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Editorial

Challenging unintended pregnancy as an indicator of reproductive autonomy: a response

Kathryn Kost*, Mia Zolna

Guttmacher Institute, 125 Maiden Lane, New York, NY 10038

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Potter and colleagues are right: the retrospective, population-level measure of unintended pregnancy — typically presented as a rate among women of reproductive age or as a proportion among all pregnancies — is widely used "as a justification for our research and as a rationale for the subsidy, expansion, or improvement of family planning services" [1]. Indicators of unintended pregnancy have helped prioritize reproductive health as one of the top public health foci for decades; served to secure public funds specifically to support reproductive health care for low-income, marginalized and adolescent women[1]; and garnered support for improving access to contraceptive and abortion services. At the same time, these measures have been misused, misinterpreted and at times used in ways that stigmatize individuals who experience unintended pregnancy, population groups with relatively higher rates, and even the births and abortions from those pregnancies.

Measures of unintended pregnancy deserve the highest level of scrutiny because of how widely they are used. We welcome and join the commentary's authors, and many other colleagues in our field, in critical examination of conceptual, ethical and practical issues of measuring pregnancy intentions [1–41]. But we don't agree on where to go from here.

We agree with Potter et al. that the current population-level measures of pregnancy intentions are not designed to be indicators of reproductive autonomy, and numerous critiques and studies point to other limitations of the conventional measures related to both how this event is measured as well as to what it represents. [1–41] But, abandoning measurement would not be responsive to the needs of individuals or to the goals of public health policies and programs that seek to serve those needs. Measures of recalled attitudes toward pregnancy describe how individuals felt about having a pregnancy or child. If well designed, they should identify the extent to which individuals had pregnancies they did not want as well as those that may have been at increased risk for negative health or other outcomes, whether for the pregnant individual or a subsequent child.

Potter et al. argue that a focus on measures of unintended pregnancy "continues in spite of widespread recognition that this index suffers from conceptual flaws and difficulties of measurement." While we agree that our field has long struggled with conceptual and framing issues related to pregnancy intentions, we don't agree with the assumption that those issues are intractable or inherent to the measurement of pregnancy desires, nor that difficulties of measurement are sufficient reasons for abandoning attempts to improve it.

Below, we address specific critiques raised by Potter and his coauthors. We argue that indicators of pregnancy desire are important, needed and do not have to be stigmatizing. We then propose moving forward by paying more attention to the language used to describe pregnancy desires as well as by exploring new strategies for improving measurement. We believe that these efforts to improve how we conceptualize and measure pregnancy desires should continue alongside efforts to develop other measures, like those proposed by Potter et al. related to contraception and abortion. Together, these efforts can support a shared goal of empowering individuals' reproductive autonomy.[2]

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* Corresponding author. Tel.: +1 212 248 1111 x 2288.
E-mail address: kkost@guttmacher.org (K. Kost).

[1] We recognize that many trans men, gender-nonbinary and gender-nonconforming people also often need reproductive health care to either prevent or support pregnancy. Unfortunately, most data sources with pregnancy intentions measures do not allow researchers to identify these populations; some data sources do not even include these individuals. Because of these data limitations, we generally use the term "women" to describe the group of individuals for which we have data, but recognize that this does not necessarily include the experiences of everyone who is able to become pregnant.

[2] While the issues raised throughout are relevant to ongoing discussions of how we approach research work globally, the extent of the expertise of the authors of this response necessarily limits our perspective to the body of research work focused on unintended pregnancy in the United States.

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1. Responding to the critiques: stigmatizing abortions, measurement issues, misleading narratives and measuring access to contraception and abortion instead

1.1. Critique: unintended pregnancy measures stigmatize abortions

Potter et al. argue that including pregnancies that terminate in induced abortion as part of all unintended pregnancies is a critical flaw because abortions are not, and should not be, characterized as something to be avoided or a negative resolution of a pregnancy; by including them, they are "treated as adverse or concerning outcomes." Further, they posit that a woman who has an unintended pregnancy and is able to obtain an abortion demonstrates greater reproductive autonomy than one who isn't able to get the abortion.

The unintended pregnancy rate does not characterize the pregnancy outcomes — births, abortions, fetal loss — even though we need the incidence of those to calculate the rate; it characterizes the origins of pregnancies according to the individuals who experienced these outcomes. The measure has relied on survey questions asking individuals who became pregnant to recall how they felt prior to becoming pregnant. Whether the pregnancy ended in abortion, birth or fetal loss doesn't change the attitudes women had prior to the pregnancy. If we honor the validity of their reports — if we believe them — then the pregnancy outcome doesn't change the fact that they had not wanted to become pregnant. As a population-level index, the unintended pregnancy rate or proportion of pregnancies that had been unintended tries to capture the extent to which individuals within a population experienced a pregnancy they had not wanted to have at that time or ever. The consistently high rates over time indicate that both are very common experiences. This population-based measure has been, and remains, an important indicator of the need for contraceptive and abortion services.

The fact that this indicator necessarily includes abortions does not imply abortions represent a negative outcome. When a goal of reducing unintended pregnancy is expressed as beneficial in order to reduce the incidence of abortions — and when abortions themselves are characterized as negative events — then stigmatizing narratives around abortion are perpetuated. However, a goal to reduce abortions is not inherent in the measure of unintended pregnancy itself. We can seek a goal of reducing unintended pregnancy simply to enable individuals to prevent those pregnancies they do not want to have.

1.2. Critique: imperfect relationship to other measures, such as contraceptive use prior to pregnancy and prospective measures of desire

As part of their argument for concerns about the measure, Potter et al. cite a study showing that some women who had been using contraception prior to the pregnancy later recalled that pregnancy as wanted at the time it occurred [42] and other work showing that prospectively measured desires don't always match with retrospective ones [43]. Prospective measures ask individuals about their future desires related to pregnancy or childbearing. Retrospective measures ask individuals who have experienced pregnancy to think back and characterize their desire or attitude toward pregnancy or childbearing prior to conception. The expectation that these measures should match ignores the fluidity of prospective pregnancy desires [11,44–48]. Similarly, the expectation that patterns of contraceptive use should be consistent with measured pregnancy intentions ignores important nuances of individuals' lives; use of contraception does not always signal a strong desire to avoid pregnancy [20,21,49,50]. These inconsistences are not necessarily problematic; they signify the complexity of people's lives.

1.3. Critique: the measure is likely biased because of reporting error

The measures used for population-level surveillance of national- and state-level estimates of unintended pregnancy in the United States, and the ones critiqued by the authors, are retrospective measures. [51–58] As evidence of the potential for significant bias in these estimates, Potter et al. cite Stevenson and Potter's (2015) analysis simulating the impact of retrospective reporting error on unintended pregnancy rates [59]. Yet, the magnitude and direction of this reporting error for pregnancy intentions in U.S.-based data are not clear [43,60,61].

This critique has a number of additional problems. First, all retrospective survey questions ask individuals to recall and report past experiences. Pregnancy and childbearing are often significant experiences, among the *most* significant in an individual's lifetime. In fact, of all questions asked on cross-sectional surveys, those related to pregnancy and childbearing may be some of the easiest for individuals to recall relatively accurately [62]. While the potential for reporting error cannot be denied, it applies to all retrospective questions that rely on respondent recall.

Second, what little U.S.-based evidence there is doesn't point to a clear direction of bias. Joyce and colleagues (2000) found some evidence that women interviewed during pregnancy changed their reports from mistimed or unwanted to wanted at the time it occurred when interviewed again after the birth [63]. In an analysis of repeated measures of pregnancy intentions for first births, Guzzo and Hayford (2014) found that, over time, the majority of women gave consistent reports, but those who did not were more likely to change their recall from intended to unintended than vice-versa [61]. Rackin and Morgan (2018) argue that retrospective reports suffer from "retrospective rationalization" (i.e., reporting a birth in the past as wanted when in fact it had not been) by comparing women's prospective reports of childbearing expectations to their subsequent retrospective recall of pregnancy wantedness in a longitudinal survey. A shortcoming of this study — that the authors acknowledge — is use of a prospective question asking women whether they *expect* to have more children as a proxy for *desire* for more [43]; another is the aforementioned fluidity of prospectively measured pregnancy desires such that an expectation that prospective and retrospective measures should match isn't supported.

More research is needed to gain a better understanding of whether respondents are able to accurately recall or report prior attitudes and feelings related to their pregnancies. Currently, the evidence doesn't provide clear support for abandoning measurement because of reporting error [60]. And, there is another research question regarding reporting errors that we should explore further. Even if reporting error is common, it may not be as simple as individuals having more positive feelings toward a pregnancy once it occurs compared to how they felt prior to conception. If retrospective reports are affected by intervening experiences, then we should find out which factors may turn a less positive orientation toward pregnancy into a more positive recollection, and which may turn a more positive orientation into less positive recall. Intervening factors — such as partner support, access to resources (abortion or pregnancy care) or preconception health — likely influence to a large degree which pregnancies individuals will experience as burdensome or problematic [11,63–65]. In addition, intervening factors may lead some individuals to conflate their pre-pregnancy desires with their feelings once they became pregnant. If so, then the pregnancy acceptability framework of Aiken et al. (2016) may be a good starting point for identifying factors that intervene between pre-pregnancy desires and postconception acceptability [11].

1.4. Critique: combining multiple data sources and multiple sources of error

Potter et al. take issue with another attribute of the conventional measure of unintended pregnancies: that the components used to calculate indicators — counts of births, abortions and fetal loss, coupled with survey-based pregnancy intention measures — come from different data sources, which bring different kinds of measurement error. We agree that this potential highlights a need for caution when comparing estimates across countries or states, where true differences could be confounded with variation in error. This is true of many important demographic measures that rely on methods of indirect estimation and

combining data sources. It isn't a reason for abandoning indirect estimation; potential biases should always be considered in the interpretation of findings.

1.5. Critique: the measure supports misleading and stigmatizing narratives

Potter et al. argue that indicators of unintended pregnancy have been used to support narratives that women are "to blame" for high rates of unwanted or otherwise problematic pregnancies. They are right that many narratives assume or imply that these pregnancies occur as a result of some failure of an individual. No measure of a health outcome should be framed to blame the person who experiences it or the groups of people for whom it may be more common. Moreover, the explanation for disparities between groups is more complex than individual differences in behaviors. We should start with the assumption that individuals make choices that advance their own health and well-being and that these choices are not solely guided by individual factors but also — and to a large degree — by structural and institutional forces that constrain or support their choices as well as their access to healthcare resources. In turn, these constraints and supports influence who experiences a pregnancy when they didn't want to as well as who is stigmatized for experiencing it. By recognizing this and paying more attention to those structural and institutional forces, we can work toward informed interpretations of unintended pregnancy and other measures that do not perpetuate stigma.

The idea that women who experience unintended pregnancy are "drifters" who have somehow failed to control or even think about their reproductive capacity [66] is stigmatizing and not supported by the wealth of scientific evidence thus far accumulated. Also stigmatizing are public policies directed solely at reducing unintended pregnancy without regard to how that is achieved [41,67,68]. Evidence-based policies that serve the needs of the public recognize the varying circumstances under which individuals become pregnant, including acceptance that, for many, pregnancy without planning or intention is their preference.

1.6. Critique: measure access to contraception and abortion instead

We join Potter et al. in advocating for the development of new survey questions to gather improved information on access to contraception and abortion. As they point out, the discrepancies between the contraceptive methods women are using and the methods they say they would prefer to use demonstrate a need for attention to fulfilling individuals' preferences. We caution, however, that in moving forward we are careful not to repeat the same mistakes as those made around pregnancy desires, especially by assuming individuals have, or even should have, clear and formed preferences related to contraception or pregnancy prevention strategies.

And, we agree that developing new measures to assess access to abortion is challenging not only because it is difficult to find those who wanted or needed an abortion and couldn't get one but also because of the significant role stigma seems to play in respondents' willingness to disclose their abortion experiences [69,70]. In an analysis of three prominent national U.S. surveys used widely for fertility-related research, women respondents reported only 30% to 40% of the external, census-based counts of abortions. There were no identified population groups reporting even close to the true number of abortions [71]. Clearly, it is critically important that we develop new ways to measure individuals' abortion experiences as well as access.

Potter et al. argue that we should abandon measures of unintended pregnancy and instead focus on access to contraception and abortion as indicators of reproductive autonomy. We disagree. These services are necessary but not sufficient conditions for individuals to achieve the quality of life they desire and deserve. While measures that illuminate individuals' access to resources are needed to inform and improve provision and access, ultimately contraception and abortion are means to achieving one's desires, specifically those related to avoidance of pregnancy or births.

Ensuring that individuals have access to the full range of resources and services available to support reproductive health also includes supporting individuals who want to get pregnant and those who want to be parents through maternity care, infertility services, child care, etc. Narrowing our focus to issues of access to contraception and abortion services limits our ability to address the actual outcomes that people care about (whether and when to become pregnant or to have children) and falls short of identifying reproductive autonomy within a broader goal of reproductive rights, justice and health for all individuals, including those who seek to become pregnant.

1.7. A way forward: use accurate language to characterize individuals' experiences, recognize stigmatizing frameworks and continue work to improve measurement

Not all unintended pregnancies are a problem, whether from a public health perspective or an individual's. A pregnancy occurring to a woman who had no intentions or plans for childbearing isn't necessarily problematic; she may be able to access abortion services easily and without difficult social or economic consequences for her, or she may be happy and supported in continuing the pregnancy to birth. For many other women, an unintended pregnancy is a significant burden; it is unwanted (whether at that time or ever), she may not have the supports she needs (whether to terminate the pregnancy or to continue it and raise the child in the way she wants), and the pregnancy may pose health or other risks. The "all unintended pregnancies are a problem" framework needs to go, but we argue that attempts to measure whether individuals wanted to become pregnant, having population-level indicators to represent their experiences and identifying those pregnancies that become significant burdens remain important research goals to pursue.

Development of improved measures of pregnancy intentions can be pursued using at least two strategies. First, we can broaden measures of individuals' attitudes toward pregnancy and childbearing to recognize the wide array of orientations people have, including having no orientation at all. Improved measures will help us better understand the conditions under which pregnancies in a population occur and inform development of new population-level indicators to serve as improved benchmarks for policy and programmatic efforts to support reproductive health and well-being. Second, we need to develop measures that can more clearly identify individuals in need of greater support and options for care when they seek to or do become pregnant.

1.8. Clarify the language: current measures measure desires, not intentions

The most commonly used measures of "pregnancy intentions" do not measure intentions or aspirations to plan pregnancies or childbearing; individuals were asked only if they *had wanted a baby*.[3] The intentions-oriented terminology used for decades to describe these

[3] There are two questions used in the U.S. National Survey of Family Growth (NSFG) to ascertain retrospective pregnancy intentions, both in reference to a specific pregnancy. The first is: "Right before you became pregnant (with your (NTH) pregnancy which ended in (DATE)/this time), did you yourself want to have a(nother) baby at any time in the future?" If a woman responds with "Yes," a second question is asked: "So would you say you became pregnant too soon, at about the right time, or later than you wanted?" Together, these questions allow researchers to categorize pregnancies into four groups: "unwanted," occurred too soon ("mistimed"), occurred at the right time ("intended") and occurred later than desired (typically grouped with "intended"). Unwanted and mistimed pregnancies combined are referred to as unintended pregnancies [72].

The state-level representative surveys of individuals delivering live births — Pregnancy Risk Assessment Monitoring System (PRAMS) — assess pregnancy "intentions" by asking respondents not about their feelings toward having a baby but about whether they had wanted to become pregnant. For the most part, the same answer options are generally used. See Maddow-Zimet and Kost (2018) for important differences between the PRAMS and the NSFG pregnancy "intention" questions and answer options [7].

measures is inaccurate and has likely contributed to implicit, and erroneous, assumptions about the degree to which intentional behavior and planning play a significant role in people's reproductive lives, as well as supported misleading and stigmatizing narratives that all unintended pregnancies represent a failure to plan (or a plan that failed).

Improved measures will take time to develop, test and appear in our population-based surveys. In the meantime, how we describe and frame pregnancy desires should move away from outdated jargon and stigmatizing narratives [7]. We can do better in describing existing measures using more accurate language that aligns with what respondents have been asked and acknowledging the limitations of current measures.

1.9. Broaden measures of pregnancy desires beyond intended and unintended

Planning and intentional orientations are only a subset of the range of attitudes and perspectives individuals might have before pregnancy becomes a part of their lives [3–8]. Indeed, we agree with Potter et al. that pregnancy intentions as a binary construct — intended vs. unintended — is a "long-recognized conceptual problem" [1]. Researchers have responded with efforts to expand conceptual categorization of pregnancy desires beyond these binary ones using existing survey data [4,7,10,17,36,73–75] as well as qualitative studies to improve our understanding of how individuals express their orientations [5,6,8,9,16,17,21,23,36]. We support further efforts to develop more inclusive and accurate measures of pregnancy orientations.

1.10. Improve identification of pregnancies that may lead to negative health or other outcomes

Past research has documented a relationship between unintended pregnancy and negative outcomes, though the association is not always as clear [74–78]. Thus, in addition to developing measures that more accurately characterize the orientations or desires individuals had before they became pregnant, there is value in improving the ability to identify which pregnancies may be at higher risk of negative consequences. Aiken et al. (2016) characterize feelings after the recognition of pregnancy as the "acceptability" of a pregnancy and posit that acceptability is likely to be more strongly correlated with outcomes (such as maternal health and well-being as well as infant health) than pre-pregnancy desires [11]. Indeed, earlier research found evidence supporting this hypothesis, such that retrospective measures of how happy a woman was to discover she was pregnant were more strongly associated with behavioral risk factors and adverse health outcomes than conventional measures of pregnancy intentions. [15,79]. Future work aimed at understanding how to support individuals experiencing unwanted or otherwise unexpected pregnancies could explore new measures of pregnancy acceptability, as well as the relationship between pre-pregnancy desires and postconception attitudes.

1.11. Measures of pregnancy desires can support efforts to strengthen reproductive autonomy

We join Potter et al. and many other colleagues in our field in pushing for new indicators that elevate human rights, put the well-being of all individuals at the center of our research endeavors and expand our research to structural and institutional factors that shape lives. Efforts to develop measures of reproductive autonomy for our field would lead to important new insights and improve how we think about the provision of reproductive health services and the goals of public health [41,80]. But, we don't agree that improving our understanding of individuals' desires in relation to pregnancy is in conflict with those goals. Indeed, as Potter et al. point out: "Measuring what people want in comparison with what they get could shed light on reproductive autonomy." [1]

Many in our field have been working toward expanding our understanding of pregnancy desires for some time. In the future, some new measures may even be good indicators of reproductive autonomy. If measures of pregnancy desires can continue to serve as justification for health system improvements that support women's reproductive health and access to services that enable their autonomy, then we should use them, though not in ways that promote stigmatization of the pregnancy experiences of individuals or social groups. The issues of damaging narratives that Potter et al. point out should be confronted and dismantled every time we use existing measures.

Going forward, let's abandon inaccurate and inappropriate jargon, be more sensitive to stigmatizing and misleading narratives and continue to pursue new measurement strategies to include a wider array of experiences, thoughts and feelings that allow individuals to tell us what they had wanted for themselves before, and when, a pregnancy became a part of their lives.

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