12 months. Sexual violence is associated with discontinuing due to no further need in two countries—Cambodia (OR=0.03, p≤0.001) and the Kyrgyz Republic (OR=0.09, p≤0.05)—and the size of the effect is relatively large. Women who experience sexual violence in Cambodia and the Kyrgyz Republic have odds of discontinuing due to no further need that are more than 90% lower than women not experiencing sexual violence.

The experience of any IPV, regardless of specific form of IPV, is significantly associated with lower odds of discontinuing due to no further need in Honduras (OR=0.68, p≤0.05) and Kenya (OR=0.37, p<0.01) and nearly significantly so in Tajikistan (OR=0.51, p≤0.10).

7.3. Bivariate Associations between IPV and Total Discontinuation

In general, the results do not reveal consistent relationships between IPV (any IPV or any of the individual forms of IPV) and total discontinuation for any reason among women in most countries in this study. Furthermore, the direction of the association, where such exists, is not consistent within or across forms of IPV.

A significant, negative relationship is found between emotional violence and total discontinuation in the Kyrgyz Republic (OR=0.20, $p \leq 0.01$), where emotional violence was significantly or nearly significantly associated with both discontinuing while still in need and discontinuing due to no further need; in Zambia there is a nearly significant relationship of smaller magnitude (OR=0.76, $p \leq 0.10$), where emotional violence was nearly significantly associated with only discontinuing while still in need but not with no further need.

Significant, positive associations between discontinuation and physical violence exist only among women in Egypt (OR = 1.44, $p \leq 0.05$) and for sexual violence among women in Jordan (OR = 1.82, $p \leq 0.05$), whereby women in these two countries were more likely to discontinue if they experienced these types of violence compared to women who had not experienced that specific type of violence. This finding is similar to the positive relationship found between that form of violence and discontinuing while still in need in those two countries.

The analysis also found a significant, negative association with experience of recent sexual IPV and discontinuation for any reason in Kyrgyz Republic. Women who experienced recent sexual violence had 86% lower odds of discontinuing contraception than women who had not experienced this type of violence (OR = 0.14, $p \leq 0.05$).

Overall experience of any IPV is weakly associated with increased odds of discontinuing contraception in Egypt (OR=1.27, $p \leq 0.10$), where IPV experience is associated with discontinuing while still in need, and also with decreased odds of discontinuing contraception in the Kyrgyz Republic (OR=0.55, $p \leq 0.10$), where IPV was not significantly associated with discontinuing for either reason (while still in need or due to no further need).

In summary, we tested for bivariate relationships between 4 forms of IPV and 3 types of discontinuation—a total of 12 combinations—in 11 countries. Only 26 associations were detected from among a total of 132 possible associations, 12 of which are of borderline significance. There is no evidence of an association whatsoever between the recent experience of IPV (each individual form of violence or any IPV combined) and discontinuation for any reason (while still in need, no further need, or total discontinuation) in three countries: Rwanda, Uganda, and Zimbabwe. A single association was detected in Cambodia and Tajikistan and two each in Jordan and Zimbabwe. Multiple associations were found between various forms of violence and discontinuation for one or more reasons in the remaining four countries: Egypt, Honduras, Kenya, and the Kyrgyz Republic, but not always in the same direction.

8. Association of Socio-Demographic Factors with Discontinuation

Tables 6-8 show the bivariate relationships between a range of women's background characteristics and DWSIN, discontinuation due to no further need, and total discontinuation, by presenting unadjusted odds ratios from separate logistic regressions. These variables describe aspects of women's contraceptive use (method type (LARC versus non-LARC) and duration of contraceptive use) and socio-demographic factors that may be associated with contraceptive discontinuation, such as age, wealth, place of residence, religion, education, employment, number of living children, and marital duration. Across the different types of discontinuation, there are few relationships found with higher wealth quintiles, place of residence, religion, education, and employment status. More often than not, significant associations with types of discontinuation are seen for age, number of living children, and marital duration.

8.1. Discontinuation While Still in Need

Significant or borderline significant associations are found between the type of method women are using and DWSIN in seven countries, except Kenya, Kyrgyz Republic, Uganda, and Zimbabwe. In the remaining countries, women had higher odds of DWSIN if they used a non-LARC method versus a LARC method. Women in Honduras show the largest effect, with an odds ratio of 4.74 ($p \leq 0.001$) of DWSIN if they were using a non-LARC compared to using a LARC method. In the other six countries with a significant association, the odds of DWSIN were more than double (OR>2.0) among women using a non-LARC method as compared to women using a LARC method.

The odds of DWSIN decrease with an increasing duration of contraceptive use prior to the observation period in five countries: Egypt, Honduras, Jordan, the Kyrgyz Republic, and Tajikistan. There is no association between duration of contraceptive use and DWSIN in the remaining six countries.

In Cambodia, Jordan, and the Kyrgyz Republic, women in older age groups have higher odds of DWSIN than the youngest age group, age 15-19. In Egypt, Honduras, and Tajikistan, the opposite is true: older age groups tend to have lower odds of DWSIN compared to the youngest age group age 15-19. No associations with age are detected among women in Kenya, Rwanda, Uganda, Zambia, and Zimbabwe.

Household wealth quintiles are occasionally associated with DWSIN. This association is generally negative (6 countries) where such associations are detected; that is, women living in several richer wealth quintiles have lower odds of DWSIN. However, a positive association is found among certain wealth quintiles in Cambodia and the Kyrgyz Republic.

Women living in rural areas have higher odds of DWSIN in Egypt, Jordan, Zambia, and Zimbabwe, but there are no associations found elsewhere. Religion is not associated with DWSIN outside of Kenya, where both Christian women and women who adhere to other religions have lower odds of DWSIN than do Muslim women.

Increasing education is negatively associated with DWSIN in Jordan, Rwanda, Zambia, and Zimbabwe; this effect is most significant among women with higher education. Women's employment status is seldom associated with DWSIN. In Kenya and Zimbabwe, employed women have lower odds of DWSIN, although in Zimbabwe this association is borderline significant and is found for women employed for cash. In the Kyrgyz Republic and Uganda, women who work but not for cash have higher odds of DWSIN; this association is also of borderline significance.

Table 6. Unadjusted odds of discontinuing while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-2015	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Method used 12 months prior to survey (ref=LARC)											
non-LARC	2.95*	2.57***	4.74***	2.25***	1.25	1.67	2.14†	2.19*	1.07	1.57†	1.56
Duration of use before the observation period (ref=1-12 months)											
13-36 months	0.63	0.74	0.75*	0.37***	0.72	0.47	0.92	0.16***	1.26	1.04	1.17
37+ months	1.04	0.47***	0.54***	0.44***	0.77	0.26*	1.10	0.25***	0.46	0.76	1.15
Age (ref=15-19)											
20-24	ref	0.66	0.85	3.68**	3.51	12.07*	0.67	0.96	1.35	0.94	2.19
25-29	4.26*	0.51	0.76	1.19	2.23	4.49†	0.84	0.63	1.10	0.57	2.35
30-34	2.49	0.30	0.62*	1.66	1.66	5.50*	0.41	0.32*	2.14	0.66	2.07
35-39	1.10	0.28†	0.48**	1.45	0.81	12.36**	0.43	0.50	0.32	0.65	2.82
40-44	4.31*	0.14*	0.52*	1.11	0.65	7.79*	0.48	0.35†	0.18	0.59	2.41
45-49	8.40**	0.26†	0.72	na	1.56	na	na	na	0.42	0.47	1.72
Wealth quintile (ref=poorest)											
Second	0.86	1.11	0.92	0.81	0.74	0.98	2.08	0.65	0.55	0.97	1.14
Middle	0.96	0.79	0.97	0.55*	0.82	1.13	0.91	0.38†	0.83	0.92	1.37
Fourth	2.42†	0.68	0.97	0.71	0.46†	2.35	1.56	0.51	0.48	0.61†	0.62
Highest	0.79	0.49*	1.07	0.31**	0.57	3.33†	1.07	0.42*	0.59	0.48**	0.47*
Place of residence (ref=urban)											
Rural	1.30	1.62*	1.10	1.85***	0.94	0.60	1.77	1.22	1.59	1.54**	1.52*
Religion (ref=Muslim)			(ref= Christian)								
Christian	na	1.19	1.00	na	0.25**	na	0.69	na	1.51	1.50	1.03
Other	1.46	na	0.97	na	0.05**	na	na	na	1.56	na	1.33
Education (ref=no education)											
Primary	1.00	1.14	0.95	0.60	1.83	(ref=secon-dary education)	0.38*	0.30	1.00	0.99	0.55
Secondary	0.45	0.76	0.97	0.27*	1.69	1.00	0.35†	0.49	0.53	0.67	0.53
Higher	0.11*	0.68	0.85	0.24*	2.35	1.24	0.76	0.50	0.76	0.34*	0.13*
Employment (ref=not employed)											
Employed for cash	0.68	0.83	0.83	na	0.47*	1.15	3.81	0.92	1.28	0.87	0.68†
Employed not for cash	0.25	1.25	0.92	na	0.48*	2.76†	3.34	2.62	2.95†	0.98	1.13
Number of living children (ref=0)											
1-2	0.38†	1.40	0.72	1.27	0.59	1.65	1.33	0.26	0.93	1.18	0.22**
3-4	0.81	0.71	0.58*	0.64†	0.20*	1.95	0.82	0.23	0.62	1.06	0.30*
5+	na	na	0.99	na	0.27	na	na	0.15	0.90	1.26	0.41
Marital duration in years (ref=0-4 years)											
5-9	0.44	0.91	1.00	0.85	0.77	0.14*	1.07	0.22**	1.72	0.76	1.54
10-14	0.95	0.40**	0.73†	0.70	0.65	0.64	0.54	0.22**	1.45	0.96	1.10
15-19	0.43	0.58†	0.72†	0.77	0.36**	1.34	0.55	0.28*	1.15	0.65†	1.75
20-24	1.28	0.33**	0.56*	0.48†	0.20**	0.65	0.27	0.38†	0.42	0.74	1.67
25-29	1.65	0.38*	0.98	0.29**	0.37	0.14*	1.18	0.24*	0.78	0.77	0.71
30+	0.89	0.52	1.12	0.19**	0.94	na	8.01*	0.71	na	0.74	1.24
Weighted n	931	3345	3283	2625	1437	1083	584	878	228	2422	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category

Data on employment status was not collected in the Jordan 2012 DHS.

Both the number of living children and marital duration are often significantly and negatively associated with DWSIN in the bivariate analysis. That is, the odds of DWSIN are reduced among women in higher categories of number of children compared to women with no children, while the odds of DWSIN are lowest among women who have been married longer compared to couples who have been married less than four years. Because these two demographic characteristics tend to be highly correlated, only the number of living children is included in our multivariate models predicting discontinuation; marital duration is excluded due to partial collinearity.

8.2. Discontinuation Due to No Further Need

In seven countries, women had significantly (or borderline significantly) higher odds of discontinuing due to no further need if they were using non-LARCs as compared to LARCs in seven countries: Egypt, Honduras, Jordan, the Kyrgz Republic, Rwanda, Zambia, and Zimbabwe. These results resemble those for DWSIN, which have a similar positive relationship also in seven countries. Only two countries, the Kyrgyz Republic and Zimbabwe, indicate this positive association between non-LARC use and both DWSIN and due to no further need. In the Kyrgyz Republic, women have the highest odds of all countries of discontinuing due to no further need among non-LARC users (OR 3.89, $p \leq 0.001$) as compared to LARC users. The odds ratios are lowest—but nonetheless sizable—in Egypt (OR=1.68, $p \leq 0.001$) and Honduras (OR=1.87, $p \leq 0.05$) where women who use shorter term methods have 68-87% higher odds of discontinuing due to no further need than do LARC users.

As seen in Table 7, duration of contraceptive use prior to the observation period exhibits similar relationships with discontinuing due to no further need in the same countries and in the same direction as with DWSIN. In addition, data from Rwanda, Zambia, and Zimbabwe reveal a positive association between longer contraceptive use and discontinuation due to no further need that was not detected with DWSIN. In contrast, the negative association between contraceptive duration and DWSIN is not apparent with regards to discontinuing due to no further need.

Age is significantly associated with discontinuing due to no further need in most countries, but this relationship is not necessarily found among all age groups. Women in Cambodia, Egypt, Jordan, Kenya, Tajikistan, Uganda, Zambia, and Zimbabwe have significantly or borderline significantly lower odds of discontinuing due to no need among some higher age groups compared to the lowest age group, whereas in Rwanda and Kyrgyz Republic, the relationships are in the opposite direction.

Associations with wealth quintile, residence, and religion are fewer than relationships between these factors and DWSIN. Where they do exist, the patterns largely resemble those for DWSIN. In several countries—Cambodia, Egypt, and Kenya—a positive relationship is suggested between education and discontinuing due to no further need whereas no relationship or a slight negative relationship is detected with regards to DWSIN. Employment status is seldom associated with discontinuing due to no further need. However, women employed for cash in Egypt and women employed but not for cash in the Kyrgyz Republic have lower odds of discontinuing due to no further need.

In most countries, both number of living children and years of marital duration are significantly associated with discontinuation due to no further need where women have reduced odds of discontinuing for no further need in higher categories of marital duration and number of children than women with fewer years of marriage and children. However, in Egypt and Rwanda, women who have either 1-2 children or 3-4 children are more likely to discontinue due to no further need compared to women who have no children.

Table 7. Unadjusted odds of discontinuing due to no further need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-2015	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Method used 12 months prior to survey (ref=LARC)											
non-LARC	1.87*	2.45***	2.17	3.89***	2.54*	1.86	1.56	2.46*	4.34†	1.87*	2.45***
Duration of use before the observation period (ref=1-12 months)											
13-36 months	0.71†	1.35	1.88†	1.83†	2.57**	1.74	2.40	2.00***	2.48***	0.71†	1.35
37+ months	0.71†	0.41**	2.40*	0.71	1.80	0.80	1.69	2.38***	2.75***	0.71†	0.41**
Age (ref=15-19)											
20-24	0.96	1.56	0.30	8.03†	5.13*	2.24	0.60	0.69	1.66	0.96	1.56
25-29	0.69	1.32	0.34	15.28**	4.30*	4.62*	0.19	1.00	1.58	0.69	1.32
30-34	0.58*	0.90	0.22	3.06	3.77*	2.71	0.08†	0.44†	1.20	0.58*	0.90
35-39	0.23***	0.35	0.18	7.31†	2.02	2.15	0.03*	0.27**	0.67	0.23***	0.35
40-44	0.28**	0.06**	0.01**	0.42	na	0.85	0.14	0.14*	0.32†	0.28**	0.06**
45-49	0.45	0.24	0.26	na	na	na	na	na	0.40	0.45	0.24
Wealth quintile (ref=poorest)											
Second	0.77	0.95	0.47	1.68	1.33	2.14	1.46	0.84	0.90	0.77	0.95
Middle	0.92	1.08	0.52	1.82	1.45	0.47	0.59	0.65	0.77	0.92	1.08
Fourth	1.20	0.48*	0.61	2.75†	1.30	0.97	0.74	1.07	0.70†	1.20	0.48*
Highest	0.81	1.22	0.69	4.39**	1.07	1.06	0.81	0.52*	0.58*	0.81	1.22
Place of residence (ref=urban)											
Rural	1.24	0.96	0.84	0.63	1.31	1.03	1.00	1.19	1.42*	1.24	0.96
Religion (ref=Muslim)	(ref= Christian)										
Christian	1.00	na	0.34	na	0.67	na	1.07	0.48	1.12	1.00	na
Other	0.82	na	0.44	na	na	na	0.92	1.11	1.06	0.82	na
Education (ref=no education)											
Primary	1.97	0.77	3.25	(ref=secon-dary education)	0.66	1.64	0.76	0.84	0.86	1.97	0.77
Secondary	2.02	1.16	5.67*	1.00	1.62	1.22	1.14	0.87	0.83	2.02	1.16
Higher	2.39	1.56	8.18**	1.17	0.81	na	na	0.73	na	2.39	1.56
Employment (ref=not employed)											
Employed for cash	0.87	na	0.72	1.65	1.78	0.71	0.75	0.82	0.86	0.87	na
Employed not for cash	1.32	na	1.51	0.20*	2.53	0.11*	0.72	0.72	0.82	1.32	na
Number of living children (ref=0)											
1-2	0.23***	0.56	0.11***	0.17†	8.16**	0.06*	1.69	0.21*	0.37*	0.23***	0.56
3-4	0.11***	0.27	0.06***	0.05**	4.03†	0.03**	0.24	0.16**	0.19***	0.11***	0.27
5+	0.07***	0.07†	0.02***	0.04**	na	0.03**	0.07†	0.05***	0.07***	0.07***	0.07†
Marital duration in years (ref=0-4 years)											
5-9	0.48***	0.46**	0.62	0.77	0.78	0.62	0.30†	1.06	0.86	0.48***	0.46**
10-14	0.44***	0.42*	0.42*	0.79	0.67	0.67	0.13**	0.85	0.65*	0.44***	0.42*
15-19	0.38***	0.10***	0.28*	0.18**	0.54	0.36	na	0.24***	0.42***	0.38***	0.10***
20-24	0.17***	0.05***	0.24*	0.09***	0.08*	0.20*	na	0.47*	0.23***	0.17***	0.05***
25-29	0.23**	0.01***	0.09**	na	na	0.16*	0.32	na	0.17***	0.23**	0.01***
30+	0.53	0.47	na	na	na	na	na	na	0.35	0.53	0.47
Weighted n	3283	2646	1437	1083	547	878	221	2304	1899	3283	2646

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category

Data on employment status was not collected in the Jordan 2012 DHS.

8.3. Total Discontinuation

When DWSIN and discontinuation due to no further need are aggregated, method type is significantly associated with total discontinuation in almost all countries. Similar to discontinuation disaggregated by need versus no further need, women have higher odds of discontinuing contraception during the 12 month observation period when they are using a non-LARC method versus a LARC method. The highest odds for total discontinuation appear among women using non-LARC methods in Honduras (OR = 3.41, $p \leq 0.001$). There are no significant differences in their odds of discontinuing regardless of need between women who use LARCs or shorter-term methods in Kenya and Uganda, nor are there differences between these women in the odds of DWSIN or discontinuing due to no further need.

Longer duration of contraceptive use prior to the observation period is associated with decreased odds of total discontinuation in five countries—Egypt, Honduras, Jordan, Rwanda, and Zimbabwe—where duration of use is negatively associated with DWSIN. Longer duration of use is associated with increased odds of total discontinuation in the Kyrgyz Republic and Tajikistan, where duration of use is also positively associated with discontinuation due to no further need.

No associations with age appear among women in Kenya, Jordan, and Rwanda and only a few age groups are associated with total discontinuation in Tajikistan and Uganda. In the remaining six countries, the direction of the association between women's age and total discontinuation varies by country. As with DWSIN and discontinuation due to no further need, fewer associations occur between wealth, residence, religion, education, or employment and total discontinuation than with other background characteristics. Where such associations are apparent, the pattern of the association is the same as the association with DWSIN. Also similar to DWSIN and discontinuation due to no further need, in general, longer durations of marriage and higher number of children are associated with decreased odds of overall discontinuation.

Table 8. Unadjusted odds of total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-2015	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Method used 12 months prior to survey (ref=LARC)											
non-LARC	2.11***	3.41***	2.61***	1.59	3.23***	2.48**	2.16**	1.21	1.97**	3.05*	2.11***
Duration of use before the observation period (ref=1-12 months)											
13-36 months	0.96	0.71**	0.71†	1.03	1.19	1.54†	0.45**	1.67	1.37*	2.00***	0.96
37+ months	0.41***	0.57***	0.39***	1.22	0.48†	1.38	0.35***	0.66	1.25	2.16***	0.41***
Age (ref=15-19)											
20-24	1.16	0.88	4.43	0.84	9.55*	1.77	1.17	0.83	0.79	1.87	1.16
25-29	0.61	0.70†	2.13	0.65	13.33**	1.81	1.24	0.37	0.72	1.84	0.61
30-34	0.33*	0.56**	1.91	0.44	3.69	1.14	0.65	0.55	0.50†	1.42	0.33*
35-39	0.22**	0.34***	1.07	0.26	9.01*	0.82	0.73	0.08*	0.42*	1.09	0.22**
40-44	0.09***	0.38***	0.56	0.10*	2.05	0.68	0.41†	0.09†	0.33**	0.68	0.09***
45-49	0.16**	0.56†	0.72	0.46	na	na	na	0.09	0.21**	0.63	0.16**
Wealth quintile (ref=poorest)											
Second	1.38	0.85	0.85	0.59	1.46	1.81†	1.06	0.71	0.90	0.97	1.38
Middle	1.21	0.95	0.74	0.66	1.61	1.19	0.39*	0.72	0.79	0.95	1.21
Fourth	0.99	1.06	0.58*	0.49*	2.72*	1.49	0.62	0.48	0.76	0.64*	0.99
Highest	0.72	0.96	0.63	0.59	4.31**	1.08	0.58	0.58	0.46***	0.51**	0.72
Place of residence (ref=urban)											
Rural	1.66***	1.17	1.44*	0.89	0.61	1.59	1.14	1.47	1.44**	1.51**	1.66***
Religion (ref=Muslim)		(ref= Christian)									
Christian	0.70	1.00	na	0.23**	na	0.64	na	1.44	0.81	1.10	0.70
Other	na	0.90	na	0.14*	na	na	na	1.41	0.64	1.17	na
Education (ref=no education)											
Primary	1.05	1.21	0.59	2.25	(ref=secondary education)	0.44**	0.83	1.43	0.92	2.08	1.05
Secondary	1.29	1.25	0.40†	2.76*	1.00	0.75	0.91	1.02	0.72	2.01	1.29
Higher	1.12	1.23	0.45	4.07*	1.20	0.75	0.84	1.26	0.45*	1.71	1.12
Employment (ref=not employed)											
Employed for cash	0.48***	0.83†	na	0.52**	1.52	2.74	0.81	1.09	0.83	0.77*	0.48***
Employed not for cash	0.85	1.08	na	0.78	0.91	3.08†	1.35	2.29	0.85	0.92	0.85
Number of living children (ref=0)											
1-2	3.46***	0.33***	1.15	0.15***	0.22	2.71**	0.04*	1.33	0.32†	0.22**	3.46***
3-4	1.25	0.22***	0.50	0.06***	0.09**	1.40	0.03**	0.39	0.26*	0.15***	1.25
5+		0.31***	0.37	0.05***	0.06**	na	0.02**	0.47	0.19**	0.11***	
Marital duration in years (ref=0-4 years)											
5-9	0.45***	0.70*	0.53**	0.66	0.61	0.91	0.32*	0.65	0.88	1.02	0.45***
10-14	0.19***	0.54***	0.45**	0.50*	0.74	0.57†	0.33*	0.41	0.90	0.72*	0.19***
15-19	0.17***	0.51***	0.26***	0.29***	0.38*	0.51†	0.27**	0.24*	0.42***	0.66†	0.17***
20-24	0.09***	0.33***	0.15***	0.19***	0.19**	0.14**	0.28**	0.09**	0.58*	0.48*	0.09***
25-29	0.13***	0.55*	0.08***	0.21**	0.02***	0.47	0.18**	0.36	0.37**	0.25**	0.13***
30+	0.09***	0.80	0.31	0.43	na	3.18	0.40	na	0.35†	0.50	0.09***
Weighted n	3345	3283	2846	1437	1083	584	878	228	2422	1899	3345

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category

Data on employment status was not collected in the Jordan 2012 DHS.

9. Multivariate Analysis of the Association between IPV and Discontinuation While Still in Need

Table 9 presents adjusted odds ratios for DWSIN, discontinuation due to no further need, and total discontinuation during the 12 month observation period from multivariable logistic regressions. The primary independent variables of interest are experience of different forms violence during the same observation—emotional, physical, and sexual violence—as well as any IPV. We conducted a separate regression for each form of violence for each reason for discontinuation, as well as total discontinuation, for each country.

These models control for method type (LARC versus non-LARC), duration of contraceptive use before the observation period, age, household wealth quintile, place of residence, religion (except in Jordan, Kyrgyz Republic, and Tajikistan), employment status (except Jordan), education, and number of living children. Although we present unadjusted odds of the association between marital duration and discontinuation outcomes, we exclude this measure from multivariate models due to multicollinearity with number of living children[12]. For clarity, Table 9 displays the adjusted odds ratios only for our focal predictor variables—measures of experience of violence. Results of the full models are available in Appendix Tables 4-15.

Overall, the adjusted models reveal only a small number of significant associations between different forms or any combination of IPV. The relationships are not consistent by either type of violence or even among women in different countries by reason for discontinuation. However, there is a strong relationship between type of method (LARC versus non-LARC) and discontinuation, for DWSIN, discontinuing due to no further need, and discontinuing for any reason. The exception to this is among women in Kenya and Uganda.

[12] Models that substitute marital duration for number of living children yield similar results.

Table 9. Adjusted odds of emotional, physical, sexual, and any intimate partner violence predicting discontinuation while still in need, discontinuation due to no further need, and total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models controlling for contraceptive method type and socio-demographic controls

	DWSIN	Discontinuation due to no further need	Total discontinuation
Emotional violence in last 12 months (ref=no emotional violence in last 12 months)			
Cambodia 2014	0.65	0.77	0.63
Egypt 2014	**1.60†**	0.82	1.13
Honduras 2011-12	1.24	0.78	1.08
Jordan 2012	1.26	1.10	1.19
Kenya 2014	**2.11****	0.46	1.33
Kyrgyz Republic 2012	**0.22***	**0.26***	**0.24****
Rwanda 2014-15	1.31	0.76	1.08
Tajikistan 2012	1.03	0.37	0.68
Uganda 2011	0.83	0.50	0.65
Zambia 2013-14	**0.67†**	0.84	**0.71***
Zimbabwe 2010-11	1.04	1.01	1.02
Physical violence in last 12 months (ref=no physical violence in last 12 months)			
Cambodia 2014	0.85	0.55	0.67
Egypt 2014	1.22	1.14	1.21
Honduras 2011-12	1.19	0.93	1.10
Jordan 2012	1.27	1.03	1.17
Kenya 2014	1.49	**0.37****	0.93
Kyrgyz Republic 2012	0.55	0.86	0.74
Rwanda 2014-15	0.79	0.77	0.76
Tajikistan 2012	0.97	0.37	0.69
Uganda 2011	0.92	0.60	0.79
Zambia 2013-14	0.78	0.82	**0.78†**
Zimbabwe 2010-11	1.18	1.12	1.16
Sexual violence in last 12 months (ref=no sexual violence in last 12 months)			
Cambodia 2014	1.41	**0.02****	0.74
Egypt 2014	1.86	1.42	1.74
Honduras 2011-12	1.31	1.69	1.51
Jordan 2012	**2.54***	0.98	**1.81†**
Kenya 2014	**2.01†**	0.83	1.52
Kyrgyz Republic 2012	0.37	**0.11***	**0.18***
Rwanda 2014-15	1.07	0.85	0.99
Tajikistan 2012	**0.06***	0.57	**0.22†**
Uganda 2011	0.70	0.71	0.59
Zambia 2013-14	1.28	**0.60***	1.06
Zimbabwe 2010-11	0.83	1.19	1.06

Continued

Table 9—*Continued*

	DWSIN	Discontinuation due to no further need	Total discontinuation
Any IPV in last 12 months (ref=no IPV in last 12 months)			
Cambodia 2014	0.72	0.75	0.67
Egypt 2014	1.35	1.02	1.18
Honduras 2011-12	**1.25†**	0.75	1.06
Jordan 2012	1.43	1.10	1.29
Kenya 2014	**1.87***	**0.47***	1.13
Kyrgyz Republic 2012	0.65	0.76	0.71
Rwanda 2014-15	1.01	0.55	0.76
Tajikistan 2012	1.01	**0.34***	0.65
Uganda 2011	0.63	0.85	0.61
Zambia 2013-14	0.92	0.81	0.87
Zimbabwe 2010-11	0.96	1.14	1.09

Notes:
† p<0.10, * p<0.05, ** p<0.01, *** p<0.001
Models control for method type (LARC/non-LARC), duration of contraceptive use before observation period, age, household wealth quintile, place of residence, religion (except Jordan, Kyrgyz Republic, and Tajikistan), employment status (except Jordan), education, and number of living children. Full model results available in Appendix Table 4-15.
Discontinuation is defined as the interruption of contraceptive use for one month or longer.
Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).
Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/ separation, difficult to get pregnant).
Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.
Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.
Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.
Data on employment status was not collected in the Jordan 2012 DHS and are excluded from these regression models.

9.1. Emotional Violence

After controlling for contraceptive experience and socio-demographic variables, emotional violence is significantly or marginally associated with discontinuation in a few countries for DWSIN, discontinuation due to no further need, and total discontinuation. All bivariate associations between the experience of emotional violence and DWSIN remain even after socio-demographic controls are included, except in Honduras. In Egypt, the positive association weakened slightly (OR 1.6, $p \leq 0.10$) with the inclusion of controls. The strongest association is seen in Kenya, where women who have experienced emotional violence in the twelve month observation period before the survey have over two times the odds of DWSIN compared to women who did not experience this type of violence (OR = 2.11, $p \leq 0.01$). This association increased in size and significance with the inclusion of controls. In the Kyrgyz Republic (OR = 0.22, $p \leq 0.05$) and Zambia (OR=0.67, $p \leq 0.10$), however, the odds of DWSIN are lower among women who experienced emotional violence than if they had not. This effect also strengthened slightly in the presence of controls.

The negative association with emotional violence in Kyrgyz Republic also holds for discontinuation for no further need (OR = 0.26, $p \leq 0.05$) and for total discontinuation (OR = 0.24, $p \leq 0.01$); the size and strength of this effect changes little with the inclusion of controls in the multivariate models. In Zambia,

the odds of total discontinuation are also significantly lower among women who have experienced emotional violence compared to women who have not experienced recent emotional violence (OR = 0.71, $p \leq 0.05$). The strength of this association has increased in the multivariate model compared to the bivariate association (OR=0.76, $p \leq 0.10$). In contrast, the negative bivariate association in Kenya between emotional violence and discontinuation due to no further need (0.37, $p \leq 0.05$) disappears when controlling for other factors and no association with total discontinuation is detected.

9.2. Physical Violence

With recent physical violence, even fewer significant associations are present in the adjusted models, when examining the odds of discontinuation for any reason, no need, or while still in need. In fact, none of the adjusted models demonstrate significantly different odds of DWSIN or total discontinuation based on whether or not a woman has experienced physical violence in the twelve months prior to the survey. Only in Kenya are women significantly less likely to discontinue due to no further need if they have experienced recent physical violence (OR = 0.37, $p \leq 0.01$). Compared to the bivariate association (OR=0.29, $p \leq 0.001$), this association has both somewhat decreased in size and weakened in significance with the inclusion of controls.

9.3. Sexual Violence

Sexual violence within the twelve months prior to the survey is significantly, or marginally significantly, associated with DWSIN, discontinuation due to no further need, or total discontinuation among women in five countries after controlling for other socio-demographic factors. The bivariate associations in Jordan and Tajikistan of sexual violence with DWSIN remain and are stronger in multivariate models. In Jordan, women who experienced recent sexual violence have two and a half times the odds of DWSIN compared to women who have not experienced recent sexual violence (OR = 2.54, $p \leq 0.05$). Meanwhile, women in Tajikistan have 94% lower odds of DWSIN if they had experienced recent sexual violence as compared to women who had not (OR = 0.06, $p \leq 0.05$). The positive and negative associations in these countries (OR = 1.81, $p \leq 0.10$ and OR=0.22, $p \leq 0.10$, respectively) between the experience of sexual violence and total discontinuation are of marginal significance.

Women in three countries presented with lower odds of discontinuing due to no further need if they had experienced recent sexual violence: in Cambodia (OR = 0.02, $p \leq 0.01$), Kyrgyz Republic (OR = 0.11, $p \leq 0.05$), and Zambia (OR = 0.6, $p \leq 0.05$. This association had not been detectable in bivariate analysis in Zambia. The Kyrgyz Republic is the only country in which the analysis reveals a significant, negative association with total discontinuation (OR = 0.15, $p \leq 0.05$). The possible negative association in Tajikistan (OR=0.22, $p \leq 0.10$) and positive association in Jordan (OR=1.81, $p \leq 0.10$) between sexual violence and total discontinuation merely approaches significance.

9.4. Any IPV

The effects of any one form of violence on total discontinuation or disaggregated by reason for discontinuation seem to be diluted in the adjusted logistic regression models for any IPV. The most obvious example of this is among women in the Kyrgyz Republic: Although significant associations are seen among women in Kyrgyz Republic for two forms—emotional and sexual violence—with one or another type of discontinuation, nothing significant is evident when the forms of violence are combined into experience of any IPV.

Women who experience any IPV in Honduras have marginally higher odds of DWSIN (OR 1.25, $p \leq 0.10$) while women in Tajikistan have lower odds of discontinuing due to no further need (OR 0.34, $p \leq 0{,}05$). However, there is no association with total discontinuation in these countries. In Kenya, after controlling for socio-demographic covariates, women who experienced any IPV in the twelve months prior to the survey are at significantly higher odds of DWSIN than women who did not experience any IPV (OR = 1.87, $p < 0.05$); yet, women who have experienced recent IPV have reduced odds of discontinuing for no further need (OR = 0.47, $p < 0.05$), and there is no association with total discontinuation for any reason. In fact, in none of the 11 study countries is experience of any IPV significantly associated with total discontinuation.

10. Discussion and Conclusions

Prior studies using longitudinal data, in which these events are temporally ordered, suggest that the experience of IPV leads to less contraceptive use among these women (Maxwell et al. 2015; Stephenson, Koenig, and Ahmed 2006; Stephenson et al. 2008). Meanwhile, studies emerging from the literature on reproductive control and coercion indicate that women who experience IPV and a partner's controlling behaviors face interference in their contraceptive practices and greater difficulty avoiding unintended pregnancy (Gee et al. 2009; Moore, Frohwirth, and Miller 2010; Park et al. 2016; Silverman and Raj 2014). Based on this extant literature, the authors of this study hypothesized that women who experience intimate partner violence would be more likely to experience interruptions in their contraceptive use, namely, that they would be more likely to experience discontinuation while still in need (of contraception).

This study takes advantage of detailed data in the reproductive calendars (ICF International 2012, 2015) and psychometrically tested measures of various forms of IPV (ICF International 2016; Straus 1979; Straus et al. 1996) found in The DHS Program surveys to test this hypothesis in 11 countries. Although we cannot fully establish the temporal order between IPV and the moment of contraceptive discontinuation, which is possible only in a true longitudinal design, we are able to co-locate these behaviors in the same 12-month observation period, which many cross-sectional studies are unable to do. More specifically, we examine discontinuation in the 12 months preceding the survey among samples of contraceptive users in relation to the experience of IPV following the start of their contraceptive use. We examine the odds of discontinuation while still in need and compare this to discontinuation due to no further need and total discontinuation. We examine the effects of three forms of violence separately—emotional violence, physical violence, and sexual violence—and the experience of any of these forms of violence on discontinuation in the preceding 12 months.

The countries chosen for this analysis all present with a modern contraceptive prevalence rate greater than 25% but with a range of contraceptive methods, some LARC and some non-LARC, that dominates the method mix. The prevalence of IPV (any form) ranges from 24% (Tajikistan) to 59% (Uganda). There is no difference in the method type (LARC or non-LARC method) based on experience of violence, except in Kenya. Here, women who experience IPV are more likely to be using a LARC method compared to women with no experience of IPV in the preceding 12 months. In the other 10 countries, regardless of IPV experience, LARC use exceeds non-LARC use in Egypt, Jordan, the Kyrgyz Republic, and Tajikistan while non-LARC use exceeds LARC use in Cambodia, Honduras, Rwanda, Uganda, Zambia, and Zimbabwe.

In contrast to our expectations, we find limited evidence of association between the experience of violence and discontinuation while still in need. Where associations are found, they are often weakly significant or of small magnitude. Additionally, they are inconsistent across countries in the direction of the association. For example, the experience of emotional violence in the previous 12 months is associated with a greater likelihood of discontinuation while still in need in the preceding 12 months in Egypt (where IUDs are the most common method). This same association is of borderline significance in Honduras and Kenya, where injections are the most common reversible method[13]. In the Kyrgyz Republic, however, where IUDs are also common, the experience of emotional violence is nearly significantly associated with a lower likelihood of discontinuation while still in need. No association is detected with emotional violence in the remaining seven countries.

[13] Injections are the second most common method in Honduras and follow female sterilization, however, women who use sterilization as their contraceptive method are excluded from this study.

Findings also vary with the form of violence assessed. Associations between emotional violence and discontinuation while still in need are more commonly detected than other forms or any IPV combined. Sexual violence in the preceding 12 months is positively associated with discontinuation while still in need in Jordan and negatively associated with discontinuation while still in need in Tajikistan (where IUDs dominate the method mix). Positive associations between physical violence (Egypt) or any form of violence (Egypt and Honduras) are of borderline significance. No other associations are observed in the other countries.

In contrast to the varying direction of association with IPV and discontinuation while still in need, associations with discontinuation due to no further need are consistently negative where they are detected. However, these associations are not frequently observed. Women who experience emotional violence have significantly lower odds of discontinuing due to no further need in Kenya and the Kyrgyz Republic (and nearly significantly lower odds in Honduras), as do women who experience physical violence in Kenya, sexual violence in Cambodia (where the pill is the most common method) and the Kyrgyz Republic, or any IPV in Honduras, Kenya, and Tajikistan. These associations are not observed elsewhere.

The multivariate models that assess the relationship between forms of IPV and discontinuation control for a number of factors that also may be associated with discontinuation: LARC/non-LARC method type, duration of contraceptive use before observation period, age, household wealth quintile, place of residence, religion[14], employment status[15], education, and number of living children. For many countries, using a non-LARC method is independently and positively associated with both discontinuation while still in need and due to no further need, and the magnitude of the effect (where it exists) is generally larger than that of experience with IPV. This finding reinforces results of previous studies indicating that discontinuation rates vary across methods (Ali and Cleland 1995; Ali, Cleland, and Shah 2012; Bradley, Schwandt, and Khan 2009; Maslyanskaya et al. 2016; Modey, Aryeetey, and Adanu 2014; Steele and Curtis 2003). No clear pattern emerges across countries with regard to other characteristics. For example, age, duration of contraceptive use prior to the observation period, and household wealth quintile are associated with discontinuation while still in need in some countries, but not in others. These findings would suggest that, like IPV, the factors influencing discontinuation while still in need (or due to no further need) are country-specific.

This study attempts to fill a gap in the separate demographic literatures on contraceptive dynamics and on gender-based violence to explore the relationship between IPV and contraceptive discontinuation. Our primary finding is that these associations are generally modest and weak and are country-specific, rather than global in nature. Nonetheless, the country-wise variation in the relationship between IPV and contraceptive discontinuation emphasizes the need to redouble our efforts, rather than dissuading us, to screen for risk of gender-based violence in the context of contraceptive counseling. Instead of a consistent association with all forms, or a given form, of violence, this study finds that the pertinent form of violence to women's discontinuation behavior is context-specific. While the pertinent form of violence or direction of association is context-specific, this study contributes to existing studies that, globally, IPV in some form impacts women's behaviors and outcomes.

The term "violence" often conjures to mind physical beatings, whereas IPV manifests in multiple forms: emotional, physical, or sexual violence, or marital control. Yet, our study found fewer associations between women's discontinuation behavior and physical violence than other forms of violence. Given the statistically strong associations in certain countries between discontinuation while still in need and either emotional violence (e.g. Kenya, Kyrgyz Republic) or sexual violence (Jordan, Tajikistan), it is important that family planning workers become sensitized about, and for screening tools to include probes for, these

[14] Except in Jordan, Kyrgyz Republic, and Tajikistan, where data on religion is not available in the DHS.
[15] Except in Jordan where data on employment status is not available in the DHS.

forms of violence as well as physical violence. Probing for all forms of violence could lead to further conversations with clients about their sexual agency, repercussion of their contraceptive use, and desirable attributes in their contraceptive method, all of which may lead to more informed contraceptive choice and less likelihood of premature discontinuation. Simultaneously, developing better measures of these forms of violence for data collection and research purposes and for instrument development is warranted (MacQuarrie, Winter, and Kishor 2014; WHO and Human Reproduction Programme 2016).

Conversations between service providers and their clients about IPV are valuable even in settings where women who experience IPV do not appear to be de facto at a statistically heightened risk of discontinuation by virtue of their IPV experience. Such women may discontinue contraception for other reasons—health concerns, fear of or experience with side effects, issues of cost and access—as do women who do not experience IPV (Ali, Cleland, and Shah 2012; Bradley, Schwandt, and Khan 2009; Castle and Askew 2015; Jain et al. 2013). However, women who do experience IPV may have unique concerns and needs, including questions about method attributes, means of use, and effectiveness, that ultimately influence their method choice and ability to maintain a contraceptive regimen. Rather than targeting women at heightened risk of IPV because they are predicted to discontinue contraception, it may be worthwhile inquiring about women's IPV experience as a part of a broader strategy to deliver high quality contraceptive services to all women by considering individual circumstances and concerns to better support their ongoing use of contraception to successfully achieve their reproductive aspirations (Jain et al. 2013).

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Appendix Tables

Appendix Table 1. Proportion of currently married women age 15-49 in the analytic sample using specific methods contraception 12 months prior to interview

	LARC		non-LARC				
	IUD	Implants	Pills	Injections	Condom (male)	Other modern method	Weighted n
Cambodia 2014	8.3	2.2	18.9	8.4	1.6	0.1	931
Egypt 2014	45.1	0.6	19.7	14.6	0.4	0.1	3,345
Honduras 2011-12	14.6	0.0	23.5	40.3	7.1	0.2	3,283
Jordan 2012	43.4	0.3	13.5	1.5	12.9	3.5	2,646
Kenya 2014	3.8	14.3	12.1	50.4	2.7	0.1	1,437
Kyrgyz Republic 2012	62.8	0.0	2.3	0.6	14.8	0.4	1,084
Rwanda 2014-15	0.5	15.4	11.8	45.8	3.0	1.3	585
Tajikistan 2012	63.6	0.1	5.3	5.4	5.6	0.4	879
Uganda 2011	0.0	3.9	3.4	58.7	5.7	0.4	228
Zambia 2013-14	2.2	10.0	21.5	37.6	5.9	1.5	2,422
Zimbabwe 2010-11	0.1	2.9	53.5	12.1	3.9	0.4	1,899

Notes:

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.
No reported implant users in Kyrgyz Republic.

Appendix Table 2. Percent distribution of reason for discontinuation among currently married women age 15-49 who discontinued contraceptive use in the 12 months prior to the survey

	No further need		While still in need					
	Desire to become pregnant	Other fertility related reason	Side effects/ health concerns	Method-related reasons	Cost/ Access	Other reasons	Total	weighted n
Country	%	%	%	%	%	%		
Cambodia 2014	43.0	3.1	34.9	8.4	0.0	10.5	100.0	111
Egypt 2014	47.3	15.2	35.6	0.6	0.5	0.9	100.0	560
Honduras 2011-12	25.8	11.0	39.9	9.6	5.7	8.1	100.0	676
Jordan 2012	40.9	7.9	29.8	5.2	0.7	15.5	100.0	528
Kenya 2014	35.9	5.8	39.7	2.8	3.9	12.0	100.0	216
Kyrgyz Republic 2012	56.8	15.2	24.7	2.2	0.0	1.1	100.0	112
Rwanda 2014-15	40.7	6.5	40.3	1.9	0.0	10.7	100.0	105
Tajikistan 2012	27.1	14.6	24.1	14.8	1.0	18.3	100.0	103
Uganda 2011	20.8	3.8	62.8	3.6	3.9	5.2	100.0	78
Zambia 2013-14	36.1	3.5	35.7	3.1	5.8	15.8	100.0	500
Zimbabwe 2010-11	56.6	12.1	16.0	5.9	5.8	3.6	100.0	408

Notes:

Reasons for discontinuation are mutually exclusive and add to 100%. Those who experienced contraceptive failure (became pregnant while using a method of contraception) or who switched methods are excluded.
Other fertility-related reasons include infrequent sex/husband away, difficult to get pregnant/menopausal, and marital dissolution/separation.
Method-related reasons include wanted more effective method and inconvenient to use.
Cost/access includes lack of access, too far, and costs too much.

Appendix Table 3. Proportion of currently married women age 15-49 discontinuing while still in need in the 12 months prior to the survey, by type of contraception

	LARC		non-LARC		Total		
	%	weighted number	%	weighted number	%	weighted number	weighted n
Cambodia 2014	0.4	4	6.0	56	6.4	60	931
Egypt 2014	2.1	71	4.2	139	6.3	210	3,345
Honduras 2011-12	0.6	21	12.4	406	13.0	428	3,283
Jordan 2012	3.8	100	6.4	170	10.2	270	2,646
Kenya 2014	1.7	24	7.1	102	8.8	126	1,437
Kyrgyz Republic 2012	1.8	19	1.1	12	2.9	31	1,084
Rwanda 2014-15	1.1	6	8.4	49	9.5	55	585
Tajikistan 2012	4.0	35	2.8	25	6.8	60	879
Uganda 2011	2.4	6	23.3	53	25.8	59	228
Zambia 2013-14	1.5	35	11.0	267	12.5	302	2,422
Zimbabwe 2010-11	0.2	3	6.6	125	6.7	128	1,899

Notes:

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods. Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Appendix Table 4. Adjusted odds of discontinuing while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with emotional violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no emotional violence in last 12 months)											
Emotional violence in last 12 months	0.65	1.60†	1.24	1.26	2.11**	0.22*	1.31	1.03	0.83	0.67†	1.04
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.16†	2.43***	4.46***	1.76**	1.32	1.56	2.08†	2.10*	2.11	1.45	1.32
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.48	0.90	0.81	0.40***	0.93	0.39†	1.05	0.14***	1.59	1.24	1.13
37+ months	0.58	0.91	0.76	0.60*	1.41	0.19**	1.50	0.16***	1.16	1.07	1.32
Age (ref=15-19)											
20-24	0.21†	0.77	0.90	2.22	3.21	5.27	0.67	0.15†	1.54	1.02	2.32
25-29	0.88	0.68	0.83	0.90	2.78	2.42	0.71	0.13**	1.19	0.58	2.75
30-34	0.39†	0.41	0.67	1.70	2.57	3.36	0.41	0.10**	1.35	0.66	2.02
35-39	0.17*	0.42	0.48*	1.34	1.18	8.39*	0.49	0.19**	0.10†	0.59	2.40
40-44	0.63	0.21†	0.48*	1.22	1.06	8.93*	0.48	0.19**	0.07†	0.51	1.86
45-49	na	0.36	0.62	na	3.06	na	na	na	0.12	0.40	1.24
Household wealth quintile (ref=poorest wealth quintile)											
Poorer	1.00	1.14	1.00	1.02	0.90	0.91	2.43†	0.70	0.44	1.00	1.15
Middle	1.30	0.85	1.33	0.69	0.84	1.06	1.06	0.40	0.81	1.01	1.34
Richer	3.37*	0.74	1.43†	1.05	0.38†	4.08	1.99	0.56	0.92	0.72	0.57
Richest	1.50	0.72	1.84*	0.46†	0.39†	13.47*	1.96	0.51	1.73	0.65	0.50
Place of residence (ref=urban)											
Rural	1.40	1.13	1.21	1.45†	0.94	3.42	2.00	1.26	1.71	1.06	0.88
Religion (ref=Muslim)											
Christian	na	1.19	(ref)	na	0.28†	na	0.42	na	2.04	1.02	0.99
Other	1.50	na	0.91	na	0.10†	na	na	na	2.21	na	1.11
Education (ref=no education)											
Primary	1.01	1.19	1.00	0.61	2.67	na	0.29**	0.33	0.78	1.05	0.55
Secondary	0.40	0.68	0.96	0.32†	2.62	(ref)	0.26*	0.58	0.27†	0.80	0.68
Higher	0.10†	0.66	0.98	0.30*	4.63*	1.19	0.94	0.85	0.52	0.51	0.28
Employment (ref=not employed)											
Employed for cash	0.64	1.19	0.90	na	0.52*	1.11	3.85	0.96	1.63	1.05	0.76
Employed not for cash	0.22†	1.19	1.04	na	0.49†	5.20*	2.88	2.03	3.82*	0.88	1.07
Number of living children (ref=0)											
1-2	0.51	1.23	0.97	1.17	0.76	0.65	2.58	0.27	1.18	1.06	0.22**
3-4	1.15	0.76	1.06	0.64	0.27	1.27	1.42	0.24	0.83	1.07	0.28*
5+	na	na	2.15*	na	0.38	na	na	0.10*	2.88	1.24	0.39
Weighted n	915	3339	3281	2624	1437	1077	580	878	228	2402	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 5. Adjusted odds of discontinuing while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with physical violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no physical violence in last 12 months)											
Physical violence in last 12 months	0.85	1.22	1.19	1.27	1.49	0.55	0.79	0.97	0.92	0.78	1.18
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.08†	2.41***	4.49***	1.76**	1.29	1.56	2.05	2.10*	2.13	1.47	1.31
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.48	0.89	0.81	0.40***	0.94	0.41†	1.04	0.14***	1.59	1.24	1.14
37+ months	0.59	0.91	0.76	0.60*	1.36	0.20**	1.43	0.16***	1.15	1.07	1.33
Age (ref=15-19)											
20-24	0.22†	0.77	0.89	2.25	3.57	5.47	0.62	0.15*	1.50	1.02	2.33
25-29	0.91	0.67	0.82	0.93	2.99	2.63	0.64	0.13**	1.18	0.58	2.79
30-34	0.40	0.42	0.66	1.72	2.77	3.47	0.39	0.10**	1.32	0.65	2.07
35-39	0.17*	0.42	0.47*	1.35	1.36	8.56*	0.49	0.19**	0.10†	0.59	2.46
40-44	0.65	0.21†	0.48*	1.25	1.25	9.28*	0.48	0.19**	0.07†	0.49	1.90
45-49	na	0.36	0.62	na	3.33	na	na	na	0.12	0.40	1.28
Household wealth quintile (ref=poorest wealth quintile)											
Poorer	1.01	1.13	1.00	1.02	0.85	0.89	2.27†	0.70	0.47	0.99	1.14
Middle	1.28	0.83	1.34	0.70	0.80	0.94	0.99	0.40	0.82	1.00	1.34
Richer	3.41*	0.74	1.44†	1.07	0.37*	4.01	1.83	0.56	0.91	0.72	0.57
Richest	1.55	0.71	1.86*	0.46†	0.36†	13.49*	1.75	0.51	1.80	0.66	0.50
Place of residence (ref=urban)											
Rural	1.42	1.10	1.19	1.46†	0.89	3.52	2.01	1.26	1.72	1.08	0.88
Religion (ref=Muslim)											
Christian	na	1.20	(ref)	na	0.28†	na	0.41	na	2.11	1.05	1.04
Other	1.51	na	0.90	na	0.09*	na	na	na	2.27	na	1.15
Education (ref=no education)											
Primary	1.04	1.20	1.00	0.62	2.47	na	0.30**	0.33	0.75	1.05	0.55
Secondary	0.41	0.68	0.96	0.32†	2.36	(ref)	0.26*	0.58	0.27†	0.81	0.69
Higher	0.10†	0.66	0.96	0.30*	4.31†	1.19	0.92	0.85	0.51	0.51	0.29
Employment (ref=not employed)											
Employed for cash	0.65	1.19	0.90	na	0.54†	1.07	3.99	0.97	1.63	1.04	0.75
Employed not for cash	0.21†	1.21	1.03	na	0.50†	4.55*	2.91	2.04	3.86*	0.88	1.08
Number of living children (ref=0)											
1-2	0.50	1.22	0.99	1.17	0.72	0.66	2.61	0.28	1.14	1.11	0.21**
3-4	1.11	0.76	1.08	0.63	0.26	1.31	1.42	0.24	0.82	1.11	0.27*
5+	na	na	2.21*	na	0.38	na	na	0.10*	2.83	1.29	0.39
Weighted n	915	3339	3281	2624	1437	1077	580	878	228	2402	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 6. Adjusted odds of discontinuing while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with sexual violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no sexual violence in last 12 months)											
Sexual violence in last 12 months	1.40	1.86	1.31	2.54*	2.01†	0.37	1.07	0.06*	0.70	1.28	0.83
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.03†	2.42***	4.43***	1.75**	1.31	1.55	2.03	2.17*	2.33	1.48	1.32
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.47	0.89	0.81	0.39***	0.94	0.42†	1.04	0.13***	1.58	1.25	1.13
37+ months	0.58	0.89	0.76	0.58*	1.39	0.20**	1.45	0.16***	1.23	1.08	1.32
Age (ref=15-19)											
20-24	0.23†	0.77	0.89	2.33	3.62	5.92	0.67	0.16*	1.61	0.98	2.26
25-29	0.95	0.67	0.81	0.94	3.00	2.84	0.69	0.13**	1.24	0.57	2.69
30-34	0.42	0.41	0.65	1.70	2.88	3.89	0.41	0.11**	1.44	0.65	1.96
35-39	0.18*	0.42	0.46*	1.37	1.40	9.58*	0.50	0.19**	0.10†	0.60	2.32
40-44	0.67	0.20†	0.47*	1.24	1.30	10.58*	0.49	0.19**	0.07†	0.50	1.79
45-49	na	0.35	0.61	na	3.37	na	na	na	0.12	0.42	1.19
Wealth quintile (ref=poorest wealth quintile)											
Poorer	1.01	1.13	1.00	1.08	0.84	0.91	2.37†	0.72	0.41	1.01	1.16
Middle	1.29	0.83	1.34	0.72	0.75	0.96	1.03	0.43	0.74	1.02	1.34
Richer	3.43*	0.73	1.45†	1.16	0.36*	4.15	1.92	0.55	0.86	0.75	0.57
Richest	1.61	0.70	1.86*	0.51	0.34*	14.97*	1.86	0.51	1.65	0.71	0.50
Place of residence (ref=urban)											
Rural	1.44	1.09	1.19	1.49*	0.90	3.71	1.98	1.29	1.75	1.10	0.89
Religion (ref=Muslim)											
Christian	na	1.19	(ref)	na	0.28†	na	0.41	na	2.05	1.01	na
Other	1.57	na	0.90	na	0.10†	na	na	na	2.14	na	1.08
Education (ref=no education)											
Primary	1.05	1.21	0.98	0.68	2.63	na	0.29**	0.30	0.75	1.03	0.55
Secondary	0.42	0.68	0.95	0.35*	2.58	(ref)	0.25*	0.57	0.26†	0.79	0.69
Higher	0.10†	0.65	0.96	0.33*	4.50†	1.22	0.91	0.85	0.53	0.50	0.28
Employment (ref=not employed)											
Employed for cash	0.64	1.18	0.90	na	0.52*	1.05	3.97	0.90	1.64	1.01	0.76
Employed not for cash	0.22†	1.24	1.02	na	0.49†	4.49*	2.92	2.04	3.76*	0.86	1.07
Number of living children (ref=0)											
1-2	0.49	1.22	1.00	1.14	0.77	0.72	2.53	0.29	1.25	1.19	0.21**
3-4	1.08	0.76	1.10	0.60	0.29	1.40	1.39	0.24	0.86	1.18	0.27*
5+	na	na	2.23*	na	0.40	na	na	0.11*	2.95	1.39	0.39
Weighted n	915	3339	3281	2624	1437	1077	580	878	228	2402	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 7. Adjusted odds of discontinuing while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with any intimate partner violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no intimate partner violence in last 12 months)											
Any intimate partner violence in last 12 months	0.72	1.35	1.25†	1.43	1.87*	0.65	1.01	1.01	0.63	0.92	0.96
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.15†	2.42***	4.474***	1.76**	1.35	1.55	2.04	2.10*	2.12	1.48	1.31
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.48	0.89	0.81	0.40***	0.91	0.41†	1.04	0.14***	1.54	1.24	1.13
37+ months	0.58	0.91	0.76	0.60*	1.38	0.20**	1.45	0.16***	1.24	1.07	1.31
Age (ref=15-19)											
20-24	0.22†	0.75	0.91	2.18	3.42	5.81	0.66	0.15*	1.81	1.01	2.30
25-29	0.89	0.66	0.83	0.87	2.90	2.71	0.69	0.13**	1.26	0.58	2.73
30-34	0.39†	0.41	0.67	1.64	2.77	3.63	0.41	0.10**	1.51	0.65	1.99
35-39	0.17*	0.41	0.48*	1.31	1.29	8.82*	0.50	0.19**	0.11†	0.59	2.37
40-44	0.64	0.21†	0.48*	1.19	1.19	9.68*	0.49	0.19**	0.07	0.50	1.83
45-49	na	0.35	0.63	na	3.25	na	na	na	0.11	0.41	1.22
Wealth quintile (ref=poorest wealth quintile)											
Poorer	1.01	1.13	0.99	1.01	0.88	0.89	2.35†	0.70	0.41	1.00	1.15
Middle	1.30	0.84	1.33	0.69	0.84	0.95	1.02	0.40	0.74	1.01	1.34
Richer	3.39*	0.74	1.43†	1.06	0.38*	4.08	1.91	0.56	0.88	0.74	0.57
Richest	1.51	0.72	1.85*	0.46†	0.37†	14.01*	1.84	0.51	1.55	0.68	0.50
Place of residence (ref=urban)											
Rural	1.40	1.12	1.21	1.47*	0.91	3.62	1.98	1.26	1.79	1.10	0.88
Religion (ref=Muslim)											
Christian	na	1.19	(ref)	na	0.27†	na	0.41	na	1.84	1.02	0.97
Other	1.53	na	0.91	na	0.08*	na	na	na	1.87	na	1.09
Education (ref=no education)											
Primary	1.02	1.21	1.00	0.62	2.50	na	0.29**	0.33	0.77	1.05	0.55
Secondary	0.40	0.69	0.96	0.32*	2.43	(ref)	0.25*	0.58	0.26†	0.81	0.68
Higher	0.10†	0.67	0.97	0.30*	4.57*	1.21	0.90	0.85	0.48	0.51	0.28
Employment (ref=not employed)											
Employed for cash	0.65	1.18	0.89	na	0.51*	1.08	3.89	0.97	1.67	1.04	0.76
Employed not for cash	0.22†	1.20	1.04	na	0.49†	4.65*	2.86	2.04	3.65*	0.88	1.07
Number of living children (ref=0)											
1-2	0.51	1.22	0.97	1.19	0.76	0.68	2.54	0.27	1.37	1.14	0.22**
3-4	1.15	0.76	1.05	0.63	0.27	1.35	1.40	0.24	0.92	1.14	0.28*
5+	na	na	2.14*	na	0.38	na	na	0.10*	3.19	1.33	0.40
Weighted n	915	3339	3281	2624	1437	1077	580	878	228	2402	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 8. Adjusted odds of discontinuing due to no further need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with emotional violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no intimate partner violence in last 12 months)											
Emotional violence in last 12 months	0.77	0.82	0.78	1.10	0.46	0.26*	0.76	0.37	0.50	0.84	1.01
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.49*	1.73***	1.54	2.34***	1.83	2.92**	2.59†	2.30*	0.42	2.99**	5.30†
Duration of use before the observation period (ref=1-2 months)											
13-36 months	2.32†	1.65**	0.84	2.05**	3.40***	2.00†	3.435**	1.67	3.93*	3.07***	3.01***
37+ months	2.89*	1.36	1.19	1.52	5.99***	1.56	4.18**	1.55	8.41*	6.89***	6.31***
Age (ref=15-19)											
20-24	0.09†	1.92	1.24	1.36	0.43	4.33	4.03	1.81	1.25	0.60	1.24
25-29	0.04*	1.11	1.07	1.24	0.60	9.33†	2.58	5.07†	0.56	0.96	1.11
30-34	0.03**	0.80	1.01	0.87	0.47	3.03	2.66	2.85	0.57	0.44	0.76
35-39	0.00***	0.52	0.45†	0.42	0.44	6.94†	1.75	2.84	0.13	0.30*	0.41
40-44	0.00***	0.21*	0.68	0.09*	0.03**	0.47	na	0.97	2.18	0.12*	0.20*
45-49	0.00**	0.36	1.34	0.38	0.73	na	na	na	na	na	0.25
Wealth quintile (ref=poorest wealth quintile)											
Poorer	5.08*	1.32	0.73	0.95	0.36*	1.42	1.69	2.85†	0.89	0.92	0.82
Middle	4.77*	1.16	0.98	0.98	0.29*	1.45	1.60	0.52	0.32	0.63	0.76
Richer	3.02	1.22	1.37	0.47†	0.39†	2.17	1.99	0.81	0.53	0.93	0.60†
Richest	3.32	1.32	0.80	1.31	0.24**	4.04	1.87	0.82	0.26	0.35*	0.47*
Place of residence (ref=urban)											
Rural	1.83	1.61†	1.53†	0.96	1.27	2.26	1.60	1.13	1.39	1.31	1.28
Religion (ref=Muslim)											
Christian	16.54	na	(ref)	na	0.22†	na	na	na	0.70	0.65	1.30
Other	8.06	na	0.65	na	0.90	na	na	na	0.59	2.16	1.02
Education (ref=no education)											
Primary	0.64	0.90	1.51	0.49	2.87	na	0.34*	0.72	2.15	0.81	0.52
Secondary	0.95	1.22	1.17	0.74	5.91*	(ref)	0.84	0.99	1.18	0.81	0.58
Higher	9.45†	1.37	1.51	0.91	6.04†	1.36	0.60	na	na	0.68	na
Employment (ref=not employed)											
Employed for cash	0.77	0.37***	0.96	na	0.68	1.23	2.53	0.70	0.48	0.95	0.87
Employed not for cash	1.18	1.07	1.46	na	2.00	0.24†	3.12	0.09*	0.39	0.67†	1.04
Number of living children (ref=0)											
1-2	0.001***	2.88**	0.22***	0.73	0.06***	0.45	5.38†	0.05**	1.66	0.14**	0.26**
3-4	0.001***	1.66	0.11***	0.63	0.03***	0.26	2.87	0.03**	0.20	0.09***	0.17***
5+	0.006**	na	0.08***	0.29	0.01***	0.28	na	0.03**	0.03	0.05***	0.10***
Weighted n	931	3339	3281	2646	1437	1082	543	864	207	2295	1853

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 9. Adjusted odds of discontinuing due to no further need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with physical violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no physical violence in last 12 months)											
Physical violence in last 12 months	0.55	1.14	0.93	1.03	0.37**	0.86	0.77	0.37	0.60	0.82	1.12
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.64*	1.73***	1.54	2.34***	1.84	2.90**	2.64*	2.22*	0.37	3.00**	5.27†
Duration of use before the observation period (ref=1-2 months)											
13-36 months	2.31†	1.66**	0.85	2.04**	3.51***	2.14†	3.46**	1.74	3.80*	3.08***	3.02***
37+ months	2.91*	1.37	1.19	1.52	6.00***	1.62	4.17**	1.62	8.41*	6.91***	6.37***
Age (ref=15-19)											
20-24	0.09†	1.89	1.26	1.37	0.46	4.11	3.82	1.95	1.27	0.60	1.25
25-29	0.04*	1.11	1.08	1.25	0.65	9.21†	2.43	4.97†	0.52	0.96	1.12
30-34	0.03**	0.80	1.04	0.88	0.49	2.86	2.52	3.03	0.50	0.44	0.78
35-39	0.000***	0.52	0.47	0.42	0.45	6.74†	1.67	3.01	0.13	0.30*	0.42
40-44	0.003***	0.21*	0.70	0.09*	0.03**	0.46	na	1.00	1.83	0.12*	0.21*
45-49	0.002**	0.36	1.36	0.38	0.76	na	na	na	na	na	0.25
Household wealth quintile (ref=poorest wealth quintile)											
Poorer	5.13*	1.32	0.72	0.94	0.36†	1.35	1.66	2.77†	0.98	0.92	0.82
Middle	4.71*	1.16	0.97	0.97	0.27*	1.38	1.57	0.50	0.29	0.63	0.76
Richer	3.00	1.22	1.36	0.47†	0.37†	2.21	2.00	0.81	0.46	0.93	0.60†
Richest	3.35	1.32	0.81	1.30	0.25**	4.19	1.86	0.78	0.24	0.35*	0.47*
Place of residence (ref=urban)											
Rural	1.79	1.63†	1.56†	0.96	1.30	2.36	1.64	1.12	1.32	1.30	1.28
Religion (ref=Muslim)											
Christian	13.00	0.52	(ref)	na	0.25	na	0.61	na	0.71	0.66	1.35
Other	6.41	na	0.66	na	1.09	na	na	na	0.53	2.02	1.05
Education (ref=no education)											
Primary	0.63	0.89	1.52	0.49	3.03	na	0.35*	0.76	2.02	0.81	0.51†
Secondary	0.92	1.24	1.18	0.74	6.19*	(ref)	0.87	1.02	1.33	0.81	0.57
Higher	9.42†	1.40	1.53	0.91	5.56†	1.33	0.63	na	na	0.67	na
Employment (ref=not employed)											
Employed for cash	0.78	0.37***	0.95	na	0.71	1.23	2.53	0.65	0.49	0.96	0.86
Employed not for cash	1.22	1.06	1.47	na	2.10†	0.24†	3.13	0.09*	0.35	0.67†	1.05
Number of living children (ref=0)											
1-2	0.002***	2.87**	0.21***	0.69	0.058***	0.43	5.58†	0.05**	1.63	0.14**	0.26**
3-4	0.001***	1.65	0.11***	0.60	0.026***	0.25	2.97	0.03**	0.21	0.09***	0.17***
5+	0.01**	na	0.07***	0.27	0.007***	0.26	na	0.03**	0.03	0.05***	0.10***
Weighted n	931	3339	3281	2646	1437	1082	543	864	207	2295	1853

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 10. Adjusted odds of discontinuing due to no further need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with sexual violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no sexual violence in last 12 months)											
Sexual violence in last 12 months	0.02**	1.42	1.69	0.98	0.83	0.11*	0.85	0.57	0.71	0.60*	1.19
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.59*	1.73***	1.54	2.34***	1.95	2.98**	2.64*	2.28*	0.40	3.05***	5.24†
Duration of use before the observation period (ref=1-2 months)											
13-36 months	2.35†	1.65**	0.85	2.03**	3.44***	2.17†	3.42**	1.79	3.83*	3.08***	3.03***
37+ months	2.98*	1.36	1.19	1.52	6.15***	1.65	4.21**	1.69	8.97*	6.87***	6.34***
Age (ref=15-19)											
20-24	0.06†	1.88	1.27	1.37	0.37	4.36	4.07	2.10	1.24	0.62	1.27
25-29	0.03**	1.10	1.10	1.25	0.54	9.49†	2.61	5.04†	0.57	0.98	1.12
30-34	0.02**	0.78	1.06	0.88	0.43	3.06	2.66	2.98	0.58	0.44	0.78
35-39	0.000***	0.52	0.48	0.42	0.39	6.94†	1.74	2.95	0.13	0.29*	0.42
40-44	0.002***	0.20*	0.71	0.09*	0.03**	0.46	na	0.99	1.82	0.12*	0.21*
45-49	0.001**	0.36	1.39	0.37	0.67	na	na	na	na	na	0.26
Wealth quintile (ref=poorest wealth quintile)											
Poorer	4.63*	1.32	0.72	0.94	0.38†	1.35	1.69	2.49	0.94	0.90	0.81
Middle	4.28**	1.16	0.98	0.97	0.31*	1.36	1.61	0.49	0.33	0.63	0.76
Richer	2.85	1.22	1.38	0.46*	0.41†	2.15	2.05	0.76	0.57	0.92	0.60†
Richest	3.11	1.31	0.82	1.29	0.27*	4.04†	1.94	0.74	0.31	0.35*	0.47*
Place of residence (ref=urban)											
Rural	1.82	1.61	1.57†	0.95	1.32	2.29	1.61	1.16	1.32	1.34	1.27
Religion (ref=Muslim)											
Christian	20.66	0.52	(ref)	na	0.22†	na	0.60	na	0.72	0.65	1.31
Other	9.89	na	0.65	na	0.77	na	na	na	0.57	2.42	1.03
Education (ref=no education)											
Primary	0.59	0.89	1.52	0.49	3.55	na	0.34*	0.75	2.07	0.82	0.52
Secondary	0.88	1.23	1.18	0.73	7.30*	(ref)	0.84	0.96	1.31	0.81	0.57
Higher	8.72†	1.40	1.53	0.90	7.54*	1.36	0.60	na	na	0.67	na
Employment (ref=not employed)											
Employed for cash	0.74	0.36***	0.94	na	0.68	1.23	2.32	0.65	0.52	0.98	0.87
Employed not for cash	1.17	1.07	1.44	na	2.00	0.23†	2.91	0.09*	0.45	0.70	1.03
Number of living children (ref=0)											
1-2	0.002***	2.86**	0.21***	0.70	0.06***	0.44	5.48†	0.04**	1.59	0.13**	0.27**
3-4	0.001***	1.65	0.11***	0.60	0.02***	0.26	2.92	0.03**	0.19	0.09***	0.18***
5+	0.006**	na	0.07***	0.27	0.006***	0.27	na	0.03**	0.03	0.05***	0.10***
Weighted n	931	3339	3281	2646	1437	1082	543	864	207	2295	1853

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 11. Adjusted odds of discontinuing due to no further need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic models with any intimate partner violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no intimate partner violence in last 12 months)											
Any intimate partner violence in last 12 months	0.75	1.02	0.75	1.10	0.47*	0.76	0.55	0.34*	0.85	0.81	1.14
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	3.4*	1.73***	1.53	2.34***	1.77	2.89**	2.66*	2.24*	0.39	3.00**	5.25†
Duration of use before the observation period (ref=1-2 months)											
13-36 months	2.33†	1.66**	0.84	2.05**	3.38***	2.12†	3.49**	1.62	3.91*	3.09***	3.03***
37+ months	2.90*	1.36	1.19	1.52	5.82***	1.62	4.08**	1.49	8.84*	6.88***	6.38***
Age (ref=15-19)											
20-24	0.09†	1.90	1.23	1.37	0.46	4.21	3.37	1.84	1.26	0.60	1.26
25-29	0.04*	1.11	1.05	1.25	0.64	9.25†	2.15	5.24†	0.56	0.95	1.12
30-34	0.03**	0.80	1.00	0.88	0.49	2.90	2.34	3.03	0.57	0.43	0.78
35-39	0.000***	0.52	0.44†	0.42	0.47	6.72†	1.60	3.06	0.13	0.29*	0.42
40-44	0.003***	0.21*	0.67	0.09*	0.03**	0.46	na	1.04	1.95	0.12*	0.21*
45-49	0.002**	0.36	1.32	0.38	0.76	na	na	na	na	na	0.26
Wealth quintile (ref=poorest wealth quintile)											
Poorer	5.07*	1.32	0.73	0.95	0.36*	1.34	1.59	2.97†	1.01	0.92	0.82
Middle	4.73*	1.16	0.98	0.97	0.29*	1.36	1.48	0.53	0.34	0.63	0.77
Richer	3.02	1.23	1.37	0.47*	0.38†	2.18	1.94	0.85	0.56	0.92	0.60†
Richest	3.32	1.32	0.80	1.31	0.24**	4.11	1.71	0.85	0.31	0.35*	0.47*
Place of residence (ref=urban)											
Rural	1.83	1.63†	1.52†	0.96	1.26	2.37	1.62	1.15	1.32	1.30	1.27
Religion (ref=Muslim)											
Christian	16.31	0.51	(ref)	na	0.23†	na	0.56	na	0.70	0.66	1.35
Other	7.96	na	0.65	na	1.02	na	na	na	0.58	2.31	1.05
Education (ref=no education)											
Primary	0.65	0.89	1.50	0.50	2.96	na	0.35*	0.73	2.13	0.82	0.51†
Secondary	0.95	1.23	1.16	0.74	6.11*	(ref)	0.85	0.99	1.36	0.82	0.57
Higher	9.42†	1.38	1.51	0.92	5.70†	1.34	0.60	na	na	0.68	na
Employment (ref=not employed)											
Employed for cash	0.77	0.37***	0.96	na	0.72	1.23	2.14	0.66	0.52	0.97	0.86
Employed not for cash	1.17	1.06	1.46	na	2.06†	0.24†	2.63	0.08*	0.44	0.68	1.03
Number of living children (ref=0)											
1-2	0.001***	2.88**	0.22***	0.73	0.06***	0.43	5.94†	0.05*	1.54	0.13**	0.26**
3-4	0.001***	1.65	0.11***	0.62	0.03***	0.25	3.01	0.03**	0.19	0.09***	0.17***
5+	0.005**	na	0.08***	0.28	0.01***	0.26	na	0.03**	0.03	0.05***	0.10***
Weighted n	931	3339	3281	2646	1437	1082	543	864	207	2295	1853

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 12. Adjusted odds of total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with emotional violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no intimate partner violence in last 12 months)											
Emotional violence in last 12 months	0.63	1.13	1.08	1.19	1.33	0.24**	1.08	0.68	0.65	0.71*	1.02
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	2.93**	2.16***	3.02***	2.14***	1.52	2.51**	2.59**	2.28**	1.79	1.94**	3.24*
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.98	1.37*	0.80†	0.93	1.57†	1.16	2.00*	0.42**	2.19†	1.87***	2.31***
37+ months	1.15	1.18	0.89	0.90	2.62**	0.74	2.66**	0.38*	2.07	2.46***	4.24***
Age (ref=15-19)											
20-24	0.17	1.40	1.03	4.56	0.98	4.60	1.75	0.32	1.39	0.82	1.59
25-29	0.16	0.85	0.90	2.67	1.03	7.70*	1.43	0.49	0.77	0.76	1.55
30-34	0.08†	0.55	0.77	2.89	0.88	3.32	1.05	0.33*	0.86	0.55	1.05
35-39	0.02**	0.42	0.45**	1.66	0.54	8.09*	0.90	0.44	0.06*	0.44†	0.72
40-44	0.07†	0.18**	0.52*	1.01	0.25†	2.37	0.72	0.31*	0.10†	0.28**	0.43
45-49	0.11	0.32*	0.78	1.33	1.22	na	na	na	0.09	0.19**	0.37
Wealth quintile (ref=poorest wealth quintile)											
Poorer	2.10	1.26	0.88	0.97	0.59	1.30	2.39*	1.26	0.49	0.95	0.93
Middle	2.25†	1.00	1.22	0.78	0.55	1.33	1.39	0.43†	0.64	0.86	0.94
Richer	3.53*	0.98	1.52*	0.70	0.35**	2.87†	2.18*	0.62	0.81	0.81	0.56*
Richest	1.91	1.02	1.45	0.79	0.28**	7.02**	2.17	0.60	1.23	0.48*	0.45**
Place of residence (ref=urban)											
Rural	1.51	1.45†	1.38*	1.27	1.08	2.80†	1.96	1.26	1.85	1.18	1.15
Religion (ref=Muslim)											
Christian	1.46	0.76	(ref)	na	0.19**	na	0.43	na	1.54	0.76	1.22
Other	2.30	na	0.78	na	0.27	na	na	na	1.40	0.59	1.08
Education (ref=no education)											
Primary	0.83	1.04	1.11	0.51	3.28*	na	0.25***	0.62	1.10	0.96	1.68
Secondary	0.61	0.96	0.96	0.37*	4.38*	(ref)	0.43†	0.89	0.37	0.79	1.99
Higher	2.59	1.03	1.08	0.41†	6.47**	1.29	0.68	1.13	0.63	0.57	2.62
Employment (ref=not employed)											
Employed for cash	0.71	0.59*	0.91	na	0.53*	1.25	3.63	0.76	1.32	1.01	0.81
Employed not for cash	0.50	1.15	1.22	na	0.85	1.34	3.37	1.04	2.98†	0.80	1.04
Number of living children (ref=0)											
1-2	0.01***	1.92*	0.40***	0.91	0.13***	0.58	3.85**	0.04*	1.93	0.25*	0.16***
3-4	0.01***	1.06	0.32***	0.58	0.05***	0.49	1.87	0.03**	0.58	0.20*	0.13***
5+	0.01**	na	0.53*	0.58	0.04***	0.46	na	0.02**	1.49	0.18*	0.13***
Weighted n	931	3339	3281	2646	1437	1082	580	878	228	2414	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 13. Adjusted odds of total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with physical violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no physical violence in last 12 months)											
Physical violence in last 12 months	0.67	1.21	1.10	1.17	0.93	0.74	0.76	0.69	0.79	0.78†	1.16
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	2.93**	2.15***	3.04***	2.14***	1.48	2.48**	2.59**	2.23**	1.78	1.96**	3.22*
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.99	1.37*	0.80†	0.93	1.57†	1.25	1.99*	0.42**	2.20†	1.89***	2.32***
37+ months	1.17	1.20	0.89	0.90	2.57**	0.78	2.60**	0.38*	2.05	2.47***	4.29***
Age (ref=15-19)											
20-24	0.17	1.37	1.03	4.60	1.06	4.55	1.61	0.34	1.36	0.81	1.60
25-29	0.16	0.84	0.91	2.71	1.10	7.91*	1.30	0.49	0.74	0.76	1.57
30-34	0.08†	0.54	0.77	2.92	0.93	3.27	0.99	0.35†	0.82	0.55	1.07
35-39	0.02**	0.41	0.46**	1.67	0.58	8.00*	0.88	0.46	0.06*	0.43†	0.73
40-44	0.065†	0.18**	0.52*	1.03	0.27	2.36	0.71	0.32*	0.09†	0.27**	0.44
45-49	0.11	0.31*	0.78	1.33	1.28	na	na	na	0.09	0.19**	0.38
Household wealth quintile (ref=poorest wealth quintile)											
Poorer	2.13	1.26	0.88	0.97	0.57	1.25	2.29*	1.22	0.53	0.94	0.92
Middle	2.24†	1.00	1.23	0.79	0.53	1.24	1.32	0.42†	0.64	0.86	0.94
Richer	3.55*	0.98	1.52*	0.71	0.34**	2.90	2.08*	0.61	0.79	0.81	0.56*
Richest	1.98	1.01	1.46	0.79	0.27**	7.25**	1.99	0.59	1.32	0.49*	0.45**
Place of residence (ref=urban)											
Rural	1.50	1.45†	1.38*	1.27	1.05	2.92†	1.97	1.24	1.87	1.19	1.15
Religion (ref=Muslim)											
Christian	1.40	0.76	(ref)	na	0.20**	na	0.43	na	1.65	0.77	1.28
Other	2.23	na	0.78	na	0.30	na	na	na	1.49	0.52	1.12
Education (ref=no education)											
Primary	0.83	1.04	1.11	0.51	3.03*	na	0.26***	0.61	1.02	0.96	1.68
Secondary	0.61	0.97	0.96	0.37*	4.01*	(ref)	0.43†	0.87	0.37	0.80	2.00
Higher	2.63	1.04	1.08	0.41†	5.78**	1.28	0.70	1.09	0.62	0.57	2.68
Employment (ref=not employed)											
Employed for cash	0.72	0.59*	0.91	na	0.54*	1.24	3.76	0.75	1.34	1.00	0.80
Employed not for cash	0.49	1.14	1.22	na	0.86	1.26	3.42	1.04	3.05†	0.80	1.05
Number of living children (ref=0)											
1-2	0.01***	1.91*	0.40***	0.83	0.13***	0.55	3.95**	0.04*	1.85	0.26*	0.16***
3-4	0.01***	1.05	0.33***	0.53	0.05***	0.46	1.90	0.03**	0.58	0.20*	0.13***
5+	0.01**	na	0.53*	0.53	0.04***	0.43	na	0.02**	1.48	0.19*	0.13***
Weighted n	931	3339	3281	2646	1437	1082	580	878	228	2414	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 14. Adjusted odds of total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with sexual violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no sexual violence in last 12 months)											
Sexual violence in last 12 months	0.74	1.74	1.51	1.81†	1.52	0.18*	0.99	0.22†	0.59	0.98	1.06
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	2.914**	2.16***	3.02***	2.13***	1.53	2.53**	2.58**	2.30**	2.06	1.98**	3.23*
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.98	1.36*	0.80†	0.92	1.58†	1.27	1.99*	0.42**	2.22†	1.88***	2.31***
37+ months	1.17	1.18	0.88	0.88	2.64**	0.79	2.64**	0.38*	2.27	2.45***	4.24***
Age (ref=15-19)											
20-24	0.17	1.38	1.03	5.26†	1.01	4.68	1.74	0.35	1.50	0.80	1.59
25-29	0.16	0.83	0.90	3.08	1.04	8.08*	1.42	0.49	0.84	0.76	1.56
30-34	0.08†	0.53	0.76	3.26	0.91	3.45	1.05	0.36†	0.97	0.55	1.05
35-39	0.02**	0.41	0.45**	1.89	0.56	8.31*	0.91	0.46	0.06*	0.44†	0.72
40-44	0.06†	0.18**	0.52*	1.14	0.26	2.44	0.72	0.32*	0.09†	0.28**	0.43
45-49	0.11	0.31*	0.77	1.49	1.25	na	na	na	0.09	0.20**	0.37
Wealth quintile (ref=poorest wealth quintile)											
Poorer	2.12	1.26	0.88	1.01	0.57	1.26	2.37*	1.22	0.44	0.95	0.93
Middle	2.26*	0.99	1.23	0.81	0.52†	1.24	1.38	0.43†	0.58	0.87	0.94
Richer	3.61**	0.97	1.53*	0.75	0.34**	2.85†	2.16*	0.60	0.73	0.83	0.56*
Richest	2.05	1.00	1.47†	0.85	0.27**	7.18**	2.13	0.57	1.22	0.51*	0.45**
Place of residence (ref=urban)											
Rural	1.54	1.43†	1.38*	1.28	1.07	2.86†	1.95	1.27	1.89	1.22	1.15
Religion (ref=Muslim)											
Christian	1.68	0.76	(ref)	na	0.19**	na	0.43	na	1.65	0.75	1.22
Other	2.64	na	0.77	na	0.28	na	na	na	1.44	0.52	1.08
Education (ref=no education)											
Primary	0.83	1.04	1.10	0.53	3.33*	na	0.25***	0.59	1.02	0.96	1.68
Secondary	0.62	0.97	0.95	0.39*	4.51*	(ref)	0.42†	0.87	0.36	0.79	1.99
Higher	2.56	1.04	1.07	0.43†	6.67**	1.30	0.68	1.11	0.63	0.57	2.63
Employment (ref=not employed)											
Employed for cash	0.72	0.59*	0.91	na	0.52*	1.23	3.63	0.72	1.34	0.99	0.81
Employed not for cash	0.50	1.16	1.20	na	0.84	1.23	3.35	1.03	3.03†	0.80	1.04
Number of living children (ref=0)											
1-2	0.01***	1.90*	0.40***	0.77	0.13***	0.55	3.84**	0.04*	2.02	0.27*	0.16***
3-4	0.01***	1.05	0.33***	0.49	0.05***	0.47	1.86	0.03**	0.59	0.21*	0.13***
5+	0.01**	na	0.52*	0.50	0.04***	0.43	na	0.02**	1.49	0.20*	0.13**
Weighted n	931	3339	3281	2646	1437	1082	580	878	228	2414	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Table 15. Adjusted odds of total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models with any intimate partner violence and socio-demographic controls

	Cambodia 2014	Egypt 2014	Honduras 2011-12	Jordan 2012	Kenya 2014	Kyrgyz Republic 2012	Rwanda 2014-15	Tajikistan 2012	Uganda 2011	Zambia 2013-14	Zimbabwe 2010-11
Experience of intimate partner violence (ref=no intimate partner violence in last 12 months)											
Any intimate partner violence in last 12 months	0.67	1.18	1.06	1.29	1.13	0.71	0.76	0.65	0.61	0.87	1.09
Method used 12 months prior to survey (ref=LARC method)											
non-LARC	2.91**	2.16***	3.03***	2.14***	1.51	2.48**	2.58**	2.24**	1.83	1.97**	3.23*
Duration of use before the observation period (ref=1-2 months)											
13-36 months	0.99	1.37*	0.80†	0.94	1.57†	1.24	1.99*	0.42**	2.13†	1.88***	2.32***
37+ months	1.17	1.19	0.89	0.90	2.59**	0.78	2.58**	0.38*	2.22	2.45***	4.263***
Age (ref=15-19)											
20-24	0.17	1.37	1.03	4.65	1.01	4.65	1.64	0.32	1.62	0.81	1.60
25-29	0.17	0.83	0.90	2.69	1.05	7.93*	1.33	0.50	0.81	0.76	1.57
30-34	0.08†	0.54	0.76	2.92	0.91	3.29	1.03	0.35†	0.95	0.55	1.06
35-39	0.02**	0.41	0.45**	1.69	0.56	7.99*	0.91	0.46	0.06*	0.44†	0.73
40-44	0.07†	0.18**	0.52*	1.03	0.26	2.36	0.74	0.32*	0.10†	0.28**	0.44
45-49	0.11	0.31*	0.78	1.38	1.25	na	na	na	0.09	0.19**	0.38
Wealth quintile (ref=poorest wealth quintile)											
Poorer	2.11	1.26	0.88	0.97	0.58	1.24	2.29*	1.25	0.48	0.95	0.93
Middle	2.25†	1.00	1.22	0.78	0.54	1.23	1.31	0.43†	0.61	0.87	0.94
Richer	3.55**	0.99	1.52*	0.71	0.35**	2.88†	2.08*	0.63	0.79	0.82	0.56*
Richest	1.92	1.02	1.45	0.80	0.27**	7.18**	1.98	0.61	1.19	0.49*	0.45**
Place of residence (ref=urban)											
Rural	1.50	1.46†	1.38*	1.28	1.06	2.94†	1.96	1.27	1.92	1.20	1.15
Religion (ref=Muslim)											
Christian	1.49	0.76	(ref)	na	0.19**	na	0.41	na	1.48	0.76	1.25
Other	2.35	na	0.78	na	0.28	na	na	na	1.24	0.56	1.09
Education (ref=no education)											
Primary	0.83	1.04	1.11	0.51	3.14*	na	0.25***	0.61	1.06	0.96	1.68
Secondary	0.61	0.97	0.96	0.37*	4.18*	(ref)	0.42†	0.88	0.37	0.80	1.99
Higher	2.58	1.04	1.08	0.41†	6.20**	1.28	0.67	1.11	0.58	0.57	2.65
Employment (ref=not employed)											
Employed for cash	0.72	0.59*	0.91	na	0.53*	1.24	3.41	0.75	1.36	1.01	0.80
Employed not for cash	0.49	1.14	1.22	na	0.85	1.26	3.12	1.02	2.91†	0.81	1.04
Number of living children (ref=0)											
1-2	0.01***	1.91*	0.40***	0.92	0.13***	0.55	3.96**	0.04*	2.13	0.26*	0.16***
3-4	0.01***	1.05	0.33***	0.59	0.05***	0.47	1.87	0.03**	0.62	0.20*	0.13***
5+	0.01**	na	0.53*	0.59	0.04***	0.43	na	0.02**	1.59	0.19*	0.13**
Weighted n	931	3339	3281	2646	1437	1082	580	878	228	2414	1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Data on religion was not collected in the Jordan 2012, Kyrgyz Republic 2012, or Tajikistan 2012 DHS surveys and are excluded from regression models for these countries.

Christian is used as the reference group for religion in Honduras.

Women's education is highly skewed toward secondary and higher education in the Kyrgyz Republic, therefore secondary education is used as the reference category.

Data on employment status was not collected in the Jordan 2012 DHS and are excluded from the regression model.

Appendix Tables: Sensitivity Analysis

Appendix Table 16. Sensitivity analysis: Proportion of women using contraception at the start of the 12-month observation period by timing of experience of intimate partner violence

		Using any modern, temporary method				Method type among those using modern, temporary methods			
	Survey year	No	Yes	p-value	Weighted n	LARC	non-LARC	p-value	Weighted n
Cambodia	2014			*					
No IPV		70.3	29.7		2,154	16.5	83.5		640
Ever IPV, but not last 12 months		58.1	41.9		231	22.2	77.8		97
IPV in the last 12 months		67.2	32.8		592	15.8	84.2		194
Total		68.7	31.3		2,977	17.0	83.0		931
Egypt	2014			†					
No IPV		46.6	53.4		4,442	56.0	44.0		2,373
Ever IPV, but not last 12 months		42.4	57.6		666	55.9	44.1		384
IPV in the last 12 months		49.4	50.6		1,164	52.4	47.6		589
Total		46.7	53.3		6,272	55.4	44.6		3,345
Honduras	2011-12			**				*	
No IPV		64.0	36.0		6,108	16.4	83.6		2,199
Ever IPV, but not last 12 months		66.6	33.4		722	25.9	74.1		241
IPV in the last 12 months		59.9	40.1		2,100	19.6	80.4		842
Total		63.2	36.8		8,930	17.9	82.1		3,283
Jordan	2012			†					
No IPV		61.8	38.2		4,656	53.9	46.1		1,780
Ever IPV, but not last 12 months		62.7	37.3		528	63.1	36.9		197
IPV in the last 12 months		56.2	43.8		1,529	55.2	44.8		670
Total		60.6	39.4		6,714	54.9	45.1		2,646
Kenya	2014			*				**	
No IPV		59.6	40.4		1,897	17.9	82.1		766
Ever IPV, but not last 12 months		57.8	42.2		347	29.3	70.7		147
IPV in the last 12 months		52.7	47.3		1,108	26.5	73.5		525
Total		57.1	42.9		3,352	22.2	77.8		1,437
Kyrgyz Republic	2012			***					
No IPV		74.4	25.6		2,859	70.5	29.5		732
Ever IPV, but not last 12 months		57.6	42.4		225	76.8	23.2		95
IPV in the last 12 months		65.7	34.3		750	73.7	26.3		257
Total		71.7	28.3		3,833	71.8	28.2		1,084
Rwanda	2014-15			**					
No IPV		62.0	38.0		884	19.7	80.3		336
Ever IPV, but not last 12 months		54.9	45.1		141	25.8	74.2		64
IPV in the last 12 months		52.5	47.5		390	20.9	79.1		185
Total		58.7	41.3		1,415	20.7	79.3		585
Tajikistan	2012			**					
No IPV		78.4	21.6		2,913	74.2	25.8		629
Ever IPV, but not last 12 months		75.9	24.1		169	69.3	30.7		41
IPV in the last 12 months		71.2	28.8		730	76.4	23.6		210
Total		76.9	23.1		3,812	74.5	25.5		879

Continued

Appendix Table 16—*Continued*

	Survey year	Using any modern, temporary method				Method type among those using modern, temporary methods			
		No	Yes	p-value	Weighted n	LARC	non-LARC	p-value	Weighted n
Uganda	2011			†					
No IPV		81.7	18.3		538	11.8	88.2		99
Ever IPV, but not last 12 months		76.7	23.3		155	5.6	94.4		36
IPV in the last 12 months		84.8	15.2		614	9.6	90.4		93
Total		82.6	17.4		1,307	9.9	90.1		228
Zambia	2013-14			†					
No IPV		67.5	32.5		3,903	15.1	84.9		1,268
Ever IPV, but not last 12 months		64.6	35.4		893	18.3	81.7		316
IPV in the last 12 months		64.3	35.7		2,349	18.3	81.7		838
Total		66.1	33.9		7,145	16.6	83.4		2,422
Zimbabwe	2010-11								
No IPV		54.6	45.4		2,389	4.3	95.7		1,084
Ever IPV, but not last 12 months		49.0	51.0		196	1.8	98.2		100
IPV in the last 12 months		52.6	47.4		1,509	3.0	97.0		716
Total		53.6	46.4		4,094	3.6	96.4		1,899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Modern, temporary contraceptive methods include: oral contraceptive pill, intrauterine device (IUD), injection, implants, male/female condom, lactational amenorrhea method (LAM), emergency contraception, standard days method, and vaginal methods like diaphragm, foam, and jelly.

LARCs include IUDs and implants. Non-LARCs include injections, pills, condoms, and other modern methods.

Appendix Table 17. Sensitivity analysis: Unadjusted odds of multiple forms of intimate partner violence predicting discontinuation while still in need, discontinuation due to no further need, and total discontinuation in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	DWSIN		Discontinuation due to no further need		Total discontinuation	
	OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Multiple forms of IPV in last 12 months						
Cambodia 2014	0.67	0.15,2.88	0.37	0.08,1.80	0.51	0.16,1.60
Egypt 2014	**1.88***	1.12,3.18	1.2	0.74,1.94	**1.52***	1.05,2.19
Honduras 2011-12	1.16	0.82,1.64	0.89	0.55,1.45	1.06	0.78,1.43
Jordan 2012	**1.88***	1.06,3.34	1.28	0.59,2.75	1.69*	1.08,2.62
Kenya 2014	1.64	0.85,3.14	**0.44†**	0.17,1.11	1.05	0.61,1.81
Kyrgyz Republic 2012	na	na	**0.18***	0.04,0.77	**0.13****	0.03,0.53
Rwanda 2014-15	0.56	0.25,1.27	0.78	0.35,1.73	0.64	0.35,1.14
Tajikistan 2012	1.07	0.31,3.72	0.74	0.21,2.65	0.92	0.35,2.43
Uganda 2011	0.84	0.36,1.97	1.20	0.40,3.65	0.93	0.44,1.96
Zambia 2013-14	0.84	0.55,1.27	0.92	0.60,1.41	0.85	0.62,1.18
Zimbabwe 2010-11	0.99	0.61,1.58	1.06	0.71,1.58	1.04	0.74,1.45

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Appendix Table 18. Sensitivity Analysis: Unadjusted odds of the frequency of emotional, physical, sexual, and any intimate partner violence predicting discontinuation while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	Sometimes		Often		
	odds ratio	p-value	odds ratio	p-value	weighted n
Emotional violence in last 12 months (ref=never)					
Cambodia 2014	0.69		0.83		931
Egypt 2014	1.88	*	1.19		3345
Honduras 2011-12	1.19		1.60	†	3283
Jordan 2012	1.11		1.75		2646
Kenya 2014	1.61		1.81		1437
Kyrgyz Republic 2012	0.37		1.00		1039
Rwanda 2014-15	1.06		1.27		585
Tajikistan 2012	1.23		0.95		879
Uganda 2011	0.43	†	1.50		228
Zambia 2013-14	0.69		0.71		2422
Zimbabwe 2010-11	0.93		1.62		1899
Physical violence in last 12 months (ref=never)					
Cambodia 2014	0.88		0.76		931
Egypt 2014	1.37		2.09		3345
Honduras 2011-12	1.20		0.79		3283
Jordan 2012	1.51		0.50		2646
Kenya 2014	1.29		0.34		1437
Kyrgyz Republic 2012	0.38		0.69		1084
Rwanda 2014-15	0.86		1.00		570
Tajikistan 2012	1.15		1.00		872
Uganda 2011	0.54		2.06		228
Zambia 2013-14	0.74		1.56		2422
Zimbabwe 2010-11	0.99		2.53	*	1899
Sexual violence in last 12 months (ref=never)					
Cambodia 2014	1.97		1.00		931
Egypt 2014	2.40	†	0.98		3345
Honduras 2011-12	1.11		1.87		3283
Jordan 2012	2.98	**	0.77		2646
Kenya 2014	2.19	†	0.48		1437
Kyrgyz Republic 2012	0.57		1.00		1064
Rwanda 2014-15	0.91		0.78		585
Tajikistan 2012	1.00		0.59		854
Uganda 2011	0.91		1.03		228
Zambia 2013-14	1.42		1.21		2422
Zimbabwe 2010-11	0.86		0.83		1899

Continued

Appendix Table 18—*Continued*

	Sometimes		Often		
	odds ratio	**p-value**	**odds ratio**	**p-value**	**weighted n**
Any IPV in last 12 months (ref=never)					
Cambodia 2014	0.79		0.75		931
Egypt 2014	1.63	*	1.14		3345
Honduras 2011-12	1.15		1.63	*	3283
Jordan 2012	1.34		1.64		2646
Kenya 2014	1.36		1.65		1437
Kyrgyz Republic 2012	0.62		0.42		1084
Rwanda 2014-15	0.92		1.01		585
Tajikistan 2012	1.08		0.76		879
Uganda 2011	0.39	*	1.27		228
Zambia 2013-14	0.94		1.10		2422
Zimbabwe 2010-11	0.94		1.22		1899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Appendix Table 19. Sensitivity Analysis: Unadjusted odds of emotional, physical, and sexual violence predicting discontinuation while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	Specified form of violence only		Violence other than specified form of violence		
	odds ratio	p-value	odds ratio	p-value	N
Emotional violence (ref=no violence in last 12 months)					
Cambodia 2014	0.72		1.35		931
Egypt 2014	**1.67**	*	1.13		3,345
Honduras 2011-12	**1.26**	†	1.04		3,283
Jordan 2012	1.36		1.69		2,646
Kenya 2014	**1.66**	†	0.92		1,437
Kyrgyz Republic 2012	**0.23**	†	0.86		1,084
Rwanda 2014-15	1.07		0.69		585
Tajikistan 2012	1.15		0.88		879
Uganda 2011	0.75		0.64		228
Zambia 2013-14	0.74		**1.37**	†	2,422
Zimbabwe 2010-11	1.04		0.92		1,899
Physical violence (ref=no violence in last 12 months)					
Cambodia 2014	0.84		0.73		931
Egypt 2014	**1.53**	†	1.42		3,345
Honduras 2011-12	1.18		1.30		3,283
Jordan 2012	1.40		1.45		2,646
Kenya 2014	1.30		1.71		1,437
Kyrgyz Republic 2012	0.46		1.22		1,084
Rwanda 2014-15	0.78		1.30		585
Tajikistan 2012	1.08		0.91		879
Uganda 2011	0.75		0.69		228
Zambia 2013-14	0.86		1.21		2,422
Zimbabwe 2010-11	1.11		0.86		1,899
Sexual violence (ref=no violence in last 12 months)					
Cambodia 2014	1.67		0.63		931
Egypt 2014	1.92		1.43		3,345
Honduras 2011-12	1.40		1.22		3,283
Jordan 2012	**2.43**	*	1.11		2,646
Kenya 2014	1.89		1.23		1,437
Kyrgyz Republic 2012	0.29		0.61		1,084
Rwanda 2014-15	0.88		0.97		585
Tajikistan 2012	**0.09**	*	1.20		879
Uganda 2011	0.85		0.61		228
Zambia 2013-14	1.28		0.76		2,422
Zimbabwe 2010-11	0.87		1.09		1,899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Appendix Table 20. Sensitivity Analysis: Unadjusted odds of lifetime timing of emotional, physical, sexual, and any intimate partner violence predicting discontinuation while still in need in the 12 months prior to the survey among currently married women age 15-49: Odds ratios from logistic regression models

	Ever experienced, but not in last 12 months		Experienced in last 12 months		
	odds ratio	p-value	odds ratio	p-value	N
Emotional violence (ref=never experienced)					
Cambodia 2014	0.77		0.70		931
Egypt 2014	1.19		**1.67**	*	3,345
Honduras 2011-12	1.20		**1.28**	†	3,283
Jordan 2012	1.29		1.33		2,646
Kenya 2014	0.81		**1.65**	†	1,437
Kyrgyz Republic 2012	na		**0.23**	*	1,058
Rwanda 2014-15	1.34		1.13		585
Tajikistan 2012	na		1.16		879
Uganda 2011	0.62		0.75		228
Zambia 2013-14	1.06		**0.70**	†	2,422
Zimbabwe 2010-11	**2.77**	†	1.09		1,899
Physical violence (ref=never experienced)					
Cambodia 2014	**0.21**	*	0.80		931
Egypt 2014	1.15		**1.52**	†	3,345
Honduras 2011-12	1.05		1.13		3,283
Jordan 2012	1.50		1.37		2,646
Kenya 2014	0.78		1.12		1,437
Kyrgyz Republic 2012	1.54		0.48		1,084
Rwanda 2014-15	1.47		0.81		585
Tajikistan 2012	**0.29**	†	1.03		879
Uganda 2011	0.85		0.79		228
Zambia 2013-14	**1.54**	*	0.92		2,422
Zimbabwe 2010-11	0.84		1.13		1,899
Sexual violence (ref=never experienced)					
Cambodia 2014	1.77		na		919
Egypt 2014	1.79		na		3,328
Honduras 2011-12	1.33		1.45		3,283
Jordan 2012	**2.35**	*	0.47		2,646
Kenya 2014	1.74		na		1,409
Kyrgyz Republic 2012	0.32		na		1,076
Rwanda 2014-15	0.88		na		580
Tajikistan 2012	**0.08**	*	na		874
Uganda 2011	1.01		2.41		228
Zambia 2013-14	1.35		0.53		2,422
Zimbabwe 2010-11	0.86		1.36		1,899

Continued

Appendix Table 20—*Continued*

	Ever experienced, but not in last 12 months		Experienced in last 12 months		
	odds ratio	**p-value**	**odds ratio**	**p-value**	**N**
Any IPV (ref=never experienced)					
Cambodia 2014	0.64		0.74		931
Egypt 2014	1.02		**1.50**	†	3,345
Honduras 2011-12	1.00		1.24		3,283
Jordan 2012	1.48		**1.49**	†	2,646
Kenya 2014	**0.45**	†	1.31		1,437
Kyrgyz Republic 2012	1.48		0.59		1,084
Rwanda 2014-15	1.31		0.98		585
Tajikistan 2012	0.27		0.98		879
Uganda 2011	0.64		0.64		228
Zambia 2013-14	1.19		1.02		2,422
Zimbabwe 2010-11	0.91		0.99		1,899

Notes:

† p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Discontinuation is defined as the interruption of contraceptive use for one month or longer.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.

Appendix Table 21. Sensitivity Analysis: Proportion of currently married women age 15-49 using contraception at 12 months prior to the survey who experienced interruption, by experience of intimate partner violence in the last 12 months

	Survey year	Hiatus	Abandonment discontinuation: no further need	Abandonment discontinuation: while still in need	Total abandonment discontinuation	Failure	Any interruption
		%	%	%	%	%	%
Cambodia	2014	ns	ns	ns	ns	ns	ns
No IPV in the last 12 months		1.0	5.9	5.88	11.76	0.43	13.2
IPV in the last 12 months		0.25	5.28	5.0	10.2	0.6	11.1
Total		0.82	5.7	5.7	11.4	0.5	12.7
Egypt	2014	ns	ns	ns	ns	ns	**
No IPV in the last 12 months		1.8	10.3	4.2	14.5	2.4	18. 8
IPV in the last 12 months		2.6	12.2	6.3	18.5	3.1	24.2
Total		2.0	10.6	4.6	15.2	2.5	19.7
Honduras	2011-12	ns	ns	*	*	ns	*
No IPV in the last 12 months		4.1	9.5	10.0	19.5	1.5	25.2
IPV in the last 12 months		4.7	10.6	13.0	23.6	0.9	29.2
Total		4.2	9.8	10.8	20.6	1.4	26.3
Jordan	2012	ns	ns	*	ns	ns	*
No IPV in the last 12 months		2.6	9.0	6.8	15.8	2.6	21.1
IPV in the last 12 months		1.9	9.6	10.9	20.5	4.7	27.1
Total		2.5	9.2	7.9	17.0	3.1	22.6
Kenya	2014	ns	*	ns	ns	ns	ns
No IPV in the last 12 months		1.0	7.5	6.4	13.9	1.8	16.7
IPV in the last 12 months		1.1	4.3	8.9	13.2	3.3	17.6
Total		1.0	6.3	7.3	13.7	2.4	17.0
Kyrgyz Republic	2012	ns	ns	ns	ns	ns	ns
No IPV in the last 12 months		0.7	8.0	2.6	10.5	2.4	13.6
IPV in the last 12 months		0.4	4.5	1.5	6.1	4.3	10.7
Total		0.6	7.1	2.3	9.4	2.9	12.9
Rwanda	2014-15	ns	ns	ns	ns	ns	ns
No IPV in the last 12 months		0.9	9.7	9.2	18.9	4.2	24.0
IPV in the last 12 months		0.8	6.5	7.6	14.1	3.7	18.6
Total		0.8	8.7	8.7	17.4	4.1	22.3

Continued

Appendix Table 21—*Continued*

	Survey year	Hiatus	Abandonment discontinuation: no further need	Abandonment discontinuation: while still in need	Total abandonment discontinuation	Failure	Any interruption
		%	%	%	%	%	%
Tajikistan	2012	ns	ns	ns	ns	*	ns
No IPV in the last 12 months		1.1	5.2	5.9	11.1	0.5	12.7
IPV in the last 12 months		2.1	5.1	4.6	9.7	2.4	14.2
Total		1.4	5.2	5.6	10.8	1.0	13.1
Uganda	2011	ns	ns	ns	ns	ns	ns
No IPV in the last 12 months		1.1	10.5	22.4	32.9	4.8	38.8
IPV in the last 12 months		1.7	11.0	20.4	31.5	4.0	37.2
Total		1.3	10.7	21.6	32.4	4.5	38.2
Zambia	2013-14	ns	ns	ns	ns	ns	ns
No IPV in the last 12 months		1.5	8.2	11.6	19.8	3.1	24.4
IPV in the last 12 months		0.9	7.9	11.8	19.7	3.6	24.2
Total		1.3	8.1	11.6	19.7	3.3	24.3
Zimbabwe	2010-11	ns	ns	ns	ns	ns	ns
No IPV in the last 12 months		1.2	13.3	5.6	18.9	3.5	23.6
IPV in the last 12 months		1.5	14.5	6.1	20.6	4.6	26.7
Total		1.3	13.8	5.8	19.6	3.9	24.7

Notes:

ns=not significant, † p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Discontinuation is defined as the interruption of contraceptive use for one month or longer

Abandonment discontinuation is defined as the interruption of contraceptive use without resumption of contraceptive use during the observation period.

Hiatus is defined as the interruption of contraceptive use for one month or longer with resumption of contraceptive use during the observation period.

Discontinuation while still in need is defined as discontinuing for reasons other than wanting to become pregnant or no longer at risk of becoming pregnant (e.g. health concerns/side effects, method inconvenience, wanted a more effective method, cost, lack of access, or husband opposition).

Discontinuation due to no further need is defined as women who discontinue because they want to become pregnant of for other fertility-related reasons (e.g. infrequent sex/husband away, marital dissolution/separation, difficult to get pregnant).

Only abandonment discontinuation is disaggregated into discontinuation while still in need and due to no further need. Too few women experienced a hiatus in contraceptive use to disaggregate this form of discontinuation further.

Method switching is not considered to be an interruption to contraceptive use for the purposes of this study so long as a method of contraception is being used continuously.

Women who experience contraceptive failure (became pregnant while using a contraceptive method) are excluded from this analysis.