

Is unintended pregnancy associated with family planning use in the postpartum period? Using three measures to define the relationship of unintended pregnancy and postpartum family planning

Short Abstract

The measurement of unintended pregnancy in low-and-middle income countries relies largely on one timing-based measure despite recognition of the complex nature of pregnancy intentions. It is unclear if measures other than the timing-based measure may have a stronger relationship with contraceptive uptake in the postpartum period. We explore the relationship of three different measures aimed at assessing the intendedness of a pregnancy among a cohort of 2,177 postpartum women in Ethiopia using longitudinal data. We use design-based analysis to explore the distribution of unintended pregnancy and three postpartum family planning outcomes; 1) intention to use contraception and uptake of postpartum family planning by 2) 6-weeks and 3) 6-months. Overall, we find limited association between experience of an unintended pregnancy, using any measure, and postpartum family planning uptake. Our results reinforce an emerging body of literature that suggests accounting for women's future pregnancy preferences are more relevant for estimating demand for contraception in the postpartum period than retrospective events. Next steps will be to 1) include one year data to assess the relationship of PFP uptake at one year 2) conduct a longitudinal analysis to account for correlation in observations from the same women.

Background

Reproductive health programs aim to prevent unintended pregnancy, particularly through increased access to high-quality family planning services. A range of retrospective measures of unintended pregnancy have been used to explore dimensions of women's attitudes toward their most recent pregnancies, including definitions of timing, emotional response, motivation, and planning, and the associations between unintended pregnancy and contraceptive intentions and use postpartum¹.

The standard and most widely used measure is the timing-based definition, used in Demographic and Health Surveys (DHS), asks women to reflect on the time they learned they were pregnant and report if they wanted the pregnancy "then, later, or not at all"². Women who respond "later" or "not at all" have generally been classified as experiencing an unintended pregnancy. Critics argue that using this, or similar, timing-based definitions may be subject to social desirability bias due to the retrospective reflection on pregnancy wantedness, especially after childbirth, and is unlikely to capture nuanced attitudes toward a pregnancy³.

In contrast, newer emotional response items ask women to reflect on how they felt when they found out about the pregnancy, ranging from very unhappy to very happy, with those responding as "unhappy" or "very unhappy" generally categorized as having an unintended pregnancy. While this measure has great potential for understanding women's attitudes toward a pregnancy, they are a relatively new addition to population-based surveys and have not been

explored extensively with women's contraceptive practices. The recently proposed London Measure of Unplanned Pregnancy (LMUP), which was developed and validated in high-income contexts, introduces pregnancy preferences as a multidimensional construct focused on components of planning (e.g., contraceptive use at the time of pregnancy, preconception practices) and intentionality toward the pregnancy⁴.

Research on postpartum family planning has largely been limited to studies focused on exploring contraceptive intentions and use among women whose last pregnancy was unintended, per the timing-based definition, yet limitations of this measure may fail to capture other dimensions of women's pregnancy preferences that inform their demand for contraception. Postpartum women whose most recent pregnancy was unintended and who are not using a method of contraception are generally categorized as having unmet need for family planning, yet there is little evidence that a previous unintended pregnancy influences current contraceptive decision making⁵. It is unclear if measures other than the timing-based measure for unintended pregnancy may have a stronger relationship with contraceptive uptake in the postpartum period and whether these measures could more accurately identify women who are not being effectively reached by services.

The objective of this paper is to assess the relationship of three different measures that have been proposed to measure unintended pregnancy and their relationship with postpartum family planning behavior

1. Assess the association of different measures of unintended pregnancy with reported intention to use contraception at baseline, accounting for age, parity, residence, wealth, education
2. Assess PFP use at 6-weeks, accounting for age, parity, residence, wealth, education
3. Assess PFP use at 6-months, accounting for age, parity, residence, wealth, education

Methodology

We used data from Performance Monitoring for Action Ethiopia; specifically, we use data from a panel of women who were pregnant or less than six weeks postpartum in 217 enumeration areas in Ethiopia, identified in November 2019. PMA used multistage cluster sampling with regions and residence as strata to select EAs using probability proportional to size. Women were identified via a household census in all EAs, and were screened for eligibility, i.e. if they were currently pregnant or if they had given birth in the last six weeks. Eligible women who consented were interviewed at baseline and revisited at six weeks, six months, and one year postpartum. Data collection is ongoing for one-year postpartum interviews and will be included in the final analysis. The current analytic sample includes observations from the 2,177 women who completed the six-month interview out of the 2,853 women who were originally enrolled (76% follow-up rate). Due to potential bias from loss to follow-up, we constructed an inverse probability weights from estimated propensity scores to adjust differential loss to follow-up. Using the total sample of women from baseline, we adjusted for the probability of being interviewed at follow-up accounting for age, residence, marital status, and education and applied these weights to the original selection weight.

All women who were enrolled in the study were asked questions about the current, or in the case of recently postpartum women, recent, pregnancy, which we refer to as the index pregnancy. We defined “unintended pregnancy” using three measures, the standard DHS measure, an affective measure assessing happiness/unhappiness, and the London Measure of Unintended Pregnancy, using both categorical and continuous scoring. Our outcome measures are intention to use a contraceptive method within a year of birth, reported at baseline, and use of a modern contraceptive method at six weeks and six months postpartum. We adjusted by covariates that are likely to be associated with both experience of an unintended pregnancy and postpartum family planning use; specifically, age, parity, education, residence (urban/rural), and wealth. Descriptive statistics explore the distribution of “unintended pregnancy”, as measured via the DHS, affective, and LMUP measures and the distribution of each outcome by each measure. Adjusted logistic regression explored the association with each measure and the associated outcome. We conducted design-based analyses to account for the complex survey design.

Results

Table 1 below shows the distribution of pregnancies based on each of the three measures. The DHS measure and the affective measure both find that about two-thirds of index pregnancies were “intended”, i.e. wanted at the time or happy with the pregnancy, while the LMUP categorical measure finds fewer than half were planned.

Table 2 below shows the percent of women who stated that they intended to use a method of contraception within a year at baseline and the percent using by six weeks and six months. There are minimal differences across any of the measures in terms of the intention to use contraception, with between 60% and 70% of women stating that they intend to use contraception within a year. Differences by DHS and LMUP measures are present at both six weeks and six months for contraceptive use. A smaller percentage of women who said that they did not want a child at all, according to the DHS measure, were using contraception by six weeks and six months postpartum, relative to women who said they wanted the index pregnancy then. Similarly, a smaller percentage of women whose pregnancy was unplanned, according to the LMUP, were using contraception at six weeks after childbirth, compared to women whose index pregnancy was planned. There are no significant differences by happiness.

Table 3 shows the adjusted odds ratio of each outcome across each measure. After accounting for relevant covariates, we find no statistically significant differences in women’s contraceptive intentions and use by pregnancy preference, except that women who said they wanted their index pregnancy later, according to the DHS, had 31% higher odds of saying they intended to use a method within a year at baseline.

Discussion/Next Steps

Our preliminary analyses indicate that there is little relationship between a pregnancy being unintended, whether that is conceptualized based on timing, emotion, or planning, and

contraceptive use in the postpartum period. None of the measures demonstrate a clear relationship with intention to use or actual use of postpartum family planning uptake by six months postpartum.

The family planning measurement community is grappling with the concept of unmet need and demand for contraception, both in its failure to account for women's preferences related to contraceptive use and due to the lack of predictive utility in uptake of contraception⁵⁻⁷. The standard definition of unmet need has classified postpartum women who are not using a contraceptive method and whose pregnancy was unintended or who have a prospective desire to delay childbearing for at least two years, as having unmet need, yet our results clearly demonstrate that there is no relationship between the most recent pregnancy being unintended and postpartum family planning use within six months of use. This lack of association likely contributes at least partially to the failure of unmet need to be predictive of contraceptive use. Our results reinforce an emerging body of literature that suggests accounting for women's future pregnancy preferences are more relevant for measures like unmet need than retrospective events.

Current analysis examines only population level estimates through six months postpartum and does not account for correlation among women. Next steps will be to 1) include one year data to assess the relationship of PFP uptake at one year 2) conduct a longitudinal analysis to account for correlation in observations from the same women.

References

- 1 Santelli J, Rochat R, Hatfield-Timajchy K, *et al.* The Measurement and Meaning of Unintended Pregnancy. *Perspectives on Sexual and Reproductive Health* 2003; **35**: 94–101.
- 2 Demographic and Health Survey. DHS7 Womans Questionnaire. 2018. <https://www.dhsprogram.com/pubs/pdf/DHSQ7/DHS7-Womans-QRE-EN-17Dec2018-DHSQ7.pdf> (accessed May 15, 2021).
- 3 Aiken ARA, Borrero S, Callegari LS, Dehlendorf C. Rethinking the Pregnancy Planning Paradigm: Unintended Conceptions or Unrepresentative Concepts? *Perspect Sex Reprod Health* 2016; **48**: 147–51.
- 4 Hall JA, Barrett G, Copas A, Stephenson J. London Measure of Unplanned Pregnancy: guidance for its use as an outcome measure. *Patient Relat Outcome Meas* 2017; **8**: 43–56.
- 5 Moreau C, Shankar M, Helleringer S, Becker S. Measuring unmet need for contraception as a point prevalence. *BMJ Glob Health* 2019; **4**. DOI:10.1136/bmjgh-2019-001581.
- 6 Rominski SD, Stephenson R. Toward a New Definition of Unmet Need for Contraception. *Studies in Family Planning* 2019; **50**: 195–8.

7Sarnak D, Tsui A, Makumbi F, Kibira SPS, Ahmed S. The predictive utility of unmet need on time to contraceptive adoption: a panel study of non-contracepting Ugandan women. *Contracept X* 2020; **2**: 100022.

Tables

Table 1: Percent distribution of pregnancies as reported at baseline	
	%
DHS	
Wanted then	63.23
Wanted later	27.94
Wanted not at all	8.83
Affective	
Happy	67.75
Ambivalent	15.95
Unhappy	16.30
LMUP categorical	
Planned	44.84
Ambivalent	37.04
Unplanned	18.12

Table 2: Percent of women stating they intend to use a contraceptive method within a year, are using at six weeks postpartum, and are using at six months postpartum, by intendedness measure.

	Intention to use at baseline			Use at 6 weeks			Use at 6 months		
	%	95% CI		%	95% CI		%	95% CI	
DHS									
Wanted then	65.2	60.1	70.4	18.0	14.9	21.0	41.1	35.6	46.7
Wanted later	68.9	63.0	74.9	14.3	10.5	18.0	37.4	30.2	44.6
Did not want	66.1	57.6	74.6	8.7	3.4	13.9	23.0	14.9	31.1
Affective									
Happy	65.9	61.2	70.6	17.2	14.3	20.1	40.2	34.9	45.5
Mixed	63.7	54.0	73.5	13.9	8.6	19.3	37.1	29.4	44.8
Unhappy	70.7	65.0	76.3	13.6	9.0	18.2	32.7	26.0	39.5
LMUP categorical									
Planned	68.2	64.0	72.3	19.4	16.1	22.7	44.5	38.9	50.1
Ambivalent	62.7	54.5	70.8	12.9	9.5	16.3	32.4	25.2	39.7
Unplanned	67.2	61.1	73.2	11.7	7.8	15.7	32.5	25.5	39.4
Total	66.2	61.8	70.7	16.1	13.4	18.8	38.4	33.4	43.3

	Intention to use at baseline			Use at 6 weeks			Use at 6 months		
	AOR	95% CI		AOR	95% CI		AOR	95% CI	
DHS (ref: wanted then)									
Wanted later	1.31*	1.01	1.69	0.93	0.70	1.26	1.06	0.82	1.38
Wanted not at all	1.49	0.95	2.32	0.75	0.38	1.47	0.76	0.45	1.27
Affective (ref: happy)									
Ambivalent	1.06	0.75	1.50	0.95	0.59	1.55	1.17	0.87	1.57
Unhappy	1.41	0.99	2.02	1.05	0.71	1.55	1.07	0.77	1.48
LMUP categorical (ref: planned)									
Ambivalent	0.93	0.68	1.27	0.84	0.62	1.15	0.83	0.60	1.14
Unplanned	1.24	0.88	1.75	0.85	0.56	1.29	0.98	0.70	1.38
LMUP continuous	1.34	0.80	2.27	1.20	0.70	2.06	1.31	0.86	1.99
* p<.05									
Adjusted for age, parity, wealth, education, and residence									