

Supply-Side Versus Demand-Side Unmet Need: Implications for Family Planning Programs

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Despite its central importance to global family planning, the “unmet need for contraception” metric is frequently misinterpreted. Often conflated with a lack of access, misinterpretation of what unmet need means and how it is measured has important implications for family planning programs. We review previous examinations of unmet need, with a focus on the roles of access and demand for contraception, as well as the role of population control in shaping the indicator’s priorities. We suggest that disaggregating unmet need into “demand-side unmet need” (stemming from lack of demand) and “supply-side unmet need” (stemming from lack of access) could allow current data to be leveraged into a more person-centered understanding of contraceptive need. We use Demographic and Health Survey data from seven sub-Saharan African countries to generate a proof-of-concept, dividing women into unmet need categories based on reason for contraceptive nonuse. We perform sensitivity analyses with varying conceptions of access and disaggregate by education and marital status. We find that demand-side unmet need far exceeds supply-side unmet need in all scenarios. Focusing on supply-side rather than overall unmet need is an imperfect but productive step toward person-centered measurement, while more sweeping changes to family planning measurement are still required.

Introduction

The “unmet need for contraception” indicator has been controversial since its inception. Coined by demographer Charles Westoff in the late 1970s, unmet need emerged as a bridge between feminist and population control rationales for family planning, and helped to cement the success of the 1994 International Conference on Population and Development (ICPD; Bradley

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and Casterline 2014; Hodgson and Watkins 1997). Despite longstanding critiques on both conceptual and methodological grounds, the political utility of unmet need for family planning programs has kept it at the forefront of contraceptive research for decades (Cleland, Harbison, and Shah 2014). But while researchers and advocates alike often interpret unmet need in its intuitive sense—as a lack of access to family planning—the measure actually considers that both those who lack access as well as those who lack demand for a contraceptive method may have an unmet need. Designating those who lack demand for contraception as having an unmet need fails to recognize women’s capacity for autonomous decision-making, as well as creates confusion for those who rely on this indicator for program planning and policymaking. Moreover, the continued emphasis on fertility rather than contraceptive choice in one of global family planning’s most ubiquitous indicators reveals how the priorities of population control continue to subtly influence research and programs today.

In this paper, we: (1) summarize critiques of the unmet need for contraception indicator; (2) propose a modification to the indicator based on these critiques, separating the proportion of demand-side unmet need (stemming from a lack of desire to use contraception) from supply-side unmet need (stemming from a lack of access to contraception); and (3) generate a proof-of-concept for the novel metric of supply-side unmet need using data from the Demographic and Health Surveys (DHS) in seven countries in sub-Saharan Africa. Finding that demand-side unmet need greatly outweighs supply-side unmet need as a contributor to overall unmet need in all seven countries and among all population subgroups we examine, we argue that existing estimates of unmet need provide a distorted view of the nature of “need” in family planning programs today. We find that the vast majority of women ascribed an unmet need are making a decision not to use a method rather than reporting a lack of access as the cause. By assigning an unmet need to women who report no such need themselves, the family planning community discounts their agency and perpetuates colonialist narratives of disempowered women, primarily in the Global South (Spivak 1988). We conclude that it is past time that any vestiges of population control be eliminated from the family planning movement, and we call for a sweeping shift in the measurement agenda to better capture person-centeredness and autonomy in family planning outcomes.

Background

In 1996, two years after the historic ICPD was held in Cairo, sociologists Dennis Hodgson and Susan Watkins presented a paper to the Population Association of America entitled “Population Controllers and Feminists: Strange Bedmates at Cairo?” (Hodgson and Watkins 1996). Hodgson and Watkins were referring to the alliance between advocates for women’s

health and proponents of fertility control that had been forged at the ICPD to advance a pro-family planning agenda against the opposition of social conservatives (Grant 1994). Expanding access to contraception was a goal high on the agenda for both groups, though their motivations for doing so differed considerably. Feminists sought to expand women's autonomy over their bodies and promote reproductive health, while population controllers, inspired by neo-Malthusian concerns, sought to produce a range of macrolevel outcomes (such as economic growth and food security) by increasing contraceptive use and reducing total fertility (Rao 2004; Bongaarts and Sinding 2009; Reichenbach and Roseman 2011; Ashford 2004).

As they sought to advance the family planning movement, these "strange bedmates" were faced with a difficult challenge: how to incorporate their two disparate rationales into a single coherent and politically viable strategy for promoting contraception around the world. Rather than choosing an either/or approach that disavowed either the feminists' focus on choice or the population controllers' focus on fertility reduction, the "strange bedmates" have worked to reconcile these two approaches to family planning with one another, arguing for family planning programming that seeks to increase modern contraceptive use, reduce fertility, slow population growth, and promote a whole host of external goals through family planning, but only through noncoercive and voluntary means (Cleland, Harbison, and Shah 2014; Starbird, Norton, and Marcus 2016; Brown et al. 2014; Cleland, Ndugwa, and Zulu 2011).

This fragile balance is held together, in large part, by the concept of an "unmet need for contraception." With the idea that there are women who have not yet been reached by family planning programs but would choose to use contraception with increased access, proponents of the concept suggest that unmet need furthers goals around both fertility reduction and reproductive rights (Cleland, Harbison, and Shah 2014; Cleland, Ndugwa, and Zulu 2011; Casterline and Sinding 2000; Sinding, Ross, and Rosenfield 1994). By focusing on providing contraception to those who have an unmet need for it, they argue, family planning programs can simultaneously pursue fertility reduction while respecting the principles of voluntarism with essentially no trade-offs (Moreland, Smith, and Sharma 2010). Meeting unmet need in this way could both help women achieve their lowered fertility desires and increase contraceptive prevalence—a family planning win-win (Sinding, Ross, and Rosenfield 1994).

But transforming this amorphous conception of unmet need into a construct that scholars can define and measure has been thorny from the start. The history of unmet need is now well-documented, expounded in-depth in several pieces (notably by Casterline and Sinding in 2000 as well as Bradley et al. in 2012). Briefly, the idea of something called "unmet need for contraception" arose in the late 1970s, as researchers began to study the "Knowledge, Attitudes, Practices (KAP) gap" between what people said

and what they did (Bradley et al. 2012). By 1978, after studying the KAP gap among women who said they were not explicitly seeking a pregnancy but were also not using contraception to prevent one, Westoff designated these women as having an “unmet need for contraception” (Westoff 1978). In the late 1970s and early 1980s, the first estimations of unmet need for family planning were generated from the World Fertility Surveys (the precursor to today’s DHS), using data on women’s reported fertility desires and contraceptive use.

In the context of this era’s intense focus on population control and fertility outcomes, Westoff decided to conceptualize and measure unmet need neither by asking women if they had a desire to use contraception, nor by assessing access to family planning services, but by focusing on this KAP gap. The idea of measuring unmet need this way may seem self-evident now, as researchers have been using this approach for more than 40 years. We note here, however, that Westoff was not discovering or naming a pre-existing concept, nor was it obvious that fertility outcomes must be central to “unmet need.” Rather, Westoff was engaging in a socially embedded process of knowledge production, integrating the overriding political concerns of the day into his methodology for defining and calculating unmet need.

Anthropologists and feminist scholars have documented how the creation of quantitative indicators is part of a gendered, racialized, and politicized process of knowledge production, rather than an observation of objective truth (Merry 2016; Adams et al. 2016; Wendland 2016; Suh 2019; Brunson and Suh 2020; Brunson 2019; Buss 2015). This critique of indicators and their tacit ideologies is much less acknowledged in the quantitative social and biomedical sciences, but has important implications for how we understand and make use of the metrics we inherit from the scholars who came before us. In the case of unmet need, a historically and politically embedded process of quantification transformed the ambivalent and contested reproductive desires of women (almost exclusively in the Global South, as unmet need is used much less in the Global North) into “unambiguous, clear, and impersonal measures” of an unmet need concept that seems self-evident (Merry 2011).

Now, in the years since the ICPD, unmet need has become one of the most commonly measured and widely cited family planning metrics around the world. After family planning goals were initially left out of the worldwide Millennium Development Goals, global family planning advocates campaigned and eventually succeeded in getting a single family planning metric added to the Goals: unmet need. At the time, family planning champions wrote that not only was unmet need “a vital component in monitoring the proportion of women able to space and limit births” but that it also is a “measure conditioned by people’s preferences and choices, therefore firmly introduces a rights perspective into development

discourse” (Bernstein and Edouard 2007). This inclusion in the Millennium Development Goals further raised the indicator’s global profile, and in the years since, unmet need and its offshoots based on the same logic (such as the “proportion of demand satisfied by modern methods”) have served as core family planning outcomes for a range of high-profile global health initiatives, including Family Planning 2020 and the Sustainable Development Goals.

The conceptualization, measurement, and application of unmet need

Despite its ubiquity and the praise it has earned as reproductive health’s most rights-based indicator (Bernstein and Edouard 2007), unmet need has also been subject to considerable criticism. Scrutiny of unmet need spans (a) its conceptual groundings; (b) the nuts and bolts of its measurement; and (c) the way the measurement is misapplied and misinterpreted in both research and programs (Cleland, Harbison, and Shah 2014; Rossier, Senderowicz, and Soura 2014; Pritchett 1996; Westoff 1994; Jain 1999).

The lack of “need” in unmet need. Among the most fundamental critiques of unmet need are those that focus on its conceptual underpinnings, and the foundational assumptions on which the measurement rests. One point of critique surrounds the gulf between the intuitive or lay understanding of the term “unmet need,” and the way the metric is defined and operationalized by demographers. Technically defined as “the gap between women’s reproductive intentions and their contraceptive behavior,” demographers quantify unmet need as the proportion of women who do not want to have children in the next two years and are not using a contraceptive method (Bradley et al. 2012; Bradley and Casterline 2014). This definition—based on measures of fertility intentions and current contraceptive use—has little to do with the lack of access to contraception or unfulfilled desire to use contraception evoked by the metric’s title.

Since unmet need was not originally conceptualized or designed to capture lack of access to contraception, it is perhaps unsurprising that previous studies show little evidence of a relationship between the two. There is, for example, a small but important body of literature examining the causes of contraceptive nonuse and how they contribute to unmet need. The most comprehensive of these studies have found that contraceptive nonuse among women with an unmet need is driven primarily by factors such as infrequent sex, indicating lack of demand for contraceptive use rather than a lack of access to it (Sedgh and Hussain 2014; Sedgh, Ashford, and Hussain 2016). Sedgh and Hussain’s 2014 study using data from the DHS in 51 countries found that infrequent sex and concerns about side effects were the leading causes of contraceptive nonuse among women ascribed an unmet need in Latin America and the Caribbean, Africa, and Asia.

Lack of access, meanwhile, accounted for a much smaller proportion (Sedgh and Hussain 2014).

Exploring reasons for contraceptive nonuse among women with unmet need in Ghana, a 2014 study by Machiyama and Cleland found that “attitudinal resistance” (a technical way of referring to women who do not want to use contraceptives) has become a much greater contributor to contraceptive nonuse and subsequent unmet need than lack of access (Machiyama and Cleland 2014). This attribution of unmet need to demand-side causes such as infrequent sex led the authors to argue that, in order to meet unmet need, we need “to popularize long-acting methods” and perform other demand-generation activities (Machiyama and Cleland 2014). That meeting unmet need should necessitate demand creation is a paradoxical twist of logic that reveals the convoluted dynamics of this indicator, and the dangers of conflating unmet need with lack of access.

Specialists in this narrow area of demographic research are well-aware that “the standard [unmet need] algorithm does not include any direct measures of the desire to practice contraception or any direct measures of access to contraception,” and they take great care to use the metric only according to its scientific definition, not its intuitive understanding (Bradley and Casterline 2014). Yet, these demographic specialists are a minority of those who use the unmet need indicator. A far greater number of those who use and apply unmet need to their work in family planning programming, advocacy, and even research tend to routinely misinterpret the indicator. Researchers of unmet need note the ways that the indicator is so often “misused and misunderstood” by the broader public (Bradley and Casterline 2014), but it is hard to fault those who uncritically take the term “unmet need” at face value and assume that it refers to some sort of “need” that is “unmet.” The term “need” in particular (defined as “something that is wanted or required” by the Oxford Dictionary; Oxford Languages English Dictionary n.d.) is common and well-understood in everyday parlance, with a meaning that is entirely distinct from its use in the name of the unmet need indicator.

Conceptually, the notion of “need” in unmet need relies on several assumptions and logical leaps in order to get from the starting point (where women report that they do not want a pregnancy) to the conclusion that they “need” contraception. The first of these logical leaps is the idea that, because a person is not actively seeking a pregnancy, it necessarily follows that she must be actively seeking to avoid one. Research from both the Global North and the Global South has shown that this pregnancy planning paradigm is an “unrepresentative concept” imposed by researchers, and one that often does not accurately capture dynamic and sometimes indifferent attitudes people hold toward pregnancy planning (Aiken et al. 2016). This research has shown that many people do not plan the timing of their pregnancies, their desired number of children, or other facets of their

reproductive lives in the concrete and explicit ways in which researchers attempt to measure them (Aiken et al. 2016; Arteaga, Caton, and Gomez 2018; Rocca et al. 2019). Qualitative and quantitative studies have both provided robust evidence that just because a person is not actively seeking a pregnancy does not mean that they would not welcome one (Yeatman and Smith-Greenaway 2021; Huber et al. 2017; Speizer 2006; Johnson-Hanks 2002; Gómez et al. 2019; Manze et al. 2021; Gomez et al. 2018).

The second logical leap is the assumption that every person who does not desire to get pregnant must then consistently use a modern method of contraception at all times. This leap does not take into account important variations in the strength of a person's desire to avoid a pregnancy (Rocca et al. 2019). This logical leap further glosses over frequency of sex (and for married women, whether or not they are sexually active at all), ignores variations in the kinds of sex that people have, assumes that all sex is heterosexual coitus that involves exposure to pregnancy, and treats as immaterial a person's prior experiences with contraceptives or even stated desire not to use a contraceptive method. Rather than being central to the way researchers measure unmet need, these essential aspects of human fertility desires and sexual behaviors are set aside in favor of a logic that assumes any married woman not actively seeking a pregnancy—sexually active or not, heterosexual or not, personally opposed to contraception or not, wanting to use contraception or not—must necessarily “need” a method. Based on these logical leaps, “need” becomes wholly uncoupled from its common understanding as something that is wanted or required.

It is this absence of women's own preferences and desires for contraceptive use from the unmet need indicator that constitutes perhaps the metric's greatest weakness. The unmet need indicator silently proffers the idea that all women should be using a modern method of contraception for the duration of their reproductive years except when explicitly trying to get pregnant. This logic disregards women's beliefs, ignores their concerns about how contraception affects their bodies, and overlooks whatever personal preferences they may have regarding whether and how to regulate their fertility (Pritchett 1996). The absence of women's voices from this measure is particularly important because unmet need is so rarely applied to the United States or other Global North contexts. Instead, unmet need has most often been used to characterize women living in the Global South, whose expertise about their own lives and circumstances has continually been undermined and dismissed, often in the name of women's empowerment (Spivak 1988; Mohanty 1995). Leaving no room for the voice of a woman who simply chooses for her own reasons (whatever they may be) not to use contraception, unmet need presents a classic example of what feminist theorist Lata Mani calls “the marginality of women to a discourse ostensibly about them” (Mani 1998).

Demographers and proponents of the measure readily acknowledge that unmet need is “riddled with doubtful assumptions and imprecisions” (Cleland, Harbison, and Shah 2014). In 1992, for example, Charles Westoff himself argued that “at any given time only a small percentage of women are behaving irrationally, that is, are currently exposed to risk and want to postpone or avoid childbearing, but are not doing something to avoid pregnancy” (Westoff 1992). There is a body of rigorous demographic work testing the assumptions of unmet need and critiquing the extent to which they are supported by evidence (Casterline and Sinding 2000; Westoff 1992; Rossier et al. 2015; Casterline, Perez, and Biddlecom 1997; Bongaarts 1991). Much of this work has concluded that unmet need remains a useful metric for family planning due to its empirical relationship at the aggregate level with unintended fertility and other fertility outcomes across a range of settings (Casterline and Sinding 2000; Casterline, Perez, and Biddlecom 1997; Casterline, El-Zanaty, and El-Zeini 2003).

Measurement challenges in unmet need. In addition to its conceptualization, there are longstanding debates around the measurement validity of unmet need. At a basic level, much of this debate has centered on the question of whom to include in the denominator of the indicator—who should be eligible to have an unmet need? Researchers have disputed, for instance, whether and how to include pregnant women and those experiencing postpartum amenorrhea following the birth of a child. Some scholars have emphasized the importance of including this group of women who may be pregnant precisely because they had an unmet need for contraception (Bradley and Casterline 2014), while others have focused on the conceptual absurdity of ascribing a need for contraception to someone physiologically incapable of getting pregnant again at that time (Pritchett 1996).

Other debates about inclusion criteria consist of the differential treatment of married and unmarried women in the method’s algorithm and the assumption of sexual frequency among married couples (Bell and Bishai 2017). Scholars have expressed concerns over how to measure and classify users of fertility awareness-based (often called traditional) methods, how contraceptive calendar data should be incorporated in the measurement, how to consider use of a nonpreferred method among contraceptive users, and an array of other concerns related to the survey data used to calculate unmet need (Bradley and Casterline 2014; Rossier et al. 2015; Rossier, Senderowicz, and Soura 2014). To address some of these methodological concerns, an official revision was undertaken in 2012 to reconsider the indicator and to streamline its measurement (Bradley et al. 2012). In the years since this revision, however, many of these same methodological concerns have persisted (Cleland, Harbison, and Shah 2014; Moreau et al. 2019; Rothschild, Brown, and Drake 2021).

One of the biggest challenges to the measurement of unmet need in recent years has come from increased scrutiny of the binary conception of pregnancy intentions (Speizer and Lance 2015). There has been a growing consensus in the literature over the past two decades about the complexity of fertility desires and pregnancy intentions (Gomez et al. 2018; Speizer and Lance 2015; Speizer et al. 2014; Gómez et al. 2019; Rocca et al. 2019; Huber et al. 2017). This literature suggests that fertility desires and pregnancy intentions are often fluid, contradictory, ambivalent, or plain unclear, as many women simply do not explicitly plan pregnancies the way that the demography literature once supposed (Aiken et al. 2016).

Ambivalence in pregnancy intentions is associated with inconsistent or nonuse of contraception, and those with ambivalent fertility desires may be more likely to discontinue contraception in light of side effects or less likely to initiate contraceptive use at all (Speizer and Lance 2015; Speizer 2006; Yoo, Guzzo, and Hayford 2014; Tobey, Jain, and Mozumdar 2020). Studies have also shown that those with ambivalent pregnancy intentions may be more likely to rely on fertility awareness-based methods or other methods with higher typical-use failure rates (Speizer et al. 2013). Although there is debate about the accuracy of tools used to classify individuals as “ambivalent,” the fact that fertility desires exist on a spectrum is now well-established (Rocca et al. 2019; Gómez et al. 2019). This has rendered the simple binary conception of pregnancy intentions at the heart of the unmet need algorithm increasingly hard to justify (Withers, Tavrow, and Adinata 2011; Speizer et al. 2009). And yet, adherence to a dichotomization of pregnancy intentions is so important to the unmet need algorithm that women who report that they are “unsure” if they want a child in the next two years are lumped in with women who answer “no,” with no room in the calculation of unmet need for even this basic level of ambivalence.

As a result of the decades of debate over the validity of unmet need, there has been no shortage of attempts to change the measure, ranging from small tweaks to wholesale revisions. Perhaps, the best known of these is Bradley et al.’s 2012 revision of the unmet need indicator, which attempted to take many of the longest standing critiques into account. Although that revision ultimately included important changes to the data inputs for calculating unmet need, and standardizing and streamlining the algorithm across data collection types, it did not address many of these more substantive issues with the indicator’s measurement. Both prior to that revision and in the years since, numerous researchers have offered their own critical appraisals of unmet need, or amendments to the measurement of unmet need with the aim of improving the indicator’s usefulness for program planning (Rothschild, Brown, and Drake 2021).

In 2019, for example, Caroline Moreau and colleagues proposed a “current status” unmet need in which pregnant and postpartum amenorrheic women are removed from the pool of women with a conceivable

need for contraception, and unmet need is linked to desire to use contraception in the future (Moreau et al. 2019). Likewise, Sarah Rominski and Rob Stephenson proposed a new definition of unmet need that does not automatically ascribe a “met need” to all contraceptive users (Rominski and Stephenson 2019). Positing that some contraceptive users may be ill-served by their current method, the authors argued for incorporating a satisfaction measure in the definition of met need. These represent important steps forward to bringing women’s actual contraceptive desires (not just fertility intentions) into the measurement of the unmet need indicator. However, the fundamental problem of demand-side unmet need—ascribing an unmet need to people whose reason for contraceptive nonuse stems from a lack of demand—remains.

Misinterpretation and misapplication of unmet need. The combined total of these challenges to conceptualizing and measuring unmet need has unsurprisingly, resulted in confusion when unmet need is applied in the real world. Because (1) unmet need is considered the most rights-based of our existing family planning indicators; (2) there is so little understanding of what unmet need actually measures; and (3) unmet need’s title is suggestive of a measure of access, unmet need is often applied in ways for which it was never designed and is ill-suited. Family planning programs and advocates, ranging from well-known women’s health NGOs to the United Nations, routinely misinterpret unmet need in their public-facing communications. The UNFPA (the United Nations agency tasked with overseeing global family planning), for example, references unmet need in the claim that “[a]n additional \$4.1 billion is necessary each year to meet the unmet need for family planning of all 222 million women who would use family planning but currently lack access to it” (UNFPA 2012).

These types of misinterpretation are found throughout peer-reviewed literature as well, sometimes subtly and sometimes more overtly. Noted family planning researcher Malcolm Potts, for example, wrote a *Scientific American* article entitled “The unmet need for family planning,” arguing that “the trouble is that in some parts of the world contraceptives are either too expensive or simply unavailable to the people who most need them” (Potts 2000). Even in the specialist journal *Reproductive Health Matters*, researchers have explicitly argued that “[e]fforts should be directed towards ensuring that an indicator of unmet need is used as a measure of access to services” (Bernstein and Edouard 2007). Researchers and specialists in unmet need have also directly argued that unmet need is a useful metric for program planning. For example, in 2007 experts at the Guttmacher Institute issued a report entitled *Women with an Unmet Need for Contraception in Developing Countries and Their Reasons for Not Using a Method*, writing that, “The aim of this report is to provide donors, policymakers and program planners the evidence and analyses needed to determine how to best direct limited

resources toward meeting needs for family planning in the developing world” (Sedgh et al. 2007).

Implicit connections between unmet need and lack of access are also common throughout the family planning literature. In a 2013 article entitled “The case for investing in family planning in the Pacific: Costs and benefits of reducing unmet need for contraception in Vanuatu and the Solomon Islands,” the authors begin the abstract writing, “Unmet need for family planning in the Pacific is among the highest in the world. Better understanding of required investments and associated benefits of increased access to family planning in the Pacific may assist prioritisation and funding” (Kennedy et al. 2013). Similarly, a 2012 article in *The Lancet* on the “Use of human rights to meet the unmet need for family planning” focuses on “how human rights can be used to identify, reduce, and eliminate barriers to accessing contraception,” in order to “eliminate the unmet need for family planning” (Cottingham, Germain, and Hunt 2012). The very idea that unmet need can be completely eliminated (promoted most recently by the UNFPA’s “Three Zeros” campaign) itself betrays a fundamental misinterpretation of the concept (UNFPA 2019).

Although the current conceptualization of unmet need—based on fertility intentions and current contraceptive use—may be of scientific use to demographers and other fertility researchers, we argue that its utility beyond this narrow scope is limited for at least two reasons. The first is that, by assigning women an unmet need based on researcher-perceived discordance between their fertility desires and contraceptive use, rather than asking women about their contraceptive needs and preferences, this approach to measurement treats women like they are voiceless, or that their own perceptions of their needs are not to be trusted. Though the 1994 ICPD, the 2012 London Summit, and virtually all other major family planning convenings and initiatives in the past 25 years have emphasized the primacy of women’s empowerment and autonomy, the unmet need indicator’s enduring emphasis on fertility outcomes rather than contraceptive choice harkens back to the pre-ICPD preoccupation with population dynamics and fertility reduction. And though the precepts of unmet need may continue to be of interest to the scientific study of population and fertility, we contend that these interests should no longer inform the development and implementation of family planning policies and programs, which instead ought to center on informed choice, full choice, and free choice of contraception (Senderowicz 2020).

The second reason is that unmet need fails to tell policymakers, programmers, providers, or family planning implementers much of anything regarding actual unfulfilled demand for family planning. As currently measured, unmet need provides extremely limited information about where new family planning programs are needed, what the barriers are to contraceptive use, and how programs can best be tailored to meet women’s

contraceptive needs and desires. Whatever insights family planning programmers and policymakers can glean from unmet need to inform rights-based services could surely be better understood by any number of more direct measures of contraceptive demand and desires, including but not limited to simply asking people if they would like to use a contraceptive method (Ajong et al. 2016).

Elsewhere, we have called for a radical new measurement agenda, including new survey modules, new methodologies, and new conceptual groundings that put autonomy at the forefront (Senderowicz 2020). This type of transformational change, however, takes time due to data inertia and other logistical challenges (Merry 2016). And so, in the present analysis, we concern ourselves with the intervening period, and explore ways to revise the unmet need indicator using currently available data. In particular, we turn our attention to the important distinction between unmet need for contraception stemming from a lack of access and that stemming from a lack of demand. By looking at reasons for contraceptive nonuse among women and classifying them into one of these two categories, we can use the data tools currently at our disposal to better inform rights-based family planning services.

Defining inadequate access

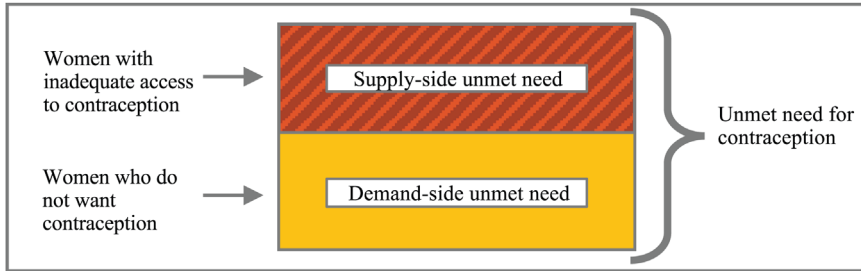
Decisions regarding contraceptive use are not made by individuals in a vacuum. Rather, these decisions are mediated by a host of complex social and structural factors, including health systems, cultural beliefs, and gender dynamics (Karp et al. 2020; Littlejohn 2013; Varga 2003; Paek et al. 2008). The question of how to define access in the context of family planning (and health care more generally) has been a contentious one. Although no definition of access to family planning or health services has garnered universal consensus, researchers have put forth several prominent frameworks throughout the years. In 1981, Penchansky and Thomas developed the “Five As” to define access to health care, including: availability, accessibility, accommodation, affordability, and accountability (Penchansky and Thomas 1981). In 1995, Bertrand et al. developed a framework that would address access to family planning specifically, also identifying five dimensions of access: geographic, economic, administrative, cognitive, and psychosocial (Bertrand et al. 1995). In 2000, the United Nations created the AAAQ framework to define what the right to “the highest attainable standard of health” would encompass, highlighting availability, accessibility, acceptability, and quality as the four key dimensions to ensuring this right (United Nations Committee on Economic, Social and Cultural Rights 2000).

All three of these frameworks emphasize physical proximity, financial cost, and some version of method availability as essential components of access. Remaining dimensions of access, however, vary across these

frameworks. Access to information, aspects of quality of care, and administrative barriers like personnel or clinic hours are included in some but not all of the frameworks. Bertrand and colleagues include “psychosocial access,” which they define as “the extent to which potential clients are unconstrained by psychological, attitudinal, or social factors” such as spousal consent or social stigma (Bertrand et al. 1995). Although the AAAQ framework requires services to be “culturally appropriate” to ensure people’s access to health, it does not suggest that individual resistance to a service constitutes a barrier to access (United Nations Committee on Economic, Social and Cultural Rights 2000).

More recently, Choi et al. synthesized the components of all three of these frameworks to produce a comprehensive definition of access that includes six elements: cognitive accessibility, psychosocial accessibility, geographic accessibility, service quality, administrative accommodation, and affordability (Choi, Fabric, and Adetunji 2016). Choi and colleagues then linked these dimensions of access to reasons for contraceptive nonuse measured in the DHS. Notably, Choi et al. expanded the concept of lack of access here to include women who choose not to use contraception because of personal opposition, categorizing them as having a lack of psychosocial access. This conception of access begins to grow so broad that there seems to be no room left for any kind of personal agency not to use contraception, without that decision being classified as a lack of access. In this way, the definition of lack of access to family planning seems to have been expanded to include clear-cut cases of lack of demand.

Whether we understand things like personal opposition or religious objections as a type of lack of access has important implications for our understanding of the unmet need indicator. Development economist Lant Pritchett offered this critique of the expansive definitions of access and need in the unmet need indicator over 25 years ago. In his critique, Pritchett compared religious objections to contraception to those about eating pork or beef, arguing that ascribing an unmet need for pork to Jews would be not only unhelpful but “downright offensive,” continuing that the “main point is whether people’s preferences and judgements are to [be] respected or dismissed” (Pritchett 1994). Though a vast array of external factors can impact a woman’s decision to use/not use contraception, expanding the definition of lack of access to be so broad that it includes lack of demand is likely to be counterproductive. Defining access so broadly that it could seem to encompass everything can lead to a watering down of the term. The extent to which any of us has free will or makes choices constrained by culture and education is an important philosophical one, but the implication that there is no way that women in the Global South can choose not to use contraception without somehow lacking access is difficult to reconcile with purported values of voluntarism and empowerment that undergird contemporary family planning programs.

FIGURE 1 Conceptual model of supply-side and demand-side unmet need

The novel concepts of supply-side and demand-side unmet need

The myriad conceptualizations of access have important implications for our understanding and use of the unmet need indicator. We propose here that unmet need as typically measured may best be understood as consisting of two distinct parts: supply-side unmet need and demand-side unmet need (Figure 1), and that drawing a distinction between these two may be of great use both to researchers hoping to understand patterns of unmet need, as well as programmers seeking to address them. Borrowing from language of economics, we define supply-side unmet need as the proportion of women with unmet need whose contraceptive nonuse is due to inadequate access to family planning services (aligning with the intuitive interpretation of unmet need), while demand-side unmet need includes women whose nonuse of contraception is due to a lack of demand.

The objective of this paper is to analyze the relative contributions of supply-side and demand-side unmet need to overall unmet need. We explore what proportion of unmet need is actually the result of a lack of access to family planning in seven sub-Saharan African countries, using self-reported reasons for contraceptive nonuse. By creating the novel indicators of supply-side unmet need and demand-side unmet need, we provide policymakers and program evaluators a new tool to help family planning prioritize voluntarism and autonomy through explicit delineation of a respondent's demand for contraception.

Methods

Data

We use data from the household surveys conducted by the DHSs, which provide a nationally representative sample of women aged 15–49 in over 90 countries in the Global South. We use a convenience sample of household surveys from each of the following countries: Burkina Faso (2010), Chad (2014–2015), Côte d'Ivoire (2011–2012), Democratic Republic of the Congo

(DRC) (2012–2014), Kenya (2014), Nigeria (2013), and Uganda (2016). The countries selected are some of the earliest in the region to commit to the Family Planning 2020 (FP2020) initiative and account for a substantial proportion of the population in the region that had early FP2020 commitments. The purpose of this sample was to develop and apply a proof-of-concept of supply-side and demand-side unmet need, rather than to conduct a systematic inventory across all of sub-Saharan Africa or throughout the Global South. Together, these samples provide an idea of supply-side and demand-side unmet need across various reproductive health contexts within African countries.

Although the DHS data on unmet need and reasons for contraceptive nonuse are among the most systematically collected and widely utilized in the world, many of the same data and measurement issues we highlighted above (such as the binary measure of pregnancy intentions) present challenges to our analysis here. We also note that the DHS question on reason for contraceptive nonuse has an appreciable rate of nonresponse, with unknown reason for unmet need accounting for between 3.1 percent (in Nigeria) and 14.7 percent (Uganda) of overall recorded unmet need across the seven countries. We account for this by creating a third category of unmet need for unknown reason.


Measures

Unmet need. Our analysis measures conventional unmet need using the revised definition proposed by Bradley et al. in 2012. The calculation for unmet need requires 15 survey items from the DHS Women's Questionnaire, which includes questions to assess contraceptive use, pregnancy status, desire for children in the next two years, and fecundity. The metric typically applies to women who are married or in-union, assuming that these women are sexually active. The metric, however, can be calculated for all women or sexually active women as well, and researchers have been increasingly interested in levels of unmet need among unmarried women. The results below are presented for all women, as well as disaggregated by marital status and education level.


Supply-side and demand-side unmet need. We divide those deemed to have unmet need into two groups: "supply-side unmet need" and "demand-side unmet need," according to women's self-reported reasons for contraceptive nonuse. Supply-side unmet need is unmet need arising from barriers to access and issues with contraceptive supply, while demand-side unmet need refers to unmet need coming from a lack of demand for contraception. Women who provide no reason for contraceptive nonuse are put into a third category, "unknown reason for unmet need." We calculate these measurements using the same 15 survey items employed for standard unmet need,

FIGURE 2 Reasons for contraceptive nonuse attributed to supply-side or demand-side unmet need, by version

Reason for Contraceptive Nonuse	Version 1- Strict	Version 2- Moderate	Version 3- Broad
Knows no method	Supply-side	Supply-side	Supply-side
Knows no source	Supply-side	Supply-side	Supply-side
Lack of access/too far	Supply-side	Supply-side	Supply-side
Costs too much	Supply-side	Supply-side	Supply-side
Preferred method not available	Supply-side	Supply-side	Supply-side
No method available	Supply-side	Supply-side	Supply-side
Religious prohibition	Demand-side	Supply-side	Supply-side
Not married	Demand-side	Supply-side	Supply-side
Husband opposed	Demand-side	Supply-side	Supply-side
Others opposed	Demand-side	Supply-side	Supply-side
Inconvenient to use	Demand-side	Supply-side	Supply-side
Fear of side effects/health concerns	Demand-side	Supply-side	Supply-side
Interferes with body's normal processes	Demand-side	Supply-side	Supply-side
Not having sex	Demand-side	Demand-side	Demand-side
Infrequent sex	Demand-side	Demand-side	Demand-side
Up to God/fatalistic	Demand-side	Demand-side	Demand-side
Respondent opposed	Demand-side	Demand-side	Demand-side
Breastfeeding	Demand-side	Demand-side	Demand-side



Supply-side reason (lack of access)



Demand-side reason (lack of desire)

and we add the supplemental criterion of reason for nonuse to determine if the reason for contraceptive nonuse is a supply-side or demand-side matter. Since data on reason for contraceptive nonuse are missing for a nonnegligible proportion of DHS respondents, we have also created a third category of “unknown reason for unmet need” to capture those for whom we can attribute neither a demand-side nor a supply-side cause.

Because of debate surrounding the definition of access, we test three conceptions of supply-side and demand-side unmet need based on strict, moderate, and broad conceptions of what constitutes a lack of access. We use the moderate conception of access as our primary model for analysis, but also include the stricter and broader conceptions of access as a sensitivity analysis (Figure 2).

In our Version 1—strict conception of access—we consider access in its narrow form, including only responses that indicated people were not using contraception as a result of physical distance, cost, knowledge barriers, or lack of method availability. These elements are included in all three of the access frameworks discussed above (United Nations Committee on Economic, Social and Cultural Rights 2000; Bertrand et al. 1995; Petchansky and Thomas 1981). The final dimension, “knowledge barriers,” is included in both Bertrand’s framework and the AAAQ (Bertrand et al. 1995; United Nations Committee on Economic, Social and Cultural Rights 2000). We include these barriers in the strict definition of access, since lack of knowledge of methods or locations is prohibitive to contraceptive use in a similar manner as the other dimensions in this version.

Version 2, our moderate conception of access, broadens the definition of access to address the question: if a woman can reach the provider, will she be able to ask for and use contraception? This analysis considers some social factors and stigmas that may prevent a woman who wants contraception from obtaining it. Respondents whose unmet need was due to another's opposition, religious prohibition, or marital status were included in this moderate conception of access. These responses would account for a portion of the reasons that comprise "psychosocial access" in Bertrand's and Choi's frameworks, and incorporate the social factors known to influence contraceptive use (Bertrand et al. 1995; Choi, Fabric, and Adetunji 2016). Taking a person-centered approach, we considered which responses were most indicative of outside factors preventing use of contraception despite a personal desire to practice family planning.

Version 3, the broad conception, offers the most expansive understanding of access, striving to include all reasons for nonuse that could potentially be addressed by any type of supply-related intervention. In this conception, supply-side unmet need is expanded to include all remaining method-related reasons: inconvenient to use, fear of side effects/health concerns, and interference with the body's normal processes. These responses have the most tenuous connection to the frameworks of access discussed above, but could arguably be addressed by the development and introduction of new contraceptive methods that are more convenient to use and/or have fewer side effects. Though the evidence linking these reasons to a demand for contraception is limited, frameworks like those by Bertrand et al. and Choi et al. consider these reasons to be part of "psychosocial access" and "quality and cognitive" access, respectively, and thus are included in this broadest understanding of access (Bertrand et al. 1995; Choi, Fabric, and Adetunji 2016).

Five reasons were coded as demand-side reasons across all three analyses: not having sex, infrequent sex, up to God/fatalistic, respondent opposed, and breastfeeding. The first four are directly related to a person's demand for contraception. Breastfeeding was included here as a reason that does not demonstrate any barriers to obtaining contraception but is likely reflective of a choice not to use contraception while breastfeeding. Although some may disagree with the choice or believe it to be ill-informed, it does not suggest any supply-side reason for nonuse. To ensure that all people with supply-side unmet need were counted, anyone who reported any supply-side reason was grouped in supply-side unmet need, regardless of any additional demand-side reasons they may have supplied.

Analysis

Using the DHS data, we produce estimates of supply-side unmet need, demand side-unmet need, and unknown reason for unmet need in seven

countries. Because of varying conceptions of access, we present these estimates for each of the three conceptions of unmet need: The strictest interpretation of access (Version 1), the moderate interpretation of access (Version 2), and the broadest interpretation of access (Version 3). In addition to representing different conceptual approaches to calculating demand-side unmet need, these three versions also serve as a sensitivity analysis for this proof-of-concept, showing how robust the conceptualization of the construct is under varying specifications. We present these estimates both for each country individually, as well as pooled together for a seven-country average.

Using Version 2, our moderate conception of access, we disaggregate types of unmet need by marital status, level of education, and age group, to explore differences in trends in supply-side/demand-side unmet need across these factors. Marital status consisted of either currently married women or sexually active unmarried women. The survey defines “sexually active” as a respondent reporting having sex in the last 30 days. The DHS divides level of education into four groups. However, due to its relatively small number of observations for the countries examined we folded group four into group three. The remaining three groups were: (a) no education, (b) primary, and (c) secondary or higher. All estimates presented for education level are among married women only, to better contextualize the results within the standard approach to calculating unmet need. Finally, we examine unmet need by three age groups: (a) 15–24, (b) 25–34, and (c) 35–49. Disaggregation by age group did not produce any discernible trends or meaningful differences by age and, thus, are not presented below.

Results

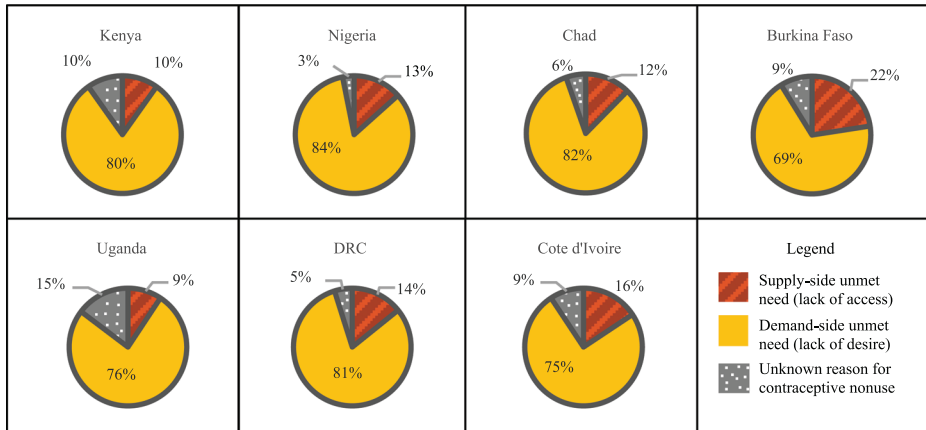
We present country-specific estimates for unmet need among all women in Table 1, disaggregated into supply-side unmet need and demand-side unmet need. These estimates are also presented according to the three different conceptualizations of access: strict, moderate, and broad. Demand-side unmet need (lack of demand for contraception) is considerably higher than supply-side unmet need (lack of access) across all countries and across all three conceptions of access. The average demand-side unmet need across the seven countries using Version 1-Strict is 15.0 percent, while supply-side unmet need is 1.3 percent. For Version 2-Moderate, demand-side unmet need averages 13.7 percent, compared to 2.6 percent for supply-side unmet need. Finally, in the broadest understanding of access, demand-side unmet need averages 11.8 percent compared to 4.5 percent for supply-side unmet need. Using our moderate conception of access, supply-side unmet need (lack of access to contraception) ranges from 0.6 percent of women in Kenya to 4.6 percent of women in Burkina Faso. Demand-side unmet need,

TABLE 1 Unmet need disaggregated by supply-side and demands-side types, by country and version

	Kenya, 2014	Nigeria, 2013	Chad, 2014-2015	Burkina Faso, 2010	Uganda, 2016	DRC, 2012-2014	Côte d'Ivoire 2011-2012	Seven- country average
Total unmet need	6.0%	12.7%	18.6%	20.4%	20.4%	22.5%	23.5%	17.7%
Unknown reason for unmet need	0.6%	0.4%	1.0%	1.8%	3.0%	1.1%	2.2%	1.4%
Version 1: Strict conception of access								
Supply-side unmet need	0.1%	0.8%	1.2%	2.4%	0.3%	1.9%	2.2%	1.3%
Demand-side unmet need	5.3%	11.5%	16.4%	16.3%	17.1%	19.5%	19.2%	15.0%
Version 2: Moderate conception of access								
Supply-side unmet need	0.6%	1.7%	2.3%	4.6%	1.9%	3.2%	3.7%	2.6%
Demand-side unmet need	4.9%	10.6%	15.3%	14.0%	15.5%	18.2%	17.7%	13.7%
Version 3: Broad conception of access								
Supply-side unmet need	2.1%	2.9%	3.0%	6.8%	4.8%	4.8%	7.0%	4.5%
Demand-side unmet need	3.4%	9.4%	14.6%	11.8%	12.7%	16.5%	14.4%	11.8%

NOTE: Figures may not add up precisely due to rounding.

FIGURE 3 Proportion of unmet need by type, including unknown reasons (Version 2-Moderate)



in contrast, ranges from 4.9 percent of women in Kenya to 18.2 percent of women in the DRC.

Figure 3 shows the proportion of total unmet need that is attributable to demand-side, supply-side, or unknown reasons using Version-2, the moderate conception of access. These results show that demand-side unmet need (lack of demand for contraception) is responsible for the vast majority of total unmet need across all seven countries, ranging from 69 percent of unmet need in Burkina Faso to 84 percent of unmet need in Kenya. Supply-side unmet need (lack of access to contraception) is responsible for between 9 percent (Uganda) and 22 percent (Burkina Faso) of unmet need. Finally, unknown reasons for contraceptive nonuse account for between 3 percent (Nigeria) and 15 percent (Uganda) of the unmet need we measure in these seven countries.

Unmet need by marital status and educational attainment

Overall levels of unmet need are greater among married women than among sexually active unmarried women across all seven countries (Table 2). Levels of conventional unmet need among married women range from 8.2 percent in Kenya to 28.0 percent in Uganda, while among sexually active unmarried women the range is from 3.5 percent (Kenya) to 21.9 percent (Côte d'Ivoire). These differences by marital status, however, do not appear to be driven by any systematic differences in supply-side versus demand-side unmet need.

Using Version 2-Moderate across all settings and marital statuses, the vast majority of unmet need is due to demand-side factors as opposed to supply-side factors (Figure 4). The country where supply-side unmet need contributes most to overall unmet need among married women is Burkina

TABLE 2 Supply-side and demand-side unmet need (Version 2-Moderate), disaggregated by marital status and educational attainment

	Supply-side unmet need	Demand-side unmet need	Unknown reason for unmet need	Conventional unmet need
Kenya, 2014				
All women	0.6%	4.9%	0.6%	6.0%
Married	0.7%	6.5%	0.9%	8.2%
Unmarried	0.4%	2.8%	0.2%	3.5%
No education	2.0%	7.9%	0.9%	10.8%
Primary education	0.6%	5.6%	0.8%	7.0%
Secondary education	0.3%	3.5%	0.3%	4.1%
Nigeria, 2013				
All women	1.7%	10.6%	0.4%	12.7%
Married	2.3%	13.0%	0.6%	15.9%
Unmarried	0.3%	5.2%	0.1%	5.6%
No education	2.5%	10.9%	0.5%	13.9%
Primary education	2.0%	14.1%	0.6%	16.7%
Secondary education	0.9%	9.0%	0.4%	10.2%
Chad, 2014–2015				
All women	2.3%	15.3%	1.0%	18.6%
Married	3.1%	17.8%	1.2%	22.2%
Unmarried	0.5%	10.0%	0.4%	10.9%
No education	2.5%	15.1%	0.9%	18.6%
Primary education	2.3%	16.5%	1.0%	19.8%
Secondary education	1.4%	14.4%	1.0%	16.8%
Burkina Faso, 2010				
All women	4.6%	14.0%	1.8%	20.4%
Married	5.8%	16.4%	2.3%	24.4%
Unmarried	1.1%	6.8%	0.3%	8.2%
No education	5.5%	15.2%	1.9%	22.6%
Primary education	3.2%	13.2%	2.1%	18.5%
Secondary education	0.8%	8.0%	0.6%	9.4%
Uganda, 2016				
All women	1.9%	15.5%	3.0%	20.4%
Married	2.5%	20.5%	5.1%	28.0%
Unmarried	1.7%	13.3%	2.1%	17.1%
No education	2.6%	20.4%	3.4%	26.4%
Primary education	2.5%	16.6%	3.5%	22.6%

/...

TABLE 2 (Continued)

	Supply-side unmet need	Demand-side unmet need	Unknown reason for unmet need	Conventional unmet need
Secondary education	0.7%	12.1%	2.1%	14.9%
DRC, 2012–2014				
All women	3.2%	18.2%	1.1%	22.5%
Married	4.2%	20.0%	1.7%	25.9%
Unmarried	2.3%	16.6%	0.6%	19.4%
No education	4.0%	19.5%	0.9%	24.4%
Primary education	3.8%	20.8%	1.2%	25.7%
Secondary education	2.4%	15.7%	1.1%	19.3%
Côte d'Ivoire, 2011–2012				
All women	3.7%	17.7%	2.2%	23.5%
Married	3.9%	19.5%	2.7%	26.1%
Unmarried	3.6%	16.5%	1.8%	21.9%
No education	4.8%	18.7%	2.3%	25.9%
Primary education	3.2%	19.4%	2.5%	25.0%
Secondary education	1.5%	13.0%	1.6%	16.0%

NOTE: Figures may not add up precisely due to rounding.

FIGURE 4 Proportion of unmet need by type and marital status (Version 2-Moderate)

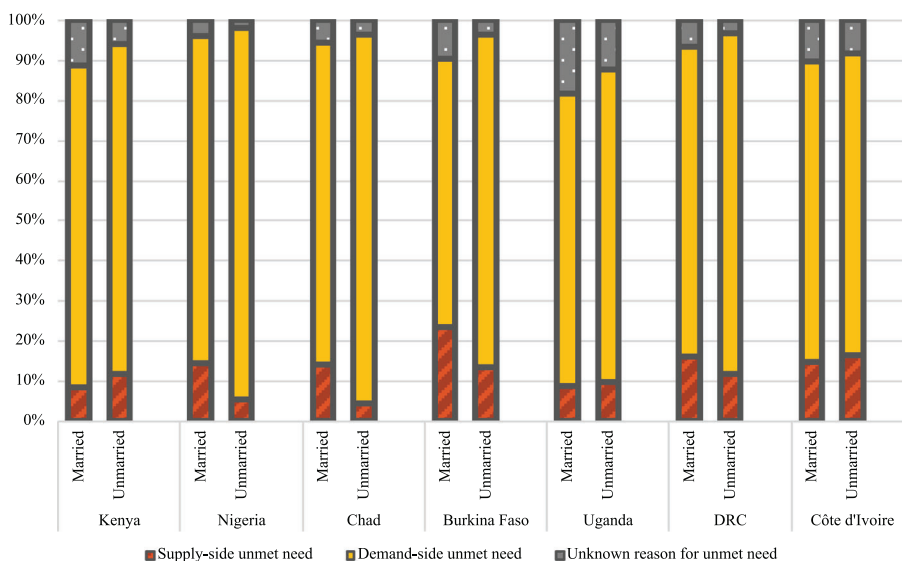
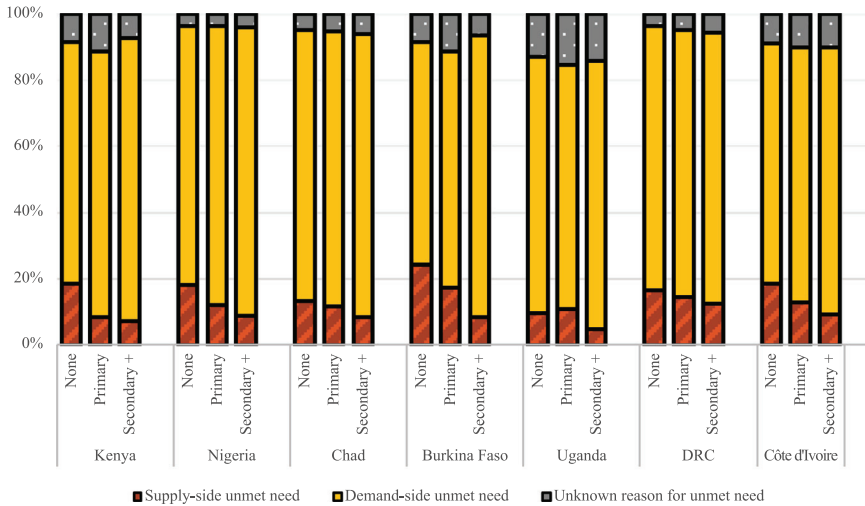


FIGURE 5 Proportion of unmet need by type and educational attainment (Version 2-Moderate)

Faso, where lack of access is responsible for 23.8 percent of conventional unmet need among married women, and 13.4 percent of conventional unmet need among unmarried sexually active women. Supply-side reasons contribute the most to unmet need among unmarried women in Côte d'Ivoire, where they are responsible for 16.4 percent of unmet need (compared to 14.9 percent among married women). For no subgroup by marital status do we observe supply-side factors accounting for more than a quarter of overall unmet need. In contrast, we observe higher levels of demand-side unmet need across all seven countries. The proportion of unmet need attributable to demand-side causes among unmarried women ranges from 75.3 percent in Côte d'Ivoire to 92.9 percent in Nigeria. Among married women, the proportion of conventional unmet need attributable to demand-side reasons ranges from 67.2 percent in Burkina Faso to 81.8 percent in Nigeria.

In four of the seven countries (Kenya, Burkina Faso, Uganda, and Côte d'Ivoire) we observe a gradient by educational attainment for overall levels of unmet need, in which less education is correlated with higher unmet need. Across all seven countries, the most educated groups (those with secondary education or higher) have the lowest levels of conventional unmet need. We observe a similar gradient for supply-side unmet need across countries, with the proportion of supply-side need out of all unmet need tending to be greater among those with no education and least among those with secondary education or higher (Figure 5). Among those with no education, supply-side reasons for unmet need contribute from a high of 24.3 percent of overall unmet need in Burkina Faso to a low of 9.8 percent of overall unmet need in Uganda. Among those with secondary education or more,

supply-side reasons are responsible for 4.7 percent of overall unmet need in Uganda, up to 12.4 percent of total unmet need in the DRC.

Despite this variation, demand-side reasons remain a far larger contributor to overall unmet need than supply-side reasons across all education groups and across all countries. Among those with no education, demand-side reasons contribute from 67.3 percent of overall unmet need in Burkina Faso to 81.2 percent of overall unmet need in Chad. Among the most educated, demand-side unmet need is responsible for 81.2 percent of overall unmet need in Uganda, ranging to 88.8 percent in Nigeria.

Discussion

Reducing or eliminating unmet need has been a central tenet of family planning programs in the Global South for decades, but this analysis suggests that the vast majority of those ascribed a conventional unmet need may not have any demand for contraception (Cleland et al. 2006; Peterson, Darmstadt, and Bongaarts 2013). The unmet need indicator has faced critique and revisions, but remains one of family planning's most prominent indicators despite (or perhaps because of) pervasive misinterpretation of what the indicator does. In this paper, we used varying conceptions of access to explore what proportion of unmet need can be attributed to lack of access as opposed to a lack of demand for contraception. Using strict, moderate, and broad conceptualizations of access, we parsed out supply-side unmet need and demand-side unmet need for seven sub-Saharan countries. These analyses show that, even in the broadest definition of access, supply-side unmet need (from lack of access) accounted for only about a quarter of total unmet need across all seven countries. On the other hand, demand-side unmet need (lack of desire to use contraception) accounted for at least two-thirds of overall unmet need even using the most expansive conception of access. Using a stricter definition of access that focuses on geographic and financial barriers to contraceptive services, only 7 percent of unmet need was attributable to supply-side reasons across the seven countries, while lack of demand was responsible for nearly 85 percent of unmet need.

Despite the common interpretation of unmet need as a lack of access to a desired method, this analysis finds that lack of access accounts for a small proportion of unmet need in these settings, a finding in line with the results of other studies (Machiyama and Cleland 2014; Sedgh and Husain 2014). Using our moderate definition of access across an average of all seven countries we look at, the overall level of conventional unmet need of 17.7 percent drops to just 2.6 percent if we only include women who report a supply-side reason for their contraceptive nonuse. The direction and magnitude of these findings hold true across all seven countries we examined, disaggregated by age, marital status, and educational attainment.

Although we find some variation (most notably that supply-side barriers seem to be more prominent among those with less education), we find that even among those with no education, demand-side unmet need still accounts for more than two-thirds of unmet need across all countries we examined. These findings strongly suggest that most women ascribed a conventional unmet need are making a choice not to use contraception, regardless of age, educational attainment, or marital status.

Health literacy is always pertinent when discussing an individual's choice to forgo services that many health providers deem beneficial. This has been particularly evident in the large body of family planning literature regarding "myths and rumors" as reasons for contraceptive nonuse in the Global South (Farmer et al. 2015; Stoddard, McNicholas, and Peipert 2011; Rutenberg and Watkins 1997; Krenn et al. 2014; Mushy et al. 2020). Our broadest conceptualization of access included these types of health concerns as a supply-side contributor to unmet need. This understanding of health concerns over contraception as a supply-side barrier relies on the assumption that, for at least some women, better contraceptive counseling (on things such as method-related side effects) might assuage concerns about the health effects of contraceptive methods and lead to contraceptive use. The need for improved counseling quality (and indeed, for the development of new contraceptive methods with fewer side effects) has been well-documented in the literature (Speizer et al. 2014; Tumlinson et al. 2015; Holt et al. 2018).

Our moderate and strict conceptions of access, however, include health concerns as a demand-side reason for nonuse, based on the assumption that women's self-assessment and concerns about the ways that contraceptive use might impact their bodies are legitimate and deserve to be respected. Especially for women for whom the desire to avoid a pregnancy is weak, the desire to avoid contraceptive side effects may be a more compelling motivator, thus resulting in contraceptive nonuse (Rocca et al. 2019). Although fear of contraceptive side effects is often attributed to a belief in myths and rumors about family planning, Sedgh et al.'s analysis of reasons for contraceptive nonuse found that those who cite health concerns as their reason for nonuse are more likely than others to have actually used a modern method in the past (Sedgh, Ashford, and Hussain 2016). This suggests that many of these nonusers have previously tried modern methods and decided that the side effects (or other drawbacks) were not worth it for them. We suggest that those who make this informed choice to not use contraception should not be considered to have unmet need. Ensuring that everyone has accurate information to make health decisions is extremely important, but the notion that women would only choose not to use contraception if they were ill-informed is steeped in paternalism and gendered assumptions about contraception use (Littlejohn 2021).

Proponents of the unmet need indicator readily acknowledge that the choice not to use contraception despite not wanting to become pregnant is borne out of women's "deliberate weighing of costs and benefits" (Casterline and Sinding 2000). These researchers find that the disparity between a person's stated desire to avoid pregnancy and her choice not to use contraception can be explained by "competing preferences," leading to the eventual unmet need. Although all choices in life require trade-offs, we argue here that attributing an unmet need to women who have access to contraception but choose not to use it serves the interests of neither the women themselves, nor any rights-based programs that seek to serve them. By separating out those with demand-side unmet need and respecting their choices not to use contraception, family planning researchers and programs can create more person-centered approaches to their work. Conversely, by focusing on those with a supply-side unmet need, programs and researchers can home in on those who truly do lack access to services, and whose "need" truly is "unmet" in the truest, most intuitive sense of the term.

Limitations and avenues for future research

Unmet need type was categorized based on survey data pertaining to reasons for nonuse. Unknown reason for contraceptive nonuse was not negligible in these data, limiting our ability to ascertain whether unmet need was attributable to demand-side or supply-side reasons for some respondents. We chose to include those respondents here, since this proof-of-concept should show both the strengths and limitations of this approach. An agenda for future research would include following up with women who did not answer this question, using in-depth cognitive interviewing to better understand reasons for nonresponse. Additionally, many respondents to the DHS give only one reason for not using a method during the quantitative survey, in contrast to a wealth of evidence showing that reasons for contraceptive nonuse are manifold and rarely exist in isolation (Brown and Guthrie 2010; Iuliano et al. 2006; Cheung and Free 2005; Borrero et al. 2015; Wu et al. 2008; Adebowale and Palamuleni 2014; Ochako et al. 2015; Coombe et al. 2020). Rather than having a single reason for contraceptive nonuse that fits neatly into the demand-side or supply-side buckets, it is likely that many women actually have a complex rationale for contraceptive nonuse that straddles both categories. These limitations highlight the need for better data on reasons for contraceptive nonuse, barriers to contraceptive autonomy, and contraceptive decision-making processes among nonusers. Our choice to categorize any respondent who included a supply-side reason even if secondary to a demand-side reason as supply-side unmet need may mean that supply-side unmet need is overestimated. Additional research is needed to better understand if and how these results may vary throughout the Global South more broadly.

And perhaps most importantly, we note that despite the increase in person-centeredness that comes from looking at reasons for contraceptive nonuse, supply-side unmet need fails to address one of the most important critiques of unmet need: that it ascribes a need to a woman that she may not ascribe to herself. Through removing women who clearly have no demand for contraception and focusing only on those who lack access, we may presume that our indicator better identifies those with a true unfulfilled desire to use contraception. Even focusing on supply-side unmet need, however, still excludes women's own perspectives on their needs. This is a notable limitation indeed in the era of person-centered care. Future work on unmet need should seek to go beyond the data sources currently available in order to incorporate women's own perspectives and thoughts about contraceptive use desires and access to wanted methods into novel forms of measurement.

Conclusion

The unmet need indicator has been used as the foundation not just for the scientific study of family planning, but has been adopted by development initiatives for the purposes of service delivery planning, reproductive health agenda-setting and goal-tracking (Malarcher and Polis 2014). With no common population-based indicators designed to measure access or rights-based outcomes, global health initiatives seeking to measure these outcomes have turned to unmet need by default, as their best option among existing family planning metrics (Cottingham, Germain, and Hunt 2012; Bernstein and Edouard 2007). Though the goals are laudable, using unmet need to try to assess concepts like barriers to contraceptive access or reproductive rights by proxy (concepts it was never designed to measure) has resulted in a substantial misinterpretation of the global reproductive health landscape, and a major misclassification of the contraceptive needs of millions of women. And indeed, rather than fading away, the flawed conception of "need" in the unmet need indicator has been gaining new steam and spreading to new indicators in recent years. Perhaps most notably, the offshoot of unmet need entitled "proportion of need satisfied by a modern method" has been adopted as the sole family planning indicator included in the Sustainable Development Goals.

In light of the substantial role that demand-side unmet need plays in conventional unmet need estimates, we must consider how much of unmet need is really unmet need at all. Demand-side unmet need represents women who are choosing not to use contraception, not because contraception is inaccessible, but because they do not see a need for it in their own lives. Whether they have infrequent sex or simply do not like contraception, a large proportion of nonusers are making conscious and informed decisions not to use family planning methods, even when not actively

seeking a pregnancy in the next two years. If these reasons have nothing to do with method availability or unduly constrained agency, we must seriously reconsider the idea that there is an unmet need. An indicator that overlooks or ignores a person's stated reproductive choice allows providers to privilege external values above those of their patients can even create incentives for provider coercion (RamaRao and Jain 2015; Senderowicz 2019).

In this era where decolonizing global health has become a mantra, it is essential to examine the ways that the voices of women from the Global South have been systematically excluded from decades of policy debate about their bodies and their families. Even in a case like unmet need where the global family planning community collects data on reasons and preferences, researchers and program implementers have, for too long, failed to see the relevance of these data or incorporate this information into the measurement agenda. New, person-centered approaches to family planning measurement are needed that will radically refocus on reproductive health and contraceptive autonomy. In the meantime, separating demand-side and supply-side unmet need allows us to leverage existing data to gain better insight into the proportion of women who lack access to contraception compared to those who simply made a choice not to use it. Trusting women in the Global South to be the experts on their own contraceptive needs is one small way to promote a more justice-centered approach to family planning.

Data availability statement

The data used in this analysis are from the Demographic and Health Surveys, a freely available data source at <https://dhsprogram.com/Data/>.

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