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Mind the Gap: Realigning Unmet Need's Measurement with its Interpretation

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A.B., Social Anthropology
Harvard University
2016

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Abstract

Mind the Gap: Realigning Unmet Need's Measurement with its Interpretation

By Nicole Maloney

Unmet need for family planning has been a central indicator in international family planning for decades, informing programs and policies on reproductive health care and contraception. Despite its prominence in the global reproductive health field, both critics and proponents of the measurements have cautioned about limitations to the metric's conceptualization, validity, and measurement approach since its inception. One particularly important point of debate surrounds the intuitive interpretation of the term "unmet need," leading many to interpret the indicator as lack of access to contraceptives or "unmet demand". The purpose of this research is to investigate how the fundamental assumptions that currently underpin the unmet need indicator can be realigned to better measure the number of women who want to use contraception but cannot, as unmet need is commonly interpreted as representing "unmet demand". This analysis conceptualized three different interpretations of "demand for contraception" based on women's reasons for contraceptive nonuse. The three conceptualizations were used to create three estimates of supply-side unmet need by removing women without a demand for contraception based on women's reasons for contraceptive nonuse. These three formulations of supply-side unmet need were applied to the datasets for seven select African countries and compared to the traditional measure of unmet need. Approach A for supply-side unmet need, the most liberal of the estimates, included reasons related to access and decreased estimates by an average of 9.3 percentage points. Approach B for supply-side unmet need decreased estimates by an average of 7 points and included the criteria from Approach A and reasons related to social pressure. The most conservative approach, Approach C, included all reasons from the previous two approaches and added reasons related to health concerns. This approach reduced unmet need estimates by 5 points, on average. Supply-side unmet need functions to close the gap between the measurement and interpretation of unmet need. The indicator contributes to a growing body of literature calling for the centering of individual users and their preferences within family planning program delivery.

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Finally, I'd like to thank my family and friends, whose unwavering support, enthusiastic encouragement, and at times commiseration, helped me cross the final finish line.

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Tables and Figures

Chapter One: Introduction

Unmet need for family planning[1], first named in 1978 in a publication by Charles Westoff and born out of the "KAP-gap" of the 1960s", has been a central indicator in international family planning for decades (Westoff, 1978; Bradley & Casterline, 2014). The indicator gained popularity at the 1994 International Council for Population and Development, serving as a bridge between groups that had previously had disparate views on fertility-related policies: those motivated by demographic and economic concerns to pursue fertility reduction and those motivated by feminist concerns to protect women's reproductive choices from coercion (Bradley & Casterline, 2014; Cleland, Harbison, & Shah, 2014). Unmet need had a stated interest in women's fertility desires which addressed the concerns of women's groups, which were advocating for a shift away from demographic targets and quotas. They argued that demographically derived targets "led to programs that frequently directed women to obtain unwanted sterilizations and inappropriate methods of family planning, and, in their worst manifestations, resulted in coercing women to undergo sterilization or abortion" (Casterline & Sinding, 2000). On the other hand, those that had previously argued for targets on the basis of fertility reduction supported the concept of unmet need largely because a study published in 1994 showed that satisfying unmet need would also accomplish most of the previously stated fertility reduction goals (Cleland et al., 2014). Unmet need was further legitimized when it was chosen as an indicator to monitor Millennium Development Goal Number 5b: Universal Access to Reproductive Health in 2007 (Cleland et al., 2014).

[1] From this point on, "unmet need for family planning" will be referred to as "unmet need".

Despite its prominence in the global reproductive health field, both critics and proponents of the measurements have cautioned about limitations to the metric's conceptualization, validity, and measurement approach since its inception. One particularly important point of debate surrounds the intuitive interpretation of the term "unmet need," leading many to interpret the indicator as lack of access to contraceptives or "unmet demand" (Sedgh, Ashford, & Hussain, 2016; ECLAC 2019; Measure Evaluation, 2019). However, a recent Guttmacher analysis of Demographic Health Surveys data shows that lack of access or cost barriers actually account for a small proportion of unmet need, less than 10% in most countries, and that some women considered to have unmet need do not intend to use contraception in the future (Sedgh, et al., 2016). Thus, there is an important gap between the number of women that are considered to have unmet need by researchers, and the number of women who desire contraception. This gap is the portion of women with unmet need who do not have an unmet demand, because they have no demand for family planning. Reasons for nonuse of contraception contributing to unmet need include a mix of factors stemming from the supply side (lack of access, cost, etc.) and the demand side (infrequent sex, opposition to use, etc.). The distinction between the roots of these reasons for nonuse is significant because women who are not using contraception because of supply-side reasons are women who have unmet demand whereas women who are not using contraception for demand-side reasons may not want to use contraception. The proportion of unmet need that is due to demand-side reasons versus a lack of access, or supply-side reasons, has not been explicitly parsed out.

Objectives & Aims

The objective of this project is to explore the proportion of unmet need for family planning that can be attributed to supply-side reasons for nonuse versus demand-side reasons for nonuse. Included in this objective are several aims:

1. Categorize reasons for nonuse into "demand-side" reasons and "supply-side" reasons to reflect whether a woman wants contraception.
2. Calculate "supply-side unmet need" by removing demand-side unmet need from the conventional estimates of unmet need.
3. Explore the implications of eliminating demand-side unmet need from the common understanding of unmet need for family planning.

The purpose of this research is to investigate how the fundamental assumptions that currently underpin the unmet need indicator can be realigned to measure the number of women who want but cannot access contraceptives. To do so, this analysis removes demand-side unmet need from the conventional unmet need calculation in order to measure supply-side unmet need. Women with demand-side unmet need do not have a *demand* for contraception and represent the gap between the current measure for unmet need and women who truly have a need and desire for contraceptives but cannot access family planning. Estimates of supply-side unmet need will offer more precise estimates of women who want and may be seeking family planning but have barriers that appropriate and supportive programs and policies can address.

Chapter Two: Literature Review

Definition and Measurement

Women who are considered to have unmet need by researchers are “those who are fecund and sexually active but are not using any method of contraception, and report not wanting more children or wanting to delay the next child” (WHO, 2019). Currently, the DHS calculates the unmet need measure using the responses to 15 question survey questions. Using these questions, the algorithm in place separates women into four groups: (1) women using contraception for spacing or limiting, (2) women who are pregnant or postpartum amenorrheic, (3) women who are infecund, or (4) women who are fecund and not using contraception. Group 2 is further broken up into Group 2a: women who are pregnant or postpartum amenorrheic as a result of contraception failure and Group 2b: those that are pregnant or postpartum amenorrheic but were not on contraception at the time of conception (Bradley, Croft, Fishel, & Westoff, 2012). Group 4 is where women are separated into women with no unmet need, women with unmet need for spacing, and women with unmet need for limiting, based on her stated fertility intentions.

The algorithm for calculating unmet need was most recently revised in 2012 for some minor adjustments and standardization purposes. A group of technical experts advised the revision, which included removing calendar data and questions about how happy or how much of a problem a pregnancy would be for the woman (Bradley & Casterline, 2014). Identification of infecund women was adjusted, the duration for which women are considered postpartum amenorrheic was set at 24 months, and the unmet need status of pregnant or postpartum amenorrheic women was determined retrospectively (Bradley, et al., 2012).

Critiques of Assumptions, Measurement, Interpretation, and Application

Assumptions

One of the most important assumptions underlying the unmet need indicator is that a woman's response that she "doesn't want to have a child" in the next two years to mean that she "needs" contraception. The first jump in this logical ladder is the equivalency between her not *actively wanting* a child and her wanting to *prevent* a pregnancy. Though a seemingly small difference, the literature on women's fertility desires shows that it is a complex notion that cannot be captured by a single binary question and translated to mean she wants to prevent pregnancy (Huber, Esher, Garver, Banda, & Norris, 2017; Speizer & Lance, 2015; Arteaga. Caton & Gomez, 2019). A woman not actively wanting a child may mean she is indifferent or ambivalent about having a child in the next two years, as one study in Malawi categorized 44% of the women surveyed as ambivalent or indifferent about childbearing (Huber, et al., 2017). One author reports that for three sub-Saharan countries analyzed "in the 2003 survey, between a quarter and 43 percent of women who expressed a desire not to become pregnant in the next two years or longer reported that becoming pregnant in the next few weeks would be 'no problem' or 'a small problem'" suggesting complexity behind their responses to the initial question (Oas, 2016). Ambivalence about pregnancy desires and intentions is a field of continuing interest to researchers, both domestically and abroad. Though there is little consensus, with some authors suggesting ambivalence is overestimated, one conclusion is clear: women's pregnancy intentions and our ability to measure their intentions remain complicated and hotly debated (Gomez, Arteaga, Villaseñor, Arcara, & Freihart, 2019; Mumford, Sapra, King, Louis, & Buck Louis, 2016; Speizer & Lance, 2015; Huber, et al., 2017).

Once it is assumed that the woman wants to prevent her pregnancy, unmet need's second assumption is that this woman wants contraception. Though the desire to prevent pregnancy and the desire for contraception are related, they are not one in the same. The rights-based framework that unmet need is intended to affirm is rooted in the principle that women should be able to practice contraception *if* they want to. However, the algorithm conflates a woman's fertility desires with her contraceptive desires. A woman who does not want to get pregnant may also not want to use contraception, though she would be considered to have unmet need because she does not want to get pregnant. Bradley defends this aspect of the indicator's calculation as an inherently hypothetical estimate: "at the population level, how much would [contraceptive] prevalence increase if all women perfectly implemented their current fertility preferences?" (Bradley & Casterline, 2014).

Measurement

How to accurately measure unmet need has been a topic of debate since Westoff first named the concept in 1978, afterwards testing several different approaches for measurement (Casterline & Sinding, 2000). Since then DHS has revised the algorithm five times and professionals across the family planning field have debated the metric's strengths and weaknesses (Bradley & Casterline, 2014). One of the most common concerns with its measurement pertains to the denominator used. Most commonly, the denominator for unmet need is married or cohabitating women. While the indicator can include unmarried, sexually active women, this is less common than estimates with married women because unmarried women in some countries are not asked if they are sexually active. Estimates among unmarried women may also be less reliable due to stigma associated with unmarried sex causes downward biases and underreporting (Bradley & Casterline, 2014).

Relatedly, the way a woman's exposure to or risk for pregnancy is determined has also been questioned. The current calculation considers all married women sexually active, however DHS survey data reveal that women commonly cite "not having sex" and "infrequent sex" as important reasons for contraceptive nonuse (Sedgh, et al., 2016). Indeed, infrequent or no sex is cited by approximately one-third of women with unmet need in Asia and in Latin America and the Caribbean and by about one-fifth of women with unmet need in Africa (Sedgh, et al., 2016). That same analysis also showed that women who cited sexual activity as their reason for nonuse were less likely to have had sex in the past three months than women who cited other reasons for contraceptive nonuse (Sedgh, et al., 2016; Cleland, et al., 2014). In Bradley and Casterline's paper, they tested this assumption, and found that if unmet need were to consider women's reported sexual activity in its calculation, the estimates for married women would fall, on average by 3.4 percentage points, representing a 16% decrease (2012).

Another common point of debate is the indicator's categorization of pregnant and amenorrheic women (up to 24 months after giving birth), who are classified based on their retrospective intendedness of conception. The idea that a pregnant or amenorrheic woman, with no current need for contraception, can be counted as having unmet need is a point of contention for some (Pritchett, 1994). This calculation has been explained by the algorithm's design to calculate aggregate level fertility levels and contraceptive need (Bradley & Casterline, 2014). While others call for a more expansive consideration of unmet need among postpartum women, considering women are not entirely protected from pregnancy up to 24 months after birth and may be in need of contraception (Bradley & Casterline, 2014; Cleland et al., 2014; Cleland, Shah, & Benova, 2015; Ross & Winfrey, 2001).

Interpretation

The interpretation and use of the indicator can also be controversial. Both the UN and the WHO interpret this indicator as pointing to "the gap between women's reproductive intentions and their contraceptive behavior" (WHO, 2019; United Nations, 2014). However, more commonly unmet need has two interpretations: (1) unmet demand for family planning (2) the number of women who want contraception but can't access it (ECLAC, 2019; Marie Stopes International, 2019). These two interpretations shift from the technical definition of "reproductive intentions" and "contraceptive behaviors" to suggesting that the metric directly measure women *wanting* contraception. In fact, Measure Evaluation uses the terms "unmet need" and "unmet demand" interchangeably, and the very use of the unmet need estimate in the denominator of the newer "demand for family planning satisfied" indicator implies it measures unmet demand (2019)[2]. A more recent publication from the UN has used the two terms synonymously as well, and academics in reproductive health have commented on the "elevation" of "unmet need' to "unmet demand" (ECLAC, 2019; Oas, 2017). Proponents of the indicator argue that these criticisms are based in misunderstandings of unmet need and acknowledge that it is often misused (Bradley & Casterline, 2014). However, if the common interpretation of the indicator and its use has changed and is understood as "unmet demand", then the misalignment between the measurement and intended interpretation is an issue. The interpretation and use of unmet need estimates as

[2] Demand Satisfied has become the preferred indicator of family planning programs, taking precedence over both Unmet Need and Contraceptive Prevalence Rate (CPR) for monitoring the Sustainable Development Goals. However, both CPR and Unmet Need are used to calculate Demand Satisfied. The new indicator is an improvement to monitoring goals related to family planning, as it suggests that the goals set for reproductive health targets should be contextualized within a country's demand for family planning. While this is a step toward progress, the use of unmet need as the calculation for unmet demand means that the implications of treating women with "unmet need" as having "unmet demand" carry through to this new indicator (Nathe, 2016; Kali, 2016).

latent demand has transformed its meaning from its initial intention, warranting closer consideration of its measurement and implications.

Organizations and governments use unmet need as a primary justification for investment in family planning programs, often quoting the common conflation of unmet need with women's desire but inability to access family planning. On the main overview page for Marie Stopes International, the prominent global statistic for unmet need features prominently: "Right now, there are 214 million women around the world who want to use contraception but can't" (MSI, 2019). USAID quotes the same statistic to justify its own investment in global family planning programs (USAID, 2018). After the Trump administration cut reproductive health funding by reinstituting the Global Gag Rule, the Guttmacher Institute published "The Benefits of Investing in International Family Planning –and the Price of Slashing Funding" promptly brandishing the same estimate of 214 million with unmet need, whose uptake of modern contraception would mean "the numbers of unintended pregnancies, unplanned births and abortions would drop by almost three-fourths" (Barot, 2017). Both Marie Stopes and the Guttmacher Institute are reproductive health advocates and dedicated to women's reproductive rights, yet they are also either assuming that the 214 million women with unmet need want contraception or they are disregarding that women's "fertility desires" may not translate to contraceptive desires. This conflation of fertility desires and contraceptive desires can misinform programs leading to misallocated funds, misinformed targets, and its worst iterations coercive reproductive practices (Casterline & Sinding, 2000).

Application

Reproductive health advocates use estimates of unmet need to secure funding for programs to improve family planning services in various countries. These interventions can be supply-side

interventions such as training providers on family planning counseling to increasing the range of methods offered in a given clinic, or they can be demand-side interventions such as educational campaigns about where to access family planning or female empowerment programs so women are more likely to be able to negotiate the use of contraceptives should she want to. At times, organizations find that though an area has a high "unmet need" there are few women who are seeking services. Despite access to such services, given convenient programming to help women access to these services, fewer women than programmers expected would express interest in family planning. Thus, programs undertake demand-generation activities, to close the gap between the number of women seen wanting contraceptives and estimates of unmet need. One author discussed a project she worked on, stating "These programs sought to increase demand for family planning using various media outlets (e.g., radio, television, and print media) to demonstrate the benefits of family planning and promote couple discussion about family planning" (Speizer & Lance, 2015). These types of programs have become popular within family planning interventions (Speizer & Lance 2015; Speizer, Corroon, Calhoun, Lance, Montana, Nanda, & Guilkey, 2014; PSI, 2019; Family Planning Program in the Democratic Republic of the Congo, 2019; NURHI 2011).

The notion of generating demand to meet unmet need seems to follow circular logic. Consider Machiyama and Cleland's review of DHS data from Ghana, where they looked at trends in fertility and unmet need from 1988 to 2008 (2014). They looked at unmet need in terms of barriers of access or attitude, reporting that "in 2008, 45 percent of women with unmet need experienced no apparent obstacles associated with access or attitude, 32 percent had access but an unfavorable attitude, and 23 percent had no access" (Machiyama & Cleland, 2014). The authors noted that despite widespread access, well-educated, urban couples were opting to

practice periodic abstinence or other traditional methods to avoid pregnancy—and were effectively lowering overall fertility rates—due to their opposition to modern methods. Beyond educational efforts and potentially improved counseling, the authors were unsure of the appropriate "strategic response" (Machiyama & Cleland, 2014). The authors may not have strong recommendations because there were no clear barriers. Women who were highly educated, had easy geographic access, and could afford contraception were still opting not to utilize contraception, yet they are still considered to have unmet need. This attribution of need where there is not clear need, has been a central argument against the indicator since its universalization and remains a concern for many today. Lant Pritchett, an economist and Professor of International Development at Harvard University has been a prominent critic of the indicator for decades. He has called into question its name, which does not align with any definition one might expect, and points to the anomaly of saying a person "needs" something he or she does not "want". He has also asserted that the notion of unmet need

> "is symptomatic of the of the deep disrespect for women and their agency that the demographically driven family planning programs have often displayed…the fact that the movement has consistently attributed 'need' for contraception to women who have articulated reasons why they don't want it reveals the paternalistic approach inherent…overrid[ing] what [a woman] want[s] with what [she] need[s]" (Pritchett & Ozler, 2011).

The use of demand generation and the continuing debate over the interpretation of need and demand shows the importance of determining what proportion of women with unmet need actually want contraception.

Even without delving into the assumptions that underpin its measurement and application, some researchers call into question the effectiveness of the indicator's use in designing programs. Taking a more pragmatic approach, these arguments suggest that the focus on women with unmet need does not necessarily limit the number of unintended pregnancies (Jain, 1999; Jain, Obare, Rama Raom & Askew, 2013; Callahan & Becker, 2014). Anrudh Jain, a prominent reproductive health researcher with Population Council for decades, suggests that family planning programs could be more effective by "emphasiz[ing] eliminating unintended pregnancies among women who are already practicing contraception than if they focus on persuading nonusers to become users" (1999). A more recent article by Jain reexamines this contention and comes to the same conclusion. Acknowledging unmet need's theoretical roots and its limitations for operationalization in programming, the authors recommend family planning programs that support women who have "met need" to decrease the rate of contraceptive discontinuation or unintended pregnancy due to contraceptive failure (Jain, et al., 2013). The authors suggest attempting to reduce unmet need through targeting women who have used a method or are using one now "is likely to be more cost-effective because of the size of this group and because these women have already overcome attitudinal, cultural and service-related access and cost barriers that often inhibit the initiation of method use" (Jain, et al., 2013). Callahan and Becker reached a similar conclusion from a longitudinal study among rural Bangladeshi women, where three quarters of the unintended pregnancies recorded at the end of a three-year follow-up had been to women without an unmet need status at the start of the study period (2014).

Recognizing disparities between need attributed to women by researchers and women's self-perceived need, Sinai, Igras, and Lundgren, propose a supplement to the calculation for unmet

need that they believe will aid programmers in family planning intervention design (2017). This addition would categorize women into five categories—real met need (current users of a modern method), perceived met need (current users of a traditional method), real no need, perceived no need (those with a physiological need for family planning who perceive no need), and perceived unmet met need (those who realize they have a need but do not use a method)—positing that women's behaviors are more likely to be reflected in their perceived need status rather than the need status attributed to them (Sinai, Igras, & Lundgren, 2017). This formulation does not address the proportion of women who are considered to have unmet need but do not want contraception. Instead, it continues in the tradition of the standard measurement of unmet need to consider women's fertility desires and contraceptive desires to be equivalent. It's overall purposes is to better inform behavioral change programs for women with "perceived no need", but does not account for women not wanting contraception (Sinai, Igras, & Lundgren, 2017).

Reasons for Contraceptive Nonuse Among Women with Unmet Need[3]

To better understand the barriers women face and the reasons behind opting not to use contraception, Demographic Health Surveys asks women who have responded that they are not using contraception but do not want a child in the next two years why they are not using contraception (IFC International, 2011). If a woman either reports that she wants no more children or that she wants to wait two or more years before her next child, the interviewer is prompted to ask her "Can you tell me why you are not using a method to prevent pregnancy?" Any other reason?" and is instructed to record all answers (ICF International, 2011). As such, a woman is not bound to response categories and she may answer more than one reason. However, the DHS does have 22 predetermined response categories that appear across all country surveys

[3] This section draws heavily from the Guttmacher publication by Sedge, Ashford, & Hussain (2016).

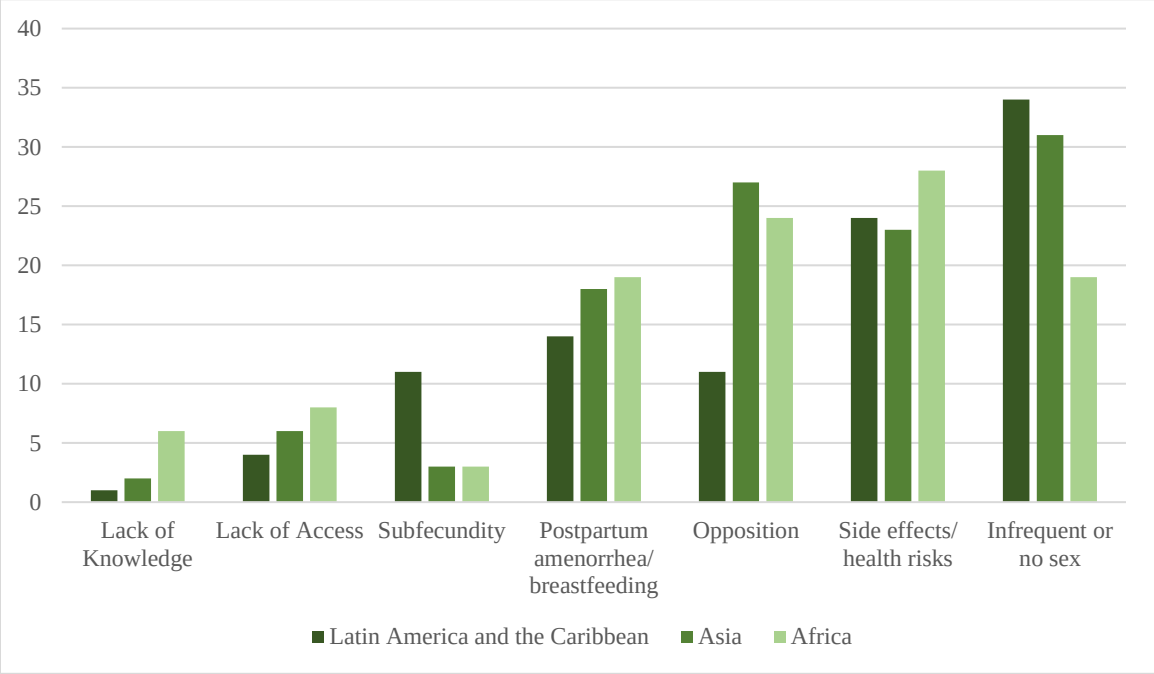
(see Table 1). These are common responses that interviewers can check off if the woman describes that option.

Table 1 Response Options for DHS Reasons for Contraceptive Nonuse Among Women who do not want a Child in the next 2 Years

Not Married	Religious prohibition
Not Having Sex	Knows no method
Infrequent Sex	Knows no source
Menopause/Hysterectomy	Fear of side effects/health concerns
Can't get pregnant	Access/too far
Not menstruated since last birth	Costs too much
Breast Feeding	Inconvenient to use
Up to God/Fatalistic	Interferes with body's normal processes
Respondent opposed	Preferred method not available
Husband opposed	No method available
Others opposed	Other

A 2016 Guttmacher review of DHS data explored women with unmet need's reasons for nonuse. One of the most significant findings from this report was that women rarely indicated that they were unaware of methods of contraception, that they were unable to access methods, or that contraceptives were too expensive (Sedgh, et al., 2016). There are several possible explanations for these low estimates. The first is that the data show that family planning programs have had a substantial impact on women's knowledge and access. The second is that women face other barriers that prevent them from citing access or cost as a reason for nonuse because they have never tried to use them (Sedgh, et al., 2016). A combination of the above factors likely contributes to the current figures.

Figure 1 Prevalence of married women aged 15-49 citing key reasons for nonuse of contraception, by region, 2006-13



Source: Sedgh & Hussain, 2014

Typically, the most commonly cited reasons for nonuse is women's level of sexual activity. A large portion of married women with unmet need report that they are not having sex or that they have sex infrequently. Bradley & Casterline explored how unmet need estimates when factoring out women who reported that they were not using contraceptive because of infrequent (or no) sex (2012). Unmet need estimates decreased an average of 3.4 percentage points, or a 16% decrease on average (Bradley & Casterline, 2014). This accounts for marked over-estimations in unmet need among married women. While women's reports of sexually activity do not put them at no risk for pregnancy, as half of the women who report infrequent sex as a reason for nonuse also report having sex in the three months prior to the survey, their risk is diminished. Indeed, in "every country, women who cite infrequent sex (or no sex) are significantly less likely to report having had sex in the three months prior to the survey, compared to women who gave other reasons" (Sedgh & Hussain, 2014). Sedgh & Hussain posit that "much of the remaining pool of women having unmet need consists of those who in fact are at relatively low risk" (2014).

Another commonly cited reason among married women for not using contraception was concerns over side effects. Concerns over side effects or health risks were cited by 26% of married women overall, but vary by region and country, ranging from 7% in Armenia to 53% in Cambodia (Sedgh, et al., 2016). Many family planning researchers and advocates dismiss these concerns as fears due to misperceptions and myths that need to be corrected through education to allow for contraceptive use (Parks, 2019; Mosha, Ruben, & Kakoko, 2013; Ochako, Mbondo, Aloo, Kaimenyi, Thompson, Temmerman, & Kays, 2015). However, while some of these feras may be misinformed, some of the same studies indicate that many of the concerns are valid side effects associated with different methods of birth control (Ochako, et al., 2015). Education to address the misinformation that persists is an important piece of family planning programming but should not supplant listening to women's concerns. The medical field has a long history of downplaying women's pain and discomfort, and to fail to differentiate between the misinformation and the genuine and valid health concerns about contraception would be a continuation down that path (Hoffman & Tarzian, 2001; Fassler, 2015; Boseley, 2017). An interrogation of the data shows that in "32 of the 48 countries for which data are available, women who cite concerns regarding side effects and health risks are significantly more likely to have used a modern method in the past than are women who cite other reasons for nonuse" (Sedgh & Hussain, 2014). Health concerns and side effects are also recognized as one of the leading causes for method discontinuation (Bradley, Schwandt, & Khan, 2009).

Opposition to contraception, which can be opposition from the woman herself, or from someone close to her, is also a leading reason for nonuse among married women with unmet need. While most reports combine any form of opposition into a single category, the data show that on average, women are more likely to cite their own opposition to contraception than to cite

someone else's (Sedgh, et al., 2016). A response related to opposition is more prevalent in countries with high levels of unmet need than countries with low levels of unmet need (Sedgh & Hussain, 2014). Opposition may stem from social values, religious or fatalistic beliefs, or disapproval of the methods themselves, though married women who cite opposition are less likely to have ever used a modern method than married women who cite any other reason (Sedgh, et al., 2016).

The fourth most common reason for nonuse among married women is postpartum amenorrhea and breastfeeding. This response is most commonly cited in Africa than other regions, possibly due to high fertility rates and long durations of breastfeeding (Sedgh, et al., 2016). A woman may select one of these reasons because she may believe she is at low risk for pregnancy or she may fear that a hormonal method would negatively impact her ability to breastfeed. Alternatively, in some regions there is a cultural expectation that a woman be abstinent after giving birth, so she may not be using contraception due to these social norms (Sedgh & Hussain, 2014). Despite the limited protection offered by lactational amenorrhea, the current algorithm allows women to be considered amenorrheic up to 24 months postpartum (Bradley & Casterline, 2014; Cleland et al., 2014; Cleland, et al., 2015; Ross & Winfrey, 2001).

Though lack of access, or women's inability to practice contraception, is often the narrative that surrounds unmet need, it is clear that lack of access makes up a very small portion of women's reasons for nonuse. Instead, women more commonly choose not to use contraception based on perceptions of their risk of pregnancy, their concerns over side effects from methods, and their opposition to contraception.

Chapter Three: Manuscript

Student Contribution

Thesis committee member, Dr. Leigh Senderowicz, conceptualized the need for this analysis. The graduate student researcher developed study objectives and identified analysis methodologies to be employed. The student researcher performed the quantitative analysis and wrote the entirety of this thesis and manuscript, with feedback from the thesis committee. The intended journal of submission for this manuscript is *Studies in Family Planning.*

Introduction

Unmet need for family planning has been a central indicator in international family planning for decades (Westoff, 1978; Bradley & Casterline, 2014). The indicator gained popularity at the 1994 International Council for Population and Development, serving as a bridge between groups that had previously had disparate views on fertility-related policies: those motivated by demographic and economic concerns to pursue fertility reduction and those motivated by feminist concerns to protect women's reproductive choices from coercion (Bradley & Casterline, 2014; Cleland, Harbison, & Shah, 2014). Unmet need had a stated interest in women's fertility desires which addressed the concerns of women's groups, but satisfying unmet need would also accomplish most of the previously stated fertility reduction goals (Casterline & Sinding, 2000; Cleland et al., 2014). Despite its prominence in the global reproductive health field, both critics and proponents of the measurements have cautioned about limitations to the metric's conceptualization, validity, and measurement approach since its inception. One particularly important point of debate surrounds the intuitive interpretation of the term "unmet need," leading many to interpret the indicator as lack of access to contraceptives or "unmet demand" (Sedgh, Ashford, & Hussain, 2016; ECLAC 2019; Measure Evaluation, 2019). However, a recent Guttmacher analysis of Demographic Health Surveys data shows that lack of access or cost barriers actually account for a small proportion of unmet need, less than 10% in most countries, and that some women considered to have unmet need do not intend to use contraception in the future (Sedgh, et al., 2016). Thus, there is an important gap between the number of women that are considered to have unmet need by researchers, and the number of women who desire contraception. This gap is the portion of women with unmet need who do not have an unmet demand, because they have no demand for family planning. Reasons for nonuse of contraception contributing to unmet need include a mix of factors stemming from the supply side (lack of

access, cost, etc.) and the demand side (infrequent sex, opposition to use, etc.). The distinction between the roots of these reasons for nonuse is significant because women who are not using contraception because of supply-side reasons are women who have unmet demand whereas women who are not using contraception for demand-side reasons may not want to use contraception. The proportion of unmet need that is due to demand-side reasons versus a lack of access, or supply-side reasons, has not been explicitly parsed out. The objective of this paper is to explore the proportion of unmet need that is representative of women who want to use family planning but cannot, offering estimates of "supply-side unmet need" by removing women who are considered to have unmet need due to demand-side reasons.

Background

Women who are considered to have unmet need by researchers are "those who are fecund and sexually active but are not using any method of contraception, and report not wanting more children or wanting to delay the next child" (WHO, 2019). Using 15 survey questions, DHS separates women who are currently using contraception, women who are pregnant or postpartum amenorrheic and women who are infecund, leaving women who are fecund and not taking contraception in one group. This group, group 4, is where women are separated in women with no unmet need or unmet need for spacing or limiting. (Bradley, Croft, Fishel, & Westoff, 2012).

Scholars have debated the indicator's assumptions, measurement, interpretation, and application throughout its decades of use and occasional revisions. One of the most important assumptions underlying the unmet need indicator is that a woman's response that she "doesn't want to have a child" in the next two years to mean that she "needs" contraception. The algorithms assumes that a woman who doesn't want to have a child means she wants to proactively prevent a pregnancy, which is not necessarily true given the complexity of fertility desires, pregnancy planning, and

ambivalence towards pregnancy intentions (Huber, Esher, Garver, Banda, & Norris, 2017; Speizer & Lance, 2015; Arteaga. Caton & Gomez, 2019; Gomez, Arteaga, Villaseñor, Arcara, & Freihart, 2019; Mumford, Sapra, King, Louis, & Buck Louis, 2016). If the question more accurately measured women's desire to prevent pregnancy, it still would make the assumption that she wants to do so using contraception. Though the desire to prevent pregnancy and the desire for contraception are related, they are not one in the same. The rights-based framework that unmet need is intended to affirm is rooted in the principle that women should be able to practice contraception *if* they want to. However, the algorithm conflates a woman's fertility desires with her contraceptive desires. A woman who does not want to get pregnant may also not want to use contraception, though she would be considered to have unmet need because she does not want to get pregnant.

How to accurately measure unmet need has also been a topic of debate since Westoff first named the concept in 1978, afterwards testing several approaches for measurement (Casterline & Sinding, 2000). While the metric can be applied to unmarried women, most typically the denominator is married and cohabitating women (Bradley & Casterline, 2014). This is because the algorithm assumes that married women are sexually active and in many countries there is a social taboo around unmarried women being sexually active. Another common point of debate is the indicator's categorization of pregnant and amenorrheic women (up to 24 months after giving birth), who are classified based on their retrospective intendedness of conception (Bradley, et al., 2012). Some question currently pregnant women's classification of unmet need, while others call for a more expansive consideration of unmet need among postpartum women, considering women are not entirely protected from pregnancy up to 24 months after birth and may be in need

of contraception (Pritchett, 1994; Bradley & Casterline, 2014; Cleland et al., 2014; Cleland, Shah, & Benova, 2015; Ross & Winfrey, 2001).

The interpretation and application of the indicator can also be controversial. Both the UN and the WHO interpret this indicator as pointing to "the gap between women's reproductive intentions and their contraceptive behavior" (WHO, 2019; United Nations, 2014). However, more commonly, unmet need is interpreted as "unmet demand" or "the number of women who want to use contraception but cannot" (Measure Evaluation, 2019; MSI, 2019; ECLAC, 2019). Proponents of the indicator argue that these criticisms are based in misunderstandings of unmet need and acknowledge that it is often misused, but if the use of the indicator has changed then the misalignment between the measurement and intended interpretation is an issue (Bradley & Casterline, 2014). The interpretation and use of unmet need estimates as latent demand has transformed its meaning from its initial intention, warranting closer consideration of its measurement and implications.

Organizations and governments use unmet need as a primary justification for investment in family planning programs, often quoting the common conflation of unmet need with women's desire but inability to access family planning. On the main overview page for Marie Stopes International, the prominent global statistic for unmet need features prominently: "Right now, there are 214 million women around the world who want to use contraception but can't" (MSI, 2019). The calculation for unmet need, which is the number that 214 million is reporting, does not explicitly measure women who want contraceptives or whether women can use them. In fact, organizations often find that though an area has a high "unmet need" there are few women who are seeking those services. Despite access to such services, given convenient programming to help women access family planning, fewer women than programmers expected express interest

in family planning. Finding a lack of demand, programs undertake demand-generation activities, to close the gap between the number of women seen wanting contraceptives and estimates of unmet need (Speizer & Lance, 2015; Speizer, Corroon, Calhoun, Lance, Montana, Nanda, & Guilkey, 2014; PSI, 2019; Family Planning Program in the Democratic Republic of the Congo, 2019; NURHI 2011).

Some researchers call into question the effectiveness of the indicator's use in designing programs, suggesting that the focus on women with unmet need does not necessarily limit the number of unintended pregnancies (Jain, 1999; Jain, Obare, Rama Raom & Askew, 2013; Callahan & Becker, 2014). Arundh Jain, a prominent reproductive health researcher with Population Council for decades, suggests that family planning programs could be more effective by supporting women who have already an expressed interest in contraceptive and may be considered to have a "met need" or have used a method in the past as they do not have similar "attitudinal barriers", such as opposition or concerns for side effects, that women with unmet need may have (Jain, et al., 2013; Jain, 1999). Callahan and Becker reached a similar conclusion from a longitudinal study among rural Bangladeshi women, where three quarters of the unintended pregnancies recorded at the end of a three-year follow-up had been to women without an unmet need status at the start of the study period (2014). Recognizing disparities between attributed need and women's perceived need, another study proposes a supplement to the calculation for unmet need that would categorize women into five categories— real met need (current users of a modern method), perceived met need (current users of a traditional method), real no need, perceived no need (those with a physiological need for family planning who perceive no need), and perceived unmet met need (those who realize they have a need but do not use a method)—positing that women's behaviors are more likely to be reflected in their

perceived need status rather than the need status attributed to them (Sinai, Igras, & Lundgren, 2017). This formulation begins to acknowledge women's perceptions in their decision-making process but does not account for their contraceptive desires when calculating need.

To better understand the barriers women face and the reasons behind opting not to use contraception, the DHS asks women who have responded that they are not using contraception but do not want a child in the next two years why they are not using contraception (IFC International, 2011). Gilda Sedgh has done extensive analyses with the data produced from women's responses to this question, both with Population Council and the Guttmacher Institute (Sedgh & Hussain, 2014; Sedgh, et al., 2016). The response categories are listed in Table 1.

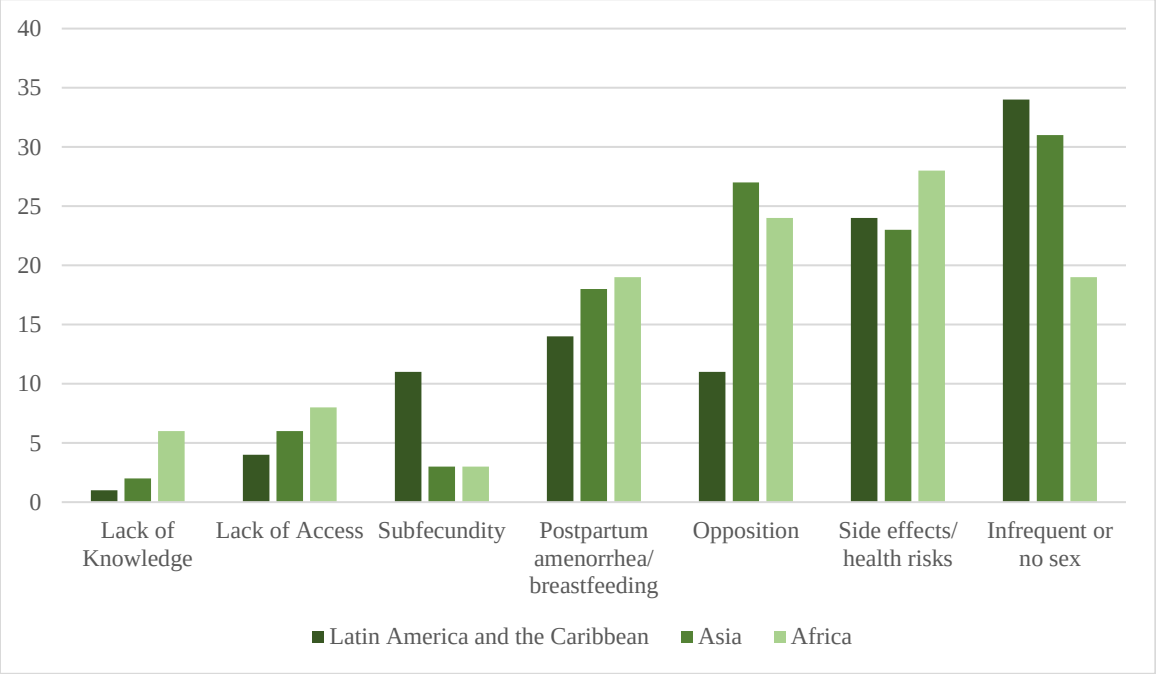
Table 2 Response Options for DHS Reasons for Contraceptive Nonuse Among Women who do not want a Child in the next 2 Years

Not Married	Religious prohibition
Not Having Sex	Knows no method
Infrequent Sex	Knows no source
Menopause/Hysterectomy	Fear of side effects/health concerns
Can't get pregnant	Access/too far
Not menstruated since last birth	Costs too much
Breast Feeding	Inconvenient to use
Up to God/Fatalistic	Interferes with body's normal processes
Respondent opposed	Preferred method not available
Husband opposed	No method available
Others opposed	Other

Sedgh's analyses, which span 7 and 9 years and 51 and 52 countries, respectively show clear trends in women's responses (Sedgh & Hussain, 2014; Sedgh, et al., 2016). The first significant finding is that women rarely cite lack of access, cost, or lack of knowledge as reasons for contraceptive nonuse. Married women's most common reasons for nonuse were infrequent or no sex, side effects or concerns about health risks, opposition-related reasons, and postpartum amenorrhea or breastfeeding (see Figure 1; Sedgh & Hussain, 2014). Some researchers posit that some of these reasons are barriers that can be overcome by better education and counseling. Several studies have pointed to myths and misconceptions persisting, despite educational efforts

(Parks, 2019; Mosha, Ruben, & Kakoko, 2013; Ochako, Mbondo, Aloo, Kaimenyi, Thompson, Temmerman, & Kays, 2015). However, some of the same studies point have results indicating that many of the concerns are valid side effects associated with different methods of birth control (Ochako, et al., 2015). Education to address the misinformation that persists is an important piece of family planning programming, as is cultivating a culture where family planning is accepted and not stigmatized, but these should not supplant listening to women's concerns or giving women space to make their own decisions (Dehlendorf, Levy, Kelley, Grumbach, & Steinauer, 2013; Higgins, 2014; Holt, Dehlendorf, & Langer, 2017). The medical field has a long history of downplaying women's pain and discomfort, and to fail to differentiate between the misinformation and the genuine and valid health concerns about contraception would be a continuation down that path (Hoffman & Tarzian, 2001; Fassler, 2015; Boseley, 2017). An interrogation of the data shows that women's reasons for nonuse are likely to based in their experiences. Women who cite infrequent or no sex are less likely to have had sex in the three months prior to the survey than women who cited another reason—suggesting they really are at lower risk for pregnancy—and women who cite health concerns or side effects are more likely to have used a modern method in the past compared to women who cite any other reason, indicative that their concerns may be based in their own experience with contraception (Sedgh & Hussain, 2014; Sedgh, et al. 2016; Cleland, et al., 2014).

Figure 1 Prevalence of married women aged 15-49 citing key reasons for nonuse of contraception, by region, 2006-13



Source: Sedgh & Hussain, 2014

Though lack of access, or women's inability to practice contraception, is often the narrative that surrounds unmet need, lack of access makes up a small portion of women's reasons for nonuse. Instead, women more commonly choose not to use contraception based on perceptions of their risk of pregnancy, their concerns over side effects from methods, and their opposition to contraception.

Methods

In order to investigate how to realign unmet need's measurement to calculate women who wanted to use contraception but could not, this analysis tested three interpretations of contraceptive desire. This analysis removed demand-side unmet as women with a lack of demand for contraception should not be considered to have an unmet demand. Thus, supply-side unmet need was designed to be a more appropriate representation of what the metric purports to measure. Women with demand-side unmet need do not have a *demand* for contraception and represent the gap between the current measure for unmet need and women who truly have a need

and desire for contraceptives but cannot access family planning (see Figure 3). This project tested three approaches to calculating supply-side unmet need, applied these calculations to the DHS data files for seven countries, and compared the results to the traditional estimates for unmet need.

Figure 2 Graphic depiction of supply-side vs. demand-side unmet need

This analysis was conducted using data from the Demographic and Health Surveys (DHS). The most recent complete full survey was used from each of the following countries: Burkina Faso (2010), Chad (2014-2015), Cote d'Ivoire (2011-2012), Democratic Republic of the Congo (2012-2014), Kenya (2014), Nigeria (2013), and Uganda (2016). The countries selected were chosen to investigate how the estimates change across various sexual and reproductive health contexts within African countries. For instance, Burkina Faso was selected for its affiliation with the Ouagadougou Partnership and Nigeria for being the most populous country in Africa. Kenya and DRC were selected as representative of two countries on opposite side of the spectrum in terms of unmet need, contraceptive prevalence, and demand satisfied (Family Planning 2020, 2019).

This analysis rests on the responses to the question that the DHS asks of all women of reproductive age who are not currently using a contraceptive method and respond that (1) they

want to wait two or more years before having a/another child or (2) they want no more children (IFC International, 2011). If a woman falls into one of these two categories, the interviewer is prompted to ask her "Can you tell me why you are not using a method to prevent pregnancy?" Any other reason?" and is prompted to record all answers (ICF International, 2011). As such, a woman is not bound to response categories and she may answer more than one reason. However, the DHS does have 22 predetermined response categories that appear across all country surveys (see Table 1). These are common responses that interviewers can check off if the woman describes that option. In a 2007 publication on Unmet Need for Family Planning, the DHS groups the reasons for nonuse of contraception into six groups, listed in Table 2 (Khan, Shane, Mishra, Arnold & Abderrahim, 2007).

Table 3 DHS Grouping for Reasons for Nonuse

Group	Reason for Nonuse
Exposure	• Not having sex • Infrequent sex
Fertility-Related	• Menopausal • Sub-fecund • Postpartum amenorrehic • Breastfeeding
Opposed	• Religious reasons • Respondent or husband opposed • Fatalistic
Knowledge Issues	• Knows no method • Knows no source
Health Reasons	• Concern about side effects • General health concerns about use
Other Reasons	• Access • Cost • Convenience

These six groups serve as a useful framework for two reasons. The first reason is the way that the DHS has grouped the reasons offer insight into how the institution thinks about women's reasons for nonuse. Of note, one response category does not fit in any of the above groupings: "not married". Interestingly, the reasons most commonly associated with how people think about

unmet need (cannot access, too far, too expensive, etc.) are listed simply in the "other" category, rather than a group called "access issues" or something similar. Perhaps this was an intentional choice, as the indicator's interpretation suggests that all women with unmet need do not have access to some degree, whether that's due to physical barriers, financial barrier, or psychosocial barriers. The groupings also choose to aggregate all reasons related to opposition, equating a woman's personal or religions opposition to that of her husband or another. Opposition is the barrier to be overcome, regardless of who is opposed. The second reason this framework is useful is because the categorization of supply-side and demand-side reasons will be discussed in terms of these groups. As each approach is discussed and describes the reasons included in its calculation or separated as a demand-related issue, the groups in Table 1 will serve as a simpler way to identify some sets of reasons.

Calculating Supply-Side Unmet Need

Using STATA/SE 15.1 software for statistical analysis, this analysis changed the algorithm for unmet need, creating three distinct approaches to supply-side unmet need. The calculation creates two new variables in order to distinguish between fertility desires and contraceptive desires: one to represent actively *wanting* contraception and one to represent actively *not wanting* contraception. The first variable, "wanted," represents *wanting* contraception and corresponds with reasons associated with supply-side unmet need. If a woman answered "yes" to any of the responses that fell under "wanted" she would be marked for unmet need. Because women could offer multiple reasons for nonuse, if a woman names any criteria related to lack of access, she is assigned to that category, regardless of any other reasons she names. The choice to have "wanted" reasons override any other reasons was made to ensure that access issues are

identified in the algorithm. Issues of access need to be addressed before women can freely make the decision of whether she will use contraception (Bernstein & Edouard, 2007).

These new variables were introduced before fecund women (Group 4 in Bradley and Casterline's algorithm) were assigned their unmet need status. The new variables became additional parameters to be met before a woman was specified as unmet need for spacing, unmet need for limiting, or no unmet need. The first two groups required the woman to either have answered yes to one of the "wanted" responses, or to not have responded yes to any of the "not wanted" responses (i.e. missing or negative values for all "not wanted" options). This means that women that did not offer a reason for not using contraception were still given the default of having an unmet need either in spacing or limiting. Women were considered to have "no unmet need" if they answered "yes" to any of the "not wanted" responses and did not respond affirmatively to any of the "wanted" responses, indicating that they only selected reasons related to not wanting contraception.

The analysis tested three approaches to measuring supply-side unmet need, adjusting the interpretation of "wanted" for each approach. The three approaches, depicted in Figure 4, build on one another, i.e. all responses considered "wanted" in Approach A were also considered "wanted" in Approach B, with additional reasons added. Responses that were coded as "wanted" corresponded with the responses that were selected for each approach of supply-side unmet need. For example, Approach A to supply-side unmet need indicates that reasons for nonuse related to access (i.e. knows no method, knows no source, lack of access/too far, costs too much, preferred method not available, no method available, and inconvenient to use) are considered as the supply-side reasons for use and thus coded as "wanted" in the calculation for Approach A. The responses added at each stage fell into three categories. Approach A includes women who

expressed wanting contraception if they did not use it because they couldn't access it. Approach B includes all of the criteria in Approach A, and adds women who responded they did not use contraception because others did not want them to. Approach C includes the criteria in both Approaches A and B, and add women who responded that they did not use contraception because they were concerned about side effects. The categorization of supply-side versus demand-side reasons for nonuse for each approach can be found in Table 3.

Approach A is the least conservative estimate of supply-side unmet need, in relation to the traditional indicator. It includes reasons that fall under the DHS groupings for "Knowledge Issues" and "Other Reasons" (Table 2). These two groups were considered because they have the strongest implication that the woman might *want* to be using contraception but lacks real access. If a woman offers a reason from these categories, she may have considered or attempted to start contraception before but encountered one of these barriers. This grouping served as the most direct measure for the common understanding of unmet need: a lack of access. Since previous research has found that this data source "likely underestimates the prevalence of [cost and access] barrier[s] because other reasons discourage women from even trying to obtain services" (Sedgh, et al., 2016) Approach A to supply-side unmet need may underestimate the number of women who want contraception but cannot access it. However, for the purposes of this analysis, the distinction between women's demand-side reasons for non-use and supply-side reasons is paramount. If a woman does not proffer a reason for nonuse related to cost or access, it may also be because she has never considered accessing contraception due to her own demand-side reasons, such as personal opposition or infrequent sex. In estimating the proportion of unmet need driven by supply-side barriers, it's important to consider that women may not point to

access barriers not because they are "discourage[d]" by other reasons, but because they do not want to access contraception in the first place.

Figure 3 Reasons for Nonuse included in supply-side unmet need by Approach

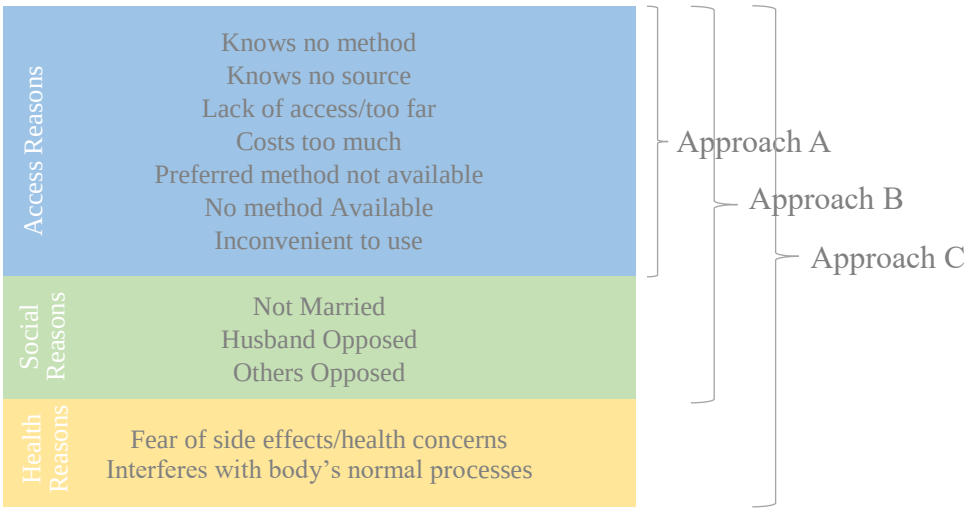


Table 4. Reasons coded for each Approach

Approach A		Approach B		Approach C	
Supply-Side	**Demand-Side**	**Supply-Side**	**Demand-Side**	**Supply-Side**	**Demand-Side**
Knows no method	Not married	Knows no method	Not having sex	Knows no method	Not having sex
Knows no source	Not having sex	Knows no source	Infrequent sex	Knows no source	Infrequent sex
Lack of access/too far	Infrequent sex	Lack of access/too far	Up to God/fatalistic	Lack of access/too far	Up to God/fatalistic
Costs too much	Up to God/fatalistic	Costs too much	Respondent opposed	Costs too much	Respondent opposed
Preferred method not available	Respondent opposed	Preferred method not available	Religious prohibition	Preferred method not available	Religious prohibition
No method available	Husband opposed	No method available	Fear of side effects/health concerns	No method available	Breastfeeding
Inconvenient to use	Others opposed	Inconvenient to use	Interferes with body's normal processes	Inconvenient to use	
	Religious prohibition	Not married	Breastfeeding	Not married	
	Breastfeeding	Husband opposed		Husband opposed	
	Interferes with body's normal processes	Others opposed		Others opposed	
	Fear of side effects/health concerns			Fear of side effects/health concerns	
				Interferes with body's normal processes	

Approach B for supply-side unmet need, offered an estimate that included the reasons from Approach A, as well as reasons that can be interpreted as a woman wanting contraception but not being able to access it because of influence from outside actors. From the framework in Table 1, it includes two reasons from the "opposition" bin and the sole response that did not neatly fit in

any of the six pre-determined groups: “not married”. These responses were included in the second iteration because acting together with the responses included in the former, they represent the reasons outside of a woman that might impact her ability to access contraception despite a desire to do so. It allows for a slightly more conservative interpretation of women’s contraceptive desires than Approach A, including responses that do not explicitly link to a lack of access. However, the responses added for Approach B are closely associated with the societal and cultural norms that can create barriers for women to access reproductive health services. They were not included in the first approach because too much of the discourse surrounding family planning is centered on changing perspectives, cultural values, and encouraging women’s uptake of contraceptives through demand-creation activities. Nevertheless, women do still face barriers, restricted autonomy, and stigma related to obtaining sexual and reproductive health and thus these are accounted for in Approach B. The first measure allows an estimate for access-related barriers, and the second offers an estimate that includes potential barriers depending on the woman’s perspective.

Approach C for supply-side unmet need is the closest in formulation to the traditional measure and thus is the most conservative estimate. It continued to keep issues of access, knowledge, and social pressure, and added any reasons a woman is not using contraceptives related health. Health concerns was the last to be included as an indication of a woman wanting contraception because many women who cite reasons related to health concerns may not have any desire to seek contraception services if they were readily available and convenient, as accessible services do not address their concerns of side effects. Though this analysis is modeled around trusting women’s contraceptive decisions and preferences, there is a limit to the information to which women have access. This most conservative approach was tested to see the impact on estimates

if all women citing reasons related to health concerns were included, with the logic that women afraid of side effects may want contraception if they had access to better information and improved quality of services.

Six responses were coded as contraception not wanted in all three models. This analysis considers these six reasons to be demand-side reasons for nonuse, consisting of the remaining reasons in the "opposition" group of reasons as well as "exposure" related reasons. In addition, one reason from "fertility-related" was considered as *not wanted* at all times: breastfeeding. The remaining reasons grouped under opposition were most directly indicative of a woman not wanting contraception, as she herself was opposed to contraceptives she had no unmet need despite a despite her desire to prevent pregnancy. Exposure related reasons were considered indications of a woman not wanting contraception because it suggests that if she considered herself at great enough risk, she could access contraceptives, but is choosing not to because she deems her risk low enough not to warrant contraceptives.

Breastfeeding is a less clear proxy for demand of contraceptives, but because the woman responded that she is not using contraceptives for this reason, she likely has thought about contraception and chosen not to use it, thus meaning she has no unmet need. She may need contraceptive services in the future, either after the lactational amenorrhea method's (LAM) effectiveness wanes or she stops breastfeeding and decides she wants to begin contraceptives for any other reason. The data indicate that many women who respond with "breastfeeding" are not actually within the six months of protection for LAM to be effective (Sedgh & Hussain, 2014). Some proportion of these women may want to use contraceptives but not realize that their coverage from LAM has ended, while others still do not want to use contraceptives. Without asking women whether they want contraceptives, distinguishing between this group of

respondents is not feasible. Because this analysis rested on the premise that women who offer reasons for nonuse that are not clearly associated with barriers outside of themselves likely do not want contraceptives and thus do not have unmet need, women who respond breastfeeding were universally specified as “not wanted” for contraception.

The remaining response categories in “fertility-related reasons” were excluded from this analysis as women with these responses were not assigned unmet need, but were assigned to groups two or three (pregnant/postpartum or infecund).

These three approaches for supply-side unmet need and the original calculation for unmet need were applied to the DHS datasets for the seven African countries listed. The analysis was run in STATA on all data files; 95% confidence intervals were produced and compared for significance.

Results

The estimates for supply-side unmet need offered three alternative estimates, shown in Table 3. All three of these estimates are lower than the original measure, as each one removed women considered to have demand-side unmet need. The values range from 4.11% (3.84%-4.41%). When applied, Approach A had the biggest impact on Burkina Faso, decreasing the conventional unmet need estimate nearly 15 percentage points, representing a 59% decrease. On average, these countries saw a 9.3 point decrease.

The estimates for Approach B, which includes women that may have unmet need due to social pressures, range from 4.47% (4.18%-4.77%) in Kenya to 20.45% (19.74%-21.18%) in DRC among married women. The largest percentile point difference between the original estimate for unmet need and Approach B to supply-side unmet need among married women was found in

Burkina Faso, which decreased from 24.5% to 13.24%. On average, Approach B to supply-side unmet need reduced estimates by 7 percentage points.

Finally, the estimates for unmet need among married women range from 6.65% (6.3%-7.02%) in Kenya to 22.84% (22.07%-23.62%) in Uganda when the algorithm also includes women who list health concerns as the reason she is currently not using contraception, as in Approach C. This approach, which conceptualized "wanted" most broadly and is closest to the original estimate for unmet need, saw reductions of over 5 percentage points, on average.

Table 5. Revised estimates of unmet need in select countries

		Conventional Unmet Need	**Approach A for supply-side unmet need**	**Approach B for supply-side unmet need**	**Approach C for supply-side unmet need**
Burkina Faso	Married	24.50 (23.79-25.24)	9.94 (9.45-10.46)	13.24 (12.68-13.82)	16.02 (15.41-16.65)
	Unmarried Sexually Active	31.75 (27.05-36.85)	25.22 (20.92-30.07)	27.89 (23.41-32.85)	29.25 (24.69-34.27)
	All	20.43 (19.83-21.04)	8.74 (8.33-9.17)	11.41 (10.94-11.90)	13.65 (13.14-14.17)
Chad	Married	22.93 (22.23-23.66)	14.44 (13.86-15.05)	15.75 (15.14-16.38)	16.61 (15.99-17.25)
	Unmarried Sexually Active	56.49 (51.35-61.49)	46.39 (41.33-51.53)	49.66 (44.55-45.77)	50.0 (44.89-55.12)
	All	18.58 (18.02-19.16)	12.02 (11.55-12.51)	13.06 (12.57-13.57)	13.72 (13.22-14.23)
Cote d'Ivoire	Married	27.12 (26.04-28.24)	16.30 (15.41-17.24)	18.35 (17.42-19.33)	21.77 (20.77-22.81)
	Unmarried Sexually Active	43.92 (41.11-46.77)	33.18 (30.55-35.92)	36.43 (33.74-39.22)	40.95 (38.18-43.78)
	All	23.54 (22.72-24.38)	15.49 (14.8-16.21)	17.16 (16.44-17.91)	19.84 (19.07-20.63)
Democratic Republic of the Congo	Married	27.67 (26.88-28.48)	18.64 (17.96-19.35)	20.45 (19.74-21.18)	22.52 (21.79-23.27)
	Unmarried Sexually Active	42.78 (40.13-45.47)	33.20 (30.71-35.80)	36.6 (34.03-39.24)	39.53 (36.92-42.2)
	All	22.45 (21.86-23.05)	15.98 (15.46-16.51)	17.37 (16.84-19.92)	19.91 (19.36-19.47)
Kenya	Married	8.21 (7.82-8.62)	4.11 (3.84-4.41)	4.47 (4.18-4.77)	6.65 (6.30-7.02)
	Unmarried Sexually Active	26.43 (23.0-30.17)	7.87 (5.94-10.36)	14.51 (11.87-17.62)	18.54 (15.58-21.91)
	All	6.02 (5.76-6.29)	3.23 (3.04-3.43)	3.56 (3.36-3.77)	4.94 (4.71-5.19)
Nigeria	Married	16.0 (15.67-16.54)	8.21 (7.89-8.54)	9.39 (9.05-9.74)	11.17 (10.81-11.55)
	Unmarried Sexually Active	21.77 (19.80-23.88)	18.69 (16.84-20.69)	19.54 (17.66-21.58)	20.19 (18.28-22.24)
	All	12.73 (12.41-13.07)	6.97 (6.72-7.23)	7.85 (7.59-8.12)	9.15 (8.87-9.44)

Uganda	Married	28.36 (27.53-29.2)	18.25 (17.54-18.97)	19.65 (18.93-20.4)	22.84 (22.07-23.62)
	Unmarried Sexually Active	31.93 (28.98-35.03)	13.97 (11.87-16.38)	18.77 (16.37-21.44)	21.57 (19.02-24.36)
	All	20.43 (19.85-21.01)	13.41 (12.92-13.90)	14.5 (14-15.01)	16.57 (16.04-17.11)

The magnitude of these decreases varied by population and by country. The greatest declines were seen between the original estimate and the Approach A, the least conservative iteration of the supply-side unmet need calculation. Reductions in the measure for unmet need were greatest in Burkina Faso and the least in the Democratic Republic of the Congo in all categories. Reductions among married women are reported in Table 4, as this is the most commonly reported population for unmet need. The percent change measures in Table 4 also represent the percent of the original unmet need calculation that was attributed to demand-side reasons for non-use in each approach. In Burkina Faso Approach B suggests that nearly 46% of the married women in Burkina Faso who are said to have unmet need do not want contraception. This table is also representative of the importance of the incremental decreases reported above. For instance, though Kenya's change of 3.74% from the original estimate to the estimate for Approach B may seem small compared to the 7.22 point difference in DRC, it represents a 45.55% decrease in unmet need versus a 26.09% decrease in unmet need estimate in DRC.

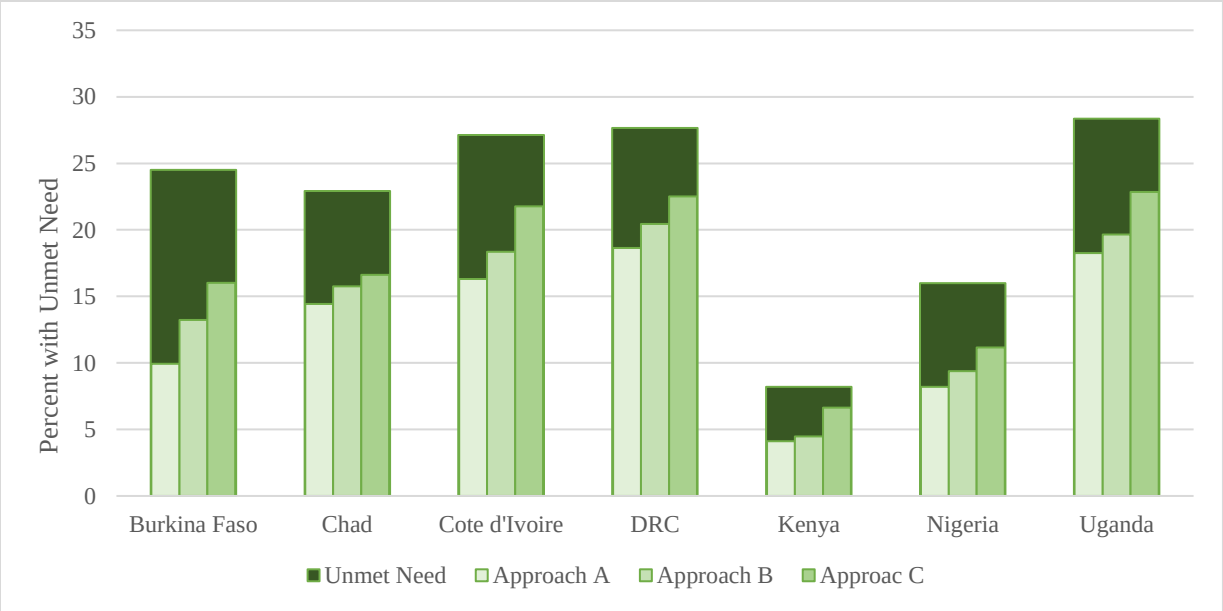
Table 6 Percent Change between Unmet Need and supply-side unmet need by Approach

	Burkina Faso	**Chad**	**Cote d'Ivoire**	**DRC**	**Kenya**	**Nigeria**	**Uganda**
Approach A	59.43%	37.03%	39.9%	32.64%	49.94%	48.69%	35.65%
Approach B	45.96%	31.31%	32.34%	26.09%	45.55%	41.31%	30.71%
Approach C	34.61%	27.56%	19.73%	18.61%	19.00%	30.19%	19.46%

Comparing the estimates for each approach for supply-side unmet need with the original estimate for unmet need shows that typically, the greatest difference between the estimates is seen between Approach C and the original estimate. Though some countries and subpopulations see

greater differences between approaches for supply-side unmet need. The comparison of these estimates within each country can be seen in Figure 2, where the different approaches to supply-side unmet need is overlaid on the original unmet need estimate. The dark green area represents the demand-side unmet need that constitutes the remainder of unmet need.

Figure 4 Supply-Side Unmet Need vs. Overall Unmet Need among Married Women



Estimates for unmarried, sexually active women follow a similar pattern across the countries, though the estimates are universally higher than those estimates of supply-side unmet need among married women from the same country. This follows the same trend as the original calculation for unmet need. Similarly, as with the original measure for unmet need, the supply-side unmet need calculations for all women in a given country is typically lower than that of married women or unmarried, sexually active women.

The estimates of need for contraception were reduced for all categories in all countries when the algorithms were applied. Looking at the confidence intervals produced for each estimate, the differences between the original estimate and the three approaches for supply-side unmet need are statistically significant ($p<.05$) for all countries among married women and all women, as the

confidence intervals do not overlap. The significance when comparing the estimates among unmarried, sexually active women vary based on country, with some confidence intervals for the original metric of unmet need and the various approaches for supply-side unmet need overlapping. Kenya and Uganda show significant differences across all three approaches for supply-side unmet need among unmarried, sexually active women. Cote d'Ivoire and the Democratic Republic of the Congo showed statistical differences to the original estimate among this population only at for Approaches A and B, but not when health concerns were included in Approach C. Burkina Faso, Chad, and Nigeria showed insignificant differences between the original estimate and all three approaches to calculating supply-side unmet need among unmarried women who are sexually active.

Discussion

Findings and Interpretations

The analysis shows that a significant proportion of women with unmet need can be considered, under various interpretations, to not want contraception. In some instances, this proportion accounts for more than half of attributed unmet need, though more commonly constitutes a significant minority. Indicating that there is a substantial proportion of the population that is considered to have unmet need, despite having no expressed interest in contraception. The three interpretations of demand for contraceptives showed a range of estimates for women who want to use contraception but cannot, and even the most conservative model (Approach C) shows a substantial gap between supply-side unmet need and traditional unmet need estimates.

Among married women, the three approaches produced statistically significant differences for each estimate, indicating that the three approaches could be used in tandem to distinguish the proportion of a country's unmet need that falls into each interpretation of demand for

contraception. Approach A is reflective of barriers that can be addressed directly through programming, showing the proportion of women who do not use contraception because of issues of geographic distance, method selection, awareness, and cost. This metric can be used to help justify programs for service quality improvement related to method expansion, supply chain management, subsidies for methods, and transportation services or method delivery projects. Approach B includes the former reasons and adds outside social pressure, indicating that there is a culture surrounding her that is no conducive to contraceptive use. Approach C reflects all reasons that are related to the methods or outside barriers. This metric is useful for measuring the number of women who would use contraception under better conditions. Women who fear side effects are choosing not to use contraception for method-related reasons, which can also be addressed by family planning researchers and advocates—both by advocating for improved methods with fewer side effects and by improving education around misperceptions of existing methods.

Ultimately, this project recommends Approach B to supply-side unmet need as the best calculation to represent the proportion of women who want to use contraception but face barriers. This estimate includes all women who want contraception but are not using it because they cannot access it due to supply, cost, geography, or outside social pressures. Women citing reasons related to access as their reasons for nonuse directly align with the interpretation "want to use contraception but cannot" and should thus be included in the final measurement. The final recommended calculation also included women who responded that they were not using contraception because they were not married or because someone close to them opposed contraception because outside social pressure from the community, partner, or family is considered antithetical to a woman's reproductive rights (Hardee, Kumar, Newman, Bakamjian,

Harris, Rodriguez, & Brown, 2014). Concerns about side effects were discounted in the final recommended approach due to insufficient evidence connecting this cited reason to a woman's desire to practice contraception.

Limitations

There are two key limitations of the analysis presented. Firstly, each response option for reason for nonuse acts as a proxy for demand and does not necessarily uniformly fit within "met" or "unmet" need. In essence, this methodology still ascribes a status to women that they may no necessarily ascribe to themselves. For example, some women who are choosing not to use contraception because of fear of side effects may want contraception but had a negative experience with a method in the past and is hesitant to try a new method though she still wants to, while another woman who had a similar experience would prefer not to try any other methods but instead to continue with traditional methods or no method and risk pregnancy. Alternatively, while many women choose not to use contraception for their own religious beliefs, some women may be pressured into forsaking contraception for their religion despite their personal preferences. These variations are not captured in the above analysis and would require further research to better approximate women's demand based on their responses. Though the analysis strived to include women's contraceptive preferences in the calculation for unmet need, its ability to do so was limited by the omission of an explicit question regarding women's contraceptive desires. Common population-based surveys, like the DHS, would benefit from asking more woman-centered questions to better understand what women actually want.

A second limitation is in reference to the level of information a woman has at her disposal when making her risk assessment about pregnancy and contraception. The quality of education and counseling services can impair women's ability to make fully informed decisions about their

contraceptive desires. However, the measure for supply-side unmet need strives to measure those women that have decided—on the basis of the information they currently have—that they want to use contraception but cannot because of access or restrained autonomy. Programming that improves the quality of counseling and the information women receive about family planning may lead supply-side unmet need estimates to rise.

Implications for the Conceptualization of "Need"

Utilizing Approach B for supply-side unmet need helps to ensure that the proportion of women in a given population who want contraception is not being over-estimated. In light of the Family Planning 2020 (FP2020) initiative's ambitious quantitative uptake targets and a growing enthusiasm for long-acting reversible contraceptives (LARCs), reproductive health scholars have expressed concerns regarding inflated estimates of women's contraceptive desires and called for a commitment to ensuring women choice to practice contraception or choice of method are not being curtailed by programming tilted by certain uptake goals (RamaRao & Jain, 2015; Dehlendorf, Bellanca, & Policar, 2015).

Family planning indicators received renewed attention with the 2012 Family Planning Summit in London and the FP2020 goal, which aims to "bring voluntary family planning services to an additional 120 million women and girls by 2020" (Hardee, et al., 2014). A growing body of literature on family planning indicators has been centered around ensuring family planning programs follow a rights-based framework: ensuring adequate counseling, improving quality of services, and emphasizing the individual user and her preferences (RamaRao & Jain, 2015; Dehlendorf, et al., 2015; Holt, Dehlendorf, & Langer, 2017; Morse, Ramesh, & Jackson, 2017; Hardee, et al., 2014). Dehlendorf et al. focus on indicators related to reproductive healthcare quality, noting that "the availability and use of concrete measures of quality in specific areas of

health care can drive quality improvement and influence the degree to which these areas are prioritized by policy makers, providers of clinical services and funders of health services" (2015). RamaRao and Jain emphasize the importance of aligning "implicit intents, explicit goals, and measurable indicators" to ensure that progress is made in "a manner that upholds the rights of those affected by the initiatives" (2015). Discussions surrounding FP2020 and LARC uptake demonstrate that reproductive autonomy is paramount in today's reproductive health field and that the indicators used to monitor our progress can play a role in determining program priorities (RamaRao & Jain, 2015; Dehlendorf, et al. 2015). By realigning the measurement of unmet need to only include women who have an expressed interest in contraception, Approach B for supply-side unmet need emphasizes the individual user and her preferences.

The current unmet need indicator conceptualizes need in terms of a woman's fertility desires, whereas supply-side unmet need conceptualizes need in terms of a woman's contraceptive desires. Comparing estimates of the two conceptualizations within a given population will offer insights into that population's specific barriers and desires to better inform family planning policies and programs.

Implications for Policy and Programs

Using existing DHS data, this approach can have important implications for policy and programs. The first effect is that supply-side unmet need, which only includes women deemed to have a demand for contraception, contributes to the current shift in the overall narrative surrounding family planning. As it stands, the metric for unmet need is presumed—due to its confusion with unmet demand—to take into account that women want and need contraceptives, but the conventional calculation does not include contraceptive desire as a parameter for unmet need. By changing the indicator to include women's desire for family planning, it starts to shift

attention back to women as individual users, whose choice in contraception is paramount (RamaRao & Jain, 2015; Dehlendorf, et al., 2015; Holt et al., 2017; Morse, et al., 2017; Hardee, et al., 2014; Gomez, et al., 2014; Higgins, 2014). The current indicator is focused on an overall number of women who need contraceptives, the goal is to increase uptake not to meet women's true demand for family planning. It may be that the focus on contraceptive uptake is partially driven by the underlying goal to "eliminate unmet need" (Jain, 1999). Though eliminating unmet need may sound like a worthy goal, this analysis demonstrates that a substantial minority of women attributed with unmet need don't want contraception. Eliminating supply-side unmet need would better align with the professed goal of helping women voluntarily access family planning. Changing how we think about women and family planning when we measure and report key indicators for funders can produce a shift in priorities that will trickle down to programmatic and policy priorities. By removing women who do not want contraception, programs and policies prioritize women's preferences and cultivate a culture where women's reproductive autonomy is paramount.

The second key effect is that the indicator provides a clearer picture of the barriers faced by women in a given context. The range of estimates provided shows program planners and policy makers how women's interest in family planning relates to their attributed unmet need status. If Approach B is the accepted form of calculating supply-side unmet need and a program planner in Uganda sees that approximately 20% of married women in her country have supply-side unmet need, she knows that program priorities should rest on improving access to contraceptive services and empowering women to be able to make autonomous decisions about their reproductive healthcare. Thus, the program planner can tailor her efforts around supply chains and distribution, quality counseling, and women's empowerment. With unmet need, a program

director may see that nearly 30% of women had unmet need and be surprised by relatively low demand from women, subsequently undertaking campaigns aimed at women on the benefits of family planning or directing health workers to encourage family planning uptake as some of the activities as part of the interventions. Believing that 30% of women want contraception but can't access it may lead to a lack of direction on its causes and misguided interventions.

Some research has shown that focusing on the population with unmet need may not be the best approach to reducing unintended pregnancies, the end goal of most fertility-related programs and policies. Jain suggests that women who were considered to have "unmet need" had only a slightly higher rate of unintended pregnancies as those that were considered to have "met" need in a two year follow period (Jain, 1999). Global health interventions use unmet need as a baseline target audience and have explicit goals of increasing family planning users based on these estimates (RamaRao & Jain, 2015). The implications of the indicator's design and implementation effect people on an individual level, not just a population level. Jain suggests that focusing on women with "met" need, who have already made the decision to use contraception and are still facing contraceptive failure, discontinuation, and unintended pregnancy, could be an alternative to trying to recruit new users and can address the "leaking bucket" problem we see with current efforts to reduce unmet need (Jain, et al., 2013).

The combined effects above, clearer interpretations for program and policy priorities and shifting the narrative to prioritize women's choice, should act together to create a third positive impact: a move away from interventions centered on demand creation. Demand creation, which has become a popular component of family planning activities, is justified simultaneously by the belief that women would want contraception if they knew more about it and by the public health fact that contraception produces improved health metrics (Speizer, et al., 2014). However,

demand creation does not center women, their reproductive autonomy, or their contraceptive desires. If reproductive health advocates are cautioning enthusiasm for LARCs to safeguard women's reproductive autonomy, then enthusiasm for contraception versus no contraception should follow the same principle (Gomez et al., 2014; Higgins, 2014). By prioritizing women who want contraception and only including them in the calculation, then demand creation activities become superfluous to the aim of reducing our new calculation for supply-side unmet need. Women who don't already want contraception are not in the metric and thus targeting that population would not benefit program reports. Rather than demand creation, where health providers persuade women they need family planning, interventions can focus on the barriers women are telling us exist for those that want contraception but cannot get it—true unmet need and real unmet demand. Funding and effort can be reallocated to quality improvement, expansion of services, and reduction of the barriers that women are identifying as real barriers, in essence improving family planning programs and allowing users to drive the priorities of family planning programs. Improved quality may lead to new users and increased uptake, though others with attributed unmet need may choose not to use contraception until there are new methods with fewer side effects or continue to abstain from contraception entirely (Sedgh & Hussain, 2014).

Future Research

Additional research on related topics would strengthen this work. Further explorations on the reasons for nonuse and the barriers for women's use of contraception has been identified as a family planning research priority (Ali, Seuc, Rahimi, Festin, & Temmerman, 2014). Qualitative research exploring and documenting women's reasons for nonuse would advance this work and is currently scant and geographically specific. Additional research on women's contraceptive preferences, particularly as they relate to women's reasons for nonuse would be beneficial for

examining the validity of this approach. Investigations into how supply-side unmet need would compare to estimates of unmet need across various age groups, economic brackets, and other contexts are needed.

Furthermore, the current research tools that we have, such as the DHS surveys, can be amended to have women-centered questions. A focus on collecting information on what women report they want and need can better drive our reproductive health programs and policies. These surveys can even include a self-reported metric for unmet need, which could be compared to traditional measures of unmet need as well as the measures for supply-side unmet need presented here.

Conclusion

Supply-side unmet need functions to close the gap between the measurement and interpretation of unmet need. The indicator contributes to a growing body of literature calling for the centering of individual users and their preferences within family planning program delivery. The results of this analysis show dramatic reductions in unmet need estimates that vary dependent on interpretations of "demand". Applied practically, the metric can help improve the specificity of interventions aiming to reduce barriers for women with unmet demand for contraception. Addressing barriers cited in this metric will require a focus on quality improvement. Adopting this indicator underscores the importance of the women's reproductive autonomy and realigns the metric's measurement with its current application.

Chapter Four: Conclusions and Recommendations

Three potential calculations for supply-side unmet need are presented, exploring how categorizing women's current unmet need status as supply-side or demand-side impact unmet need estimates. This research tested three different conceptualizations of "demand" for contraception based on women's reasons for nonuse, factoring out those that are considered to have unmet need for demand-related reasons.

Findings and Interpretations

Among married women, the three approaches produced statistically significant differences for each estimate, indicating that the three approaches could be used in tandem to distinguish the proportion of a country's unmet need that falls into each interpretation of demand for contraception. However, this project recommends Approach B to supply-side unmet need as the best calculation to represent the proportion of women who want to use contraception but cannot. This estimate includes all women who want contraception but are not using it because they cannot access it due to supply, cost, geography, or outside social pressures. Women citing reasons related to access as their reasons for nonuse directly align with the interpretation "want to use contraception but cannot" and should thus be included in the final measurement. The final recommended calculation also included women who responded that they were not using contraception because they were not married or because someone close to them opposed contraception because outside social pressure from the community, partner, or family is considered antithetical to a woman's reproductive rights (Hardee, Kumar, Newman, Bakamjian, Harris, Rodriguez, & Brown, 2014). Concerns about side effects were discounted in the final recommended approach due to insufficient evidence connecting this cited reason to a woman's desire to practice contraception.

Limitations

There are two key limitations of the analysis presented. Firstly, each response option for reason for nonuse acts as a proxy for demand and does not necessarily uniformly fit within "met" or "unmet" need. For example, some women who are choosing not to use contraception because of fear of side effects may want contraception but had a negative experience with a method in the past and is hesitant to try a new method though she still wants to, while another woman who had a similar experience would prefer not to try any other methods but instead to continue with traditional methods or no method and risk pregnancy. Alternatively, while many women choose not to use contraception for their own religious beliefs, some women may be pressured into forsaking contraception for their religion despite their personal preferences. These variations are not captured in the above analysis and would require further research to better approximate women's demand based on their responses. Though the analysis strived to include women's contraceptive preferences in the calculation for unmet need, its ability to do so was limited by the omission of an explicit question regarding women's contraceptive desires.

The second limitation is in reference to the level of information a woman has at her disposal when making her risk assessment about pregnancy and contraception. The quality of education and counseling services can impair women's ability to make fully informed decisions about their contraceptive desires. However, the measure for supply-side unmet need strives to measure those women that have decided—on the basis of the information they currently have—that they want to use contraception but cannot because of access or restrained autonomy. Programming that improves the quality of counseling and the information women receive about family planning may lead supply-side unmet need estimates to rise.

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contraception, Approach B for supply-side unmet need emphasizes the individual user and her preferences.

The current unmet need indicator conceptualizes need as biological and separate from the woman's preferences, whereas supply-side unmet need conceptualizes need in terms of contraceptive desire and unmet demand. Comparing estimates of the two conceptualizations within a given population will offer insights into that population's specific barriers and desires to better inform family planning policies and programs.

Implications for Policy and Programs

This approach can be applied to any current DHS dataset with a small modification to the code that calculates unmet need and can have important implications for policy and programs. The first effect is that supply-side unmet need, which only includes women deemed to have a demand for contraception, contributes to the current shift in the overall narrative surrounding family planning. As it stands, the metric for unmet need is presumed—by its confusion with unmet demand—to take into account that women want and need contraceptives, but it does not include this as a parameter in the calculation. By changing the indicator to include women's desire for family planning, it starts to shift attention back to women as individual users, whose choice in contraception is paramount (RamaRao & Jain, 2015; Dehlendorf, et al., 2015; Holt et al., 2017; Morse, et al., 2017; Hardee, et al., 2014; Gomez, et al., 2014; Higgins, 2014). The current indicator is focused on an overall monolithic number of women who need contraceptives, the goal is to increase uptake not to meet women's true demand for family planning. It may be that the focus on contraceptive uptake is partially driven by the underlying goal to "eliminate unmet need" (Jain, 1999). Though eliminating unmet need sounds like a worthy goal, this analysis shows that a substantial minority of women attributed with unmet need don't want contraception.

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Some research has shown that focusing on the population with unmet need may not be the best approach to reducing unintended pregnancies, the end goal of most fertility-related programs and policies. Jain suggests that women who were considered to have "unmet need" had only a slightly higher rate of unintended pregnancies as those that were considered to have "met" need in a two year follow period (Jain, 1999). And Callahan and Becker showed that nearly three

quarters of the unintended pregnancies in a longitudinal study in Bangladesh were among women considered to have "met" need at the start of the study (2014). Global health interventions use unmet need as a baseline target audience and have explicit goals of increasing family planning users based on these estimates (RamaRao & Jain, 2015). The implications of the indicator's design and implementation effect people on an individual level, not just a population level. Jain suggests that focusing on women with "met" need, who have already made the decision to use contraception and are still facing contraceptive failure, discontinuation, and unintended pregnancy, could be an alternative to trying to recruit new users (Jain, et al., 2013). Changing how we think about women and family planning when we measure and report key indicators for funders can produce a shift in priorities that will trickle down to programmatic and policy priorities.

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Additional research on related topics would strengthen this work. Further explorations on the reasons for nonuse and the barriers for women's use of contraception has been identified as a family planning research priority (Ali, Seuc, Rahimi, Festin, & Temmerman, 2014). Qualitative research exploring and documenting women's reasons for nonuse would advance this work and is currently scant and geographically specific. Additional research on women's contraceptive preferences, particularly as they relate to women's reasons for nonuse would be beneficial for examining the validity of this approach. Investigations into how supply-side unmet need would compare to estimates of unmet need across various age groups, economic brackets, and other contexts are needed.

Conclusion

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this indicator underscores the importance of the women's reproductive autonomy and realigns the metric's measurement with its current application.

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