REVIEW ARTICLE

Estimating unmet need for family planning: A new look at the Bradley, Croft, Fishel and Westoff (2012) Algorithm

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Abstract

Every year, hundreds of millions of women face the painful experience of unwanted pregnancies. To address this situation, access to and use of reproductive health services, including for family planning purposes, has been considered a Sustainable Development Goal (SDG). However, many women cannot access family planning services due to a common methodological error in surveys used to estimate unmet needs. In this article, I have discussed this historical error that has been widely accepted by the scientific community as well as perspectives that could reduce the incidence of unwanted pregnancies around the world. *(Afr J Reprod Health 2021; 25[6]: 155-161).*

Keywords: Unmet need, family planning, contraception, unintended pregnancy

Résumé

Chaque année, des centaines de millions de femmes vivent l'expérience douloureuse des grossesses non désirées. Pour corriger cette situation, l'accès et l'utilisation des services de santé génésique y compris à des fins de planification familiale sont portées aux rangs des Objectifs de Développement Durable (ODD). C'est dire que la planification des naissances est un droit humain fondamental. Cependant, beaucoup de femmes ne peuvent pas jouir de ce droit en raison d'une erreur méthodologique banalisée dans les enquêtes d'estimation des besoins non satisfaits. Dans cet article, j'ai évoqué cette erreur historique dont la société savante s'est appropriée ainsi que des perspectives qui permettraient de réduire l'incidence des grossesses non désirées dans le monde. *(Afr J Reprod Health 2021; 25[6]:155-161).*

Mots-clés: Besoins non satisfaits, planification familiale, contraception, grossesses non planifiées

Introduction

Before starting this review, it is important to briefly make some clarifications to avoid any terminological confusion. "Unmet need for family planning" commonly refers to the "unmet need for contraception" in women aged 15-49 who are at risk of unintended pregnancies. However, the terms "contraception" and "family planning", often used interchangeably in the literature, do not have the same meaning.

"Family planning" is the control over reproduction by couples who choose how many and when to have children. They do this through a variety of methods including contraception, treatment of infertility and abortion[1]. Therefore, one couple could delay the next pregnancy by practising spacing contraception while another could plan by treating infertility. Although the goals of pregnancy spacing and the treatment of infertility are both part of the family planning process, the means to achieve them are different. Modern or medical contraception can temporarily or permanently prevent pregnancy while successful treatment of infertility results in a birth. However, "contraception" is not "family planning" even if the two expressions are interchangeably used in the literature. This interchangeability reflects a practical solution to a theoretical difficulty: authors use "family planning" to refer to "contraception" because it is the most consensual method and most acceptable term. "Family planning" covers a variety of practices that enable people to control births including abortion, especially in countries where voluntary termination of pregnancy is a legal practice[4] as well as child abandonment and infanticide[5]. For example, every year, millions of women

experience unintended pregnancies and abortions. Bearak, Popinchalk, Ganatra, Moller, Tunçalp, Beavin, Kwok and Alkema[2] estimate that during the period 2015-2019, there were 605 million unwanted pregnancies worldwide, of which 365 million were aborted. In other words, abortion remains an important means of family planning around the world. However, the action plan resulting from the International Conference on Population and Development (ICPD) held in Cairo in 1994 underlined that "In no case should abortion be promoted as a method of family planning"[3]. This rejection of abortion as an instrument for regulating births at the international level reinforces the importance of contraception as a means of family planning. It also means that when it comes to advocacy, social mobilization and social marketing, official discourse has focused on "family planning" rather than "contraception" as more acceptable because "contraception" conveys an ideological assumption hinting at intrusion into the privacy of others whereas "family planning" conveys a perspective more respectful of the freedom of couples who are responsible for making decisions about their reproductive life. These reasons have arguably contributed to the use of the term "family planning" to refer to "contraception" in international discourse. As a result, the indicator for "unmet need for family planning" typically refers to the more narrowly defined "unmet need for contraception" and more specifically for modern contraception. It is important to mention these differences to contextualise the discussions about family planning.

Importantly, access to and use of contraceptive methods are considered today as a fundamental human right which strengthens the enjoyment of other rights such as the right to life, to health, to work, and to education[6-10]. Universal access to sexual and reproductive health services, including family planning, is an element of the Sustainable Development Goals (SDGs)[11]. Global estimates suggest that the abortion rate has returned to the level observed in the 1990s even though unwanted pregnancies have been steadily declining over the past 30 years[2]. This suggests that unwanted pregnancies are still a concern for women around the world, particularly in developing countries where 218 million women aged 15-49 express an unmet need for modern contraception compared to 270 million globally[10,13]. Rigorous estimation of the "unmet need for family planning" indicator is essential for optimizing strategies to achieve modern contraceptive coverage in the fight against unintended pregnancies[12] and to guide specific family planning programs. However, the correct estimation of this indicator remains a challenge in research circles. According to Bradley, Croft, Fishel and Westoff (2012)[14], the traditional approach to measuring "unmet need for family planning" does not allow for reliable estimates that are comparable between various surveys or to track trends over time and space. The authors think this is due to multiple changes to the initial definition of "unmet need for family planning" that have been made over time to refine the algorithm and have more accurate estimates. Note that the concept of "unmet need for family planning", designating the proportion of women who do not wish to be pregnant and who do not use contraception, has been revised several times since its introduction in the 1960s[15]. Bradley, and her colleagues underlined in 2012 that the estimates of "unmet need for family planning" were of little use because they posed a problem of reliability and did not allow proper monitoring of the progress made towards achieving global goals in terms of access to contraception[12,14]. It was therefore necessary to develop a new algorithm to make the method of estimating the indicator more reliable and harmonized. This would make it possible to compare estimates between surveys and to objectively monitor trends at national and regional levels[14].

To meet this challenge, Bradley and her colleagues reported that through the Measure DHS initiative, a group of experts had started in July 2010 to reflect on the needed modifications to the original definition of "unmet need in family planning"[14] This work was an important step in the process leading to the algorithm developed by Bradley *et al*[14] which is currently used to estimate the indicator globally[14]. According to the new algorithm, "unmet need for family planning" typically includes married women aged 15 to 49, fertile, non-pregnant, non-postpartum amenorrhea, and sexually active who do not desire pregnancy in the next two years or more, and who are not using contraception. This definition also covers women whose last pregnancy/birth was not desired. Assessments based on this algorithm now inform policies on the supply of modern

contraceptive services, especially in countries of the South where contraceptive prevalence remains largely below the level reached in the countries of the North[13,16]. Despite the admiration for the rigor characterizing the process leading to the creation of Bradley *et al*'s algorithm, this method of assessing "unmet needs in family planning" still raises important questions. In the conclusion of their research article, Bradley and her colleagues rightly point out the complexity of the indicator assessment work as well as the weaknesses of the new algorithm they developed. For example, they mention among other things that an "unmet need for family planning" does not necessarily indicate a woman's desire to use contraception[14]. It simply assumes that researchers estimate "unmet need for family planning" or "modern contraception" to be more precise, without making sure that the women surveyed want to use modern contraceptives. Yet, the estimated indicator is intended to inform family planning program interventions to increase modern contraceptive use by women. If we pay attention, Bradley *et al*'s research limitation is not a trivial research weakness. Rather, this limitation is a major shortcoming which poses scientific, philosophical, and social problems that would hamper the provision of modern and effective contraceptive services in a context where each year, hundreds of millions of women continue the painful experience of unintended pregnancies. I will cover a few aspects of this problem in the next section. But first, let's quickly revisit the historical foundations of "unmet need for family planning" which led to the methodological error that has been accepted by the scientific community.

Unmet need for family planning: Historical foundations

It is essential to understand the genesis of family planning programs in southern countries as well as the reason for the silence about including women's desire to use modern contraception in surveys that quantify the "unmet need for family planning" indicator. Firstly, it must be said that we cannot objectively present the genesis of family planning programs in developing countries without confronting key historical facts. Indeed, in the middle of the 20th century in the West, especially in the United States, the idea gained traction of promoting the development of certain regions of the world. In his inaugural address to the White House in January 1949, President Truman announced his intention to put the technical and scientific progress of the West at the service of the civilization of the underdeveloped regions[17,18]. Thus, a new picture of the non-Western world was born: the underdeveloped countries[19]. It is from the concept of underdevelopment that the idea of development, presented as the improved or even completed form of underdevelopment, emerged[17]. Note that the concept of underdevelopment has been strongly critiqued in the literature[20,21]. Nonetheless, this concept, which Tabah[22] qualified as a notion without clarity or elegance became the dominant discourse in organizing relations between the West and the rest of the world.

Secondly, the rhetoric around the notion of "underdevelopment" combined with the demands for independence which arose in certain populous ex-colonies such as British India and Dutch Indonesia gave rise to Westerners' fear of a demographic explosion because they perceived development issues in demographic terms[22,23]. In other words, neo-Malthusian demographers assumed that declines in fertility would make it possible to eradicate poverty, hence the relevance of family planning[24-26]. A dynamic was set in motion, mainly by American private organizations[23], favoring reduced fertility. At the same time, the World Bank and the International Monetary Fund made policies to reduce births a condition for underdeveloped countries to access loans and other financing[23,27]. Thanks to American leadership and funding, Knowledge, Attitudes, and Practices (KAP) surveys were conducted in underdeveloped countries to study women's reproductive behavior, in particular their fertility intentions as well as their knowledge and practices in contraception[23,28]. These surveys showed that women had more children than they wanted with little knowledge of contraception[29]. Researchers interpreted these results as unmet need for family planning, and therefore the need for modern contraception despite not having probed the desire of women to use contraception[28]. This constitutes a major weakness of these surveys. Referring to similar research weaknesses regarding the KAP surveys, Piché and Poirier[28] asserted that the surveys were aimed less at understanding women's reproductive behaviors than at recruiting clients for future family planning programs that were needed to justify the research relevance. The authors characterize the KAP survey era as the

poorest and most ideological period in demography. Three decades after this remark, the method of estimating "unmet need for family planning" is not without its criticisms. In my opinion, the method of estimating "unmet need for family planning" is intellectually disturbing, scientifically flawed, and socially unacceptable because of the "veto" that researchers have put on the question of women's desire to use modern contraception during assessment surveys. Let's now unpack the problems raised by the method of estimating the indicator for "unmet need for family planning".

Method of estimating unmet need for family planning: philosophical, scientific, and social issues

Philosophical and scientific aspect of the problem

It is not redundant to recall that modern contraception remains a formidable instrument for building modern and self-sufficient societies and it is an infallible tool for social development. It allows couples to avoid unwanted pregnancies and maternal deaths, promotes maternal and child health and gender equality, improves the social status of women, saves money in the health sector, and reduces poverty[29]. So, it is rightly spoken of today in terms of a basic human right. In addition, contraception is the most consensual means of family planning, thus offering a tremendous opportunity to eradicate the suffering associated with unwanted pregnancies. To achieve this, research has for decades used the so-called "unmet need for family planning" indicator to justify interventions against unintended pregnancies. However, the method of determining this indicator continues to prompt reflection.

According to the Larousse dictionary, a need is a "requirement born out of a feeling of lack, of deprivation of something which is necessary for organic life". So, above all, a "need" implies an explicit or latent demand on the part of a biological entity. And we can assume in absolute terms that the absence of contraceptive use associated with a desire to postpone or stop procreation corresponds to an unmet need for family planning. However, as understandable as it is, this simplification is similar to what can be observed in intensive care rooms where health professionals identify the needs of comatose patients. based solely on biological measurements. Fortunately, in this case, women are aware of the reality of modern contraception and have things to say about this practice given that the topic has been discussed for good or bad all over the world for several generations. Almost all, or nine out of 10 married women, have heard of modern contraception, according to demographic and health survey data from several developing countries[30-33]. Moreover, recent studies exploring the causes of unmet need for family planning show that lack of knowledge/lack of information on modern contraception is a marginal reason for non-use among married women[34,35]. Presumably, information about modern contraception has reached almost everyone, and research with women can be undertaken without fear of the risk that they will dismiss or not understand the issue. There is therefore no excuse for not asking women in surveys about unmet needs if they really want to use medical or modern contraceptives. And yet, studies examining the causes of unmet need for family planning do not provide explicit information on the desire of women to use contraceptives. Consequently, these studies provide information that demonstrates the methodological error made by researchers in estimating unmet need for contraception without examining whether women want to use it. For example, Sedgh, Ashford and Hussain[35] show that fear of side effects and health risks is the first of the four main reasons for not using modern contraception among married women in developing countries. However, researchers arbitrarily include women who do not use modern contraception because they fear it in the "total demand for family planning", a key indicator of reproductive health. Specifically, they determine "total family planning demand" by adding the number of women who are currently using contraception to those who have unmet need. There is a catch because women who do not use contraception because they are afraid of it, cannot be counted among those who ask for it. This is a significant error arising from the method of estimating unmet need.

Remember that in general, identifying a need is an essential step in the development intervention process. To implement a relevant intervention, the needs identified with the individuals targeted for the action must reflect

their desires. In the case of preventing unintended pregnancies, researchers only identify unmet need for contraception among women without knowing whether the data reflect their desire for contraception. This research practice is, to say the least, blind to gender analysis insofar as the experiences and especially the expectations of women in terms of contraception are not explored. It is no exaggeration to say that in surveys to estimate the unmet need for family planning, researchers "veto" women's expectations for contraception and produce the data according to their own frame of reference. To better understand social relationships and phenomena, Harding[36] suggests that researchers begin by exploring narratives outside of dominant conceptual frameworks. However, the fact that researchers will explore unmet need for family planning by assuming a priori that all women want to use modern contraception is a subtle way of imposing another conceptual framework onto them. It is quite the opposite of gender analysis. The methodological posture that women's contraceptive use is already affected by too many gender issues, let alone adding more issues, risks leading to the production of data of low epistemic value which will pose social problems in the fight against unwanted pregnancies.

Social aspect of the problem

Harding[36] considers that the mobilization of data produced by applying the conceptual framework of dominant groups in the development of policies does not address social inequalities for the simple reason that the dominated groups have a different frame of reference from that of the dominant groups. Therefore, the fact that researchers estimate the unmet needs for family planning by assuming in advance that all women who wish to delay or stop childbearing want to use modern contraception is a missed opportunity to listen to and identify those who do not want to use it and their reasons why. In other words, the way researchers determine unmet needs for modern contraception does not consider women's experiences and their social representations of the practice. However, their experiences / social representations of contraception determine their attitude towards the practice because having an unmet need for family planning is not enough to adopt a modern contraceptive method.

As noted above, research results have suggested that women have reasons to be suspicious of contraceptive technology. Through a systematic review on the impact of side effects of various contraceptive methods on the sexual experience of women in several geographic areas, Wood, Karp, and Zimmerman[37] reported problems of menstrual dysfunction affecting libido, sexual pleasure, lubrication, female sexual function, on the one hand; and inducing dyspareunia, on the other hand. However, health professionals often trivialize women's complaints about these effects which seriously affect their quality of life[38,39]. This leads many women to stop using contraception around the world[40]. Also, it should be noted that research regarding the impact of modern contraception on female sexuality is scarce in developing countries[34]. In other words, the difficulties encountered by women using modern contraception are not an important object of social science study in regions where contraceptive prevalence remains low. These data explicitly indicate that the physical and mental suffering associated with the use of contraception by women is not yet receiving due attention. This symbolizes additional trivialized gender-based violence among women who exclusively bear the chemical burden of modern contraception. It should be noted that poor management of side effects by health workers prompts women to give up contraception and share their experiences through their social network. This naturally reinforces the fear of contraceptives in public opinion, especially among women. Hence the interest in explicitly including questions in surveys to assess unmet needs in family planning that will deepen understanding about the expectations and reluctance of those who want to avoid unwanted pregnancies and who do not want to use medical or modern contraceptives. This is how we can encourage governments and pharmaceutical industries to think about the development of new safe and effective contraceptives.

Conclusion

Women need effective contraception to prevent unintended pregnancies. However, it is unfair that many of them are today forced to choose the lesser of two evils: to live the painful experience of unwanted pregnancies or to sacrifice quality of life through using a feared and perfectible

contraceptive technology. In my opinion, the many women trapped in this binary option are living a situation of injustice because humanity has the resources to offer a better alternative. To do this, researchers must rethink the method of estimating unmet need for modern contraception. More specifically, research must consider the impact of contraceptive use on the quality of women's sexual life. That seems fundamental to me. Women should no longer practice medical or modern contraception to the detriment of their quality of life. For this change to happen, surveys aiming to assess unmet need for family planning need to preserve women's quality of sexual life by exploring their real expectations and needs in terms of contraception.

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References

1. WHO. Promouvoir la planification familiale, https://www.who.int/reproductivehealth/topics/family_planning/fr/, accessed september, 2020.
2. Bearak J, Popinchalk A, Ganatra B, Moller A-B, Tunçalp O, Beavin C, Kwok L and Alkema, L. Unintended pregnancy and abortion by income, region, and the legal status of abortion: estimates from a comprehensive model for 1990–2019, Lancet Global Health, 2020, 8(9).
3. United Nations. Programme of action, International Conference on Population and Development, 5 – 13 september, Cairo, 1994, https://www.unfpa.org/sites/default/files/event-pdf/PoA_en.pdf, accessed september, 2020.
4. Blayo, C. 1970. Fécondité, contraception et avortement en Europe de l'Est, Population, p. 829-846.
5. McLaren, A. 1996. Histoire de la contraception de l'antiquité à nos jours, Noêsis Paris
6. Organisation Mondiale de la Santé. Planification familiale/Contraception, bulletin d'information, 2020. https://www.who.int/fr/news-room/fact-sheets/detail/family-planning-contraception, accessed september, 2020.
7. Singh S, Darroch E J, Ashford S L and Vlassoff M. Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal and Newborn Health, New York: Guttmacher Institute and United Nations Population Fund, 2009.
8. UN Secretary General. Global Strategy for Women's and Children's Health. New York: United Nations, 2010.
9. Family Planning Can Reduce High Infant Mortality Levels. Guttmacher Institute, 2002 https://www.guttmacher.org/report/family-planning-can-reduce-high-infant-mortality-levels, accessed september, 2020.
10. Sully E A, Biddlecom A, Darroch E J, Riley T, Ashford S L, Lince-Deroche N, Firestein L and Murro R. Adding It Up: Investing in Sexual and Reproductive Health 2019, New York: Guttmacher Institute, 2020, https://www.guttmacher.org/sites/default/files/report_pdf/adding-it-up-investing-in-sexual-reproductive-health-2019.pdf, accessed september, 2020
11. Association québécoise des organismes de coopération internationale. Fiches explicatives des 17 Objectifs de Développement Durable : Bonne santé et bien-être, https://www.aqoci.qc.ca/?Fiches-explicatives-des-17-objectifs-de-developpement-durable, outil mis en ligne et modifié en 2019, accessed september, 2020.
12. Gastineau B, Rakotoson L et Andriamaro F. L'indicateur des Objectifs du Millénaire pour le développement : "besoins non satisfaits en matière de planification familiale". Quelle pertinence au Bénin et à Madagascar ? Mondes en Développement, 2016, Vol.44, n°174
13. Kantorová V, Wheldon MC, Ueffing P and Dasgupta ANZ. Estimating progress towards meeting women's contraceptive needs in 185 countries: A Bayesian hierarchical modelling study, PLoS Med, 2020, 17(2): e1003026
14. Bradley S E K, Croft T N, Fishel J D and Westoff C F. Revising unmet need for family planning, DHS Analytical Studies, n° 25, 2012, Calverton, Maryland, USA, ICF International. https://dhsprogram.com/pubs/pdf/AS25/AS25%5B12June2012%5D.pdf, accessed august, 2020
15. Bradley S E K, Croft T N, Fishel J D. 2011. Révision des besoins non satisfaits : En bref, résumé de l'analyse de Measure DHS. Rapport de recherche réalisée pour le compte de l'USAID, consulté en novembre 2021 sous le lien https://dhsprogram.com/pubs/pdf/OD63/OD63[12June2012_French].pdf
16. United Nations, Department of Economic and Social Affairs, Population Division. Family Planning and the 2030 Agenda for Sustainable Development. New York: United Nations. https://www.un.org/en/development/desa/population/publications/pdf/family/familyPlanning_DataBooklet_2019.pdf, accessed september, 2020.
17. Cliche P. Réflexions sur les concepts de « Pauvreté » et de « Développement ». Travail, Capital et Société 2003, 36 :2, p. 226-260.
18. Payaud M, Martinet A, et Amoussouga F. La contribution de la RSE aux Objectifs d'un développement durable de l'ONU : cadre d'analyse et de propositions pour les pouvoirs publics des « pays le moins avancés. Revue Française de Gestion 2014. n° 245, p. 133-158.
19. Berr É. À la recherche d'un autre développement In Berr É, Harribey JM, (Ed). Le Développement en question(s). Bordeaux : Presses Univ, 2006. p. 29-54.

20. Partant F. La fin du développement. Naissance d'une alternative ? Paris : F. Maspero,1983.
21. Latouche S. Contribution à l'histoire du concept de développement. In Coquery-Vidrovitch C, Hemery D, et Piel, J. (Éd). Pour une histoire du développement. État, sociétés et développement. Paris : L'Harmattan, p. 41-6.0, 1988.
22. Tabah L. Les Conférences mondiales sur la population. Population et Sociétés 1994, n° 290, Bulletin Mensuel d'Information de l'Institut National d'Études Démographiques.
23. Gautier A . Les politiques de planification familiale dans les pays en Développement : du Malthusianisme au féminisme ? Lien social et Politiques 2002, n° 47, p. 67-81.
24. Sutter J. Le mouvement dans le monde en faveur de la limitation des familles (1945-1954), Population, 1955, Vol. 10, pp. 277-294.
25. Chasteland JC. De la fin de la seconde guerre mondiale à la Conférence du Caire : la Communauté internationale face au problème de la croissance de la population mondiale. In J-C Chasteland et J-C Chesnais (Ed). La Population mondiale. Enjeux et problèmes. Paris, INED/PUF, Travaux et documents, 139 : 585-617, 1997.
26. Vimard P et Fassassi R. Démographie et développement en Afrique : éléments Rétrospectifs et prospectifs, Cahiers québécois de démographie 2011, vol. 40, n° 2, p. 331-364.
27. Banque mondiale. Enjeux démographiques du XXIème siècle. Le rôle de la Banque Mondiale. Document de travail. New York, Banque mondiale (Santé, nutrition et population) 2007, 74 p.
28. Piché V et Poirier J. Les théories de la transition démographique : vers une Certaine Convergence ? Sociologie et sociétés, 1990, vol. 22, n° 1, 1990, p. 179-192.
29. International Planned Parenthood Federation European network. Les besoins non satisfaits en matière de planificale famililale : Outil de plaidoyer mieux défendre l'importance de satisfaire les besoins https://www.countdown2030europe.org/storage/app/media/Brochure_ReproductiveHealth-FR-v6.pdf, accessed september, 2020.
30. Institut National de la Statistique et de l'Analyse Économique. Cinquième Enquête Démographique et de Santé au Bénin (EDSB-V) 2017-2018, https://www.insae-bj.org/images/docs/insae-statistiques/enquetes-recensements/EDS/2017-2018/1.Benin_EDSBV_Rapport_final.pdf, accessed september, 2020.
31. Institut National de la Statistique. Enquête Démographique et de Santé au Cameroun 2018, https://dhsprogram.com/pubs/pdf/FR360/FR360.pdf accessed september, 2020.
32. Agence Nationale de la Statistique et de la Démographie (ANSD) Sénégal : Enquête Démographique et de Santé Continue (EDS-Continue) au Sénégal 2017, http://www.ansd.sn/ressources/rapports/Rapport%20Final%20EDS%202017.pdf, accessed september, 2020.
33. Institut National de la Statistique et de la Démographie (INSD). Enquête Démographique et de Santé et à Indicateurs Multiples (EDSBF-MICS IV) au Burkina Faso 2010, https://dhsprogram.com/pubs/pdf/FR256/FR256.pdf , accessed september, 2020.
34. Machiyama K, Casterline B J, Mumah N J, Huda A F, Obare F, Odwe G, Kabiru W C, Yeasmin S and Cleland J. Reasons for unmet need for family planning, with attention to the measurement of fertility preferences: protocol for a multi-site cohort study, Reproductive Health, 2017, volume 14, Article number: 23, https://reproductive-health-journal.biomedcentral.com/articles/10.1186/s12978-016-0268-z , accessed september, 2020.
35. Sedgh G, Ashford S L and Hussain R. Unmet Need for Contraception in Developing Countries: Examining Women's Reasons for Not Using a Method, New York: Guttmacher Institute, 2016, https://www.guttmacher.org/report/unmet-need-for-contraception-in-developing-countries, accessed september, 2020.
36. Harding S. Objectivity and Diversity: Another Logic of Scientific Research, Chicago, University of Chicago Press, 2015.
37. Wood S N, Karp C and Zimmerman L. Women's sexual experiences as a side effect of contraception in low- and middle-income countries: evidence from a systematic scoping review, Journal Sexual and Reproductive Health Matters, 2020, Volume 28, 2020 - Issue 1 https://www.tandfonline.com/doi/full/10.1080/26410397.2020.1763652, accessed september, 2020.
38. Tolley E, Loza S, Kafafi L and Cummings S. The impact of menstrual side effects on contraceptive discontinuation : findings from a longitudinal study in Cairo, Egypt, International Family Planning Perspectives, 2005, 31(1) : 15–23.
39. Var C, Keller S, Tung R, Yao L and Bazzano A. (2014) Minor side effects, tolerance and discontinuation of oral contraception among women in rural Cambodia, British Journal of Medicine and Medical Research, vol 4 no. 31, p. 4982–5002.
40. Castle S and Askew I. Contraceptive discontinuation: reasons, challenges, and solutions, Population Council, 2015, http://ec2-54-210-230-186.compute-1.amazonaws.com/wpcontent/uploads/2015/12/FP2020_ContraceptiveDiscontinuation_SinglePageRevise_12.16.15.pdf, accessed September, 2020.