Examining strength of future fertility preferences: A longitudinal study in Kenya and Bangladesh

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INTRODUCTION

Approximately 88 million pregnancies, 43% of all pregnancies, in 2010-14 are estimated as unintended (Bearak, Popinchalk et al. 2018). However, large variations exist in defining and measuring unintended pregnancies and births. There are agreed-upon indicators that are widely used, but there is no consensus on what constitutes a reliable measure for unintended pregnancy and births and doubts about their validity persist.

In addition to the debates and criticisms toward the dichotomous category of fertility intention (intended/unintended) from widely used survey questions, stated fertility preferences given by women may be fluid, and they may be inconsistent, contradictory or ambivalent (Speizer, Irani et al. 2009). Insufficient commitment to avoid pregnancy prevents women from overcoming challenges and practising contraception (United Nations 1999). The studies in the United States have shown that ambivalent fertility preferences are associated with non-use, discontinuation or inconsistent use of contraception (Frost, Singh et al. 2007, Jones 2017, Tobey, Jain et al. 2020). Yet, there is no consensus on how best to measure pregnancy ambivalence or strength of desire even in the high-income settings, and studies used different measures.

In non-US settings, the strength of fertility desire is often unknown, and weakly held stated preferences may be a key underlying contributor to the high level of unmet need (Westoff and Bankole 1995, Casterline, Perez et al. 1997, Speizer 2006, Jones, Tapales et al. 2015). Weak attachment to stated preferences is likely to be more common for women who want to wait childbearing than those wanting no more children (Westoff and Bankole 1995). While increasing numbers of women desire to stop childbearing, birth spacing is a dominant motivation to avoid pregnancy in many countries in sub-Saharan Africa (Westoff 2010). In addition, it is not clear if the duration of preferred waiting time reflects the strength of motivation to avoid pregnancy. While conventional cross-sectional surveys such as Demographic and Health Surveys(DHSs) do not capture these features, a prospective cohort design allows us to assess an effect of fertility preferences and strength of stated desire on current and future contraceptive use and non-use over time and subsequent reproductive outcomes. Improved measurements of fertility preferences will help identify women at risk of unintended pregnancy.

This paper will address the research gap and assess survey questions aimed to measure strength of childbearing desires among women aged 15-39 years from a multi-site prospective study conducted in Nairobi and Homa-Bay, Kenya and Matlab in Bangladesh between 2016 and 2018. Specifically, the study will describe variation in the strength of prospective fertility preferences using additional preference questions, and determine the net gain offered by these additional items in explaining the likelihood of pregnancy as well as contraceptive use dynamics over the observation period. There have been very few longitudinal tests of the explanatory contribution of such items in low-income settings such as Bangladesh and Kenya.

METHODS

Study design

The prospective survey was conducted in three sites in two countries: the icddr,b service area and the government service area of the Matlab Health and Demographic Surveillance System (HDSS), Bangladesh, the Nairobi Urban Health and Demographic Surveillance System (NUHDSS) in two slums in Nairobi, Kenya, and Homa Bay County in rural Western Kenya. Details of the study design and sampling have been published elsewhere (Machiyama, Casterline et al. 2017). Round one data collection was carried out between August and December 2016 and Round 2 was conducted between September 2017 and January 2018. Round 3 was conducted only in Homa-Bay between August and September 2018. Respondents were randomly sampled from eligible female residents, who are married or cohabiting and aged between 15 and 39 years, from the HDSS databases in the Matlab and Nairobi sites. In Homa Bay, a two-stage cluster sampling was used. The Matlab HDSS database identified a total of 34,308 eligible women. Out of these, we randomly selected 3109 women and interviewed 2605 women. A total of 5905 eligible women were identified in the Nairobi HDSS database. Out of these, 3093 women were randomly sampled and 2812 women completed interviews. In Homa-Bay, 12 sub-locations (the smallest administrative unit in Kenya) were randomly selected in each three purposely identified sub-counties, of which population sizes were very similar. In the second stage, 3118 women were randomly sampled among 5424 eligible women, and a total of 2424 women completed the interviews.

Questionnaire Development

After a review of existing literature and more than 30 questionnaires on fertility preferences and reasons for non-use of family planning fielded in high-, middle- and low-income countries, we introduced five sets of additional preference items to the conventional DHS questions on pregnancy wantededness and preferred timing of the next pregnancy: i) motivation to avoid pregnancy; ii) certainty of reported pregnancy wantedness; iii) Potential changes in the reported pregnancy wantedness and preferred timing; iv) Feeling about getting pregnant: and v) Perceived husband's fertility preferences. The section on fertility preferences in the survey instrument is provided in Appendix 1.

Statistical analysis

The primary outcome of this paper is occurrence of pregnancy and contraceptive use (% of months protected by modern contraceptive methods and uptake) during the study period. Women sterilized and women who declared that they could not get pregnant at baseline were excluded from Round 2 interviews. Women who were pregnant at Round 1 were excluded from the analysis (154 in Matlab, 143 in Nairobi, and 215 in Homa-Bay).

Distributions of the standard pregnancy wantedness and contraceptive use by the preference at Round 1 were first examined. Then we compared the preferences with the additional

fertility preference questions using cross-tabulations and chi-squared tests. Bivariate and multivariable logistic regression will used to determine the net gain offered by the additional items in explaining the likelihood of pregnancy as well as contraceptive use dynamics over the observation period. Data analyses and management are conducted using Stata version 16.0.

PRELIMINARY RESULTS

The attrition rate after approximately one year follow-up was low, ranging from 4% in Matlab, 11% in Homa-Bay to 21% in Nairobi, where the urban population is considerably mobile. In this preliminary results, only Nairobi and Homa-Bay data are presented apart from Figure 1.

At Round 1 in 2006, a vast majority of women in Matlab reported wanting no more children (53%) while about one-third of women in Nairobi and Homa-Bay stated wanting to stop childbearing altogether (see Figure 1). Spacing is still dominant in the Kenyan sites, and the high proportion of women wanted to wait for 5 years or longer (26% in Nairobi and 23% in Homa-Bay). In three sites, a fifth or a quarter wanted to wait 2-4 years or wanted to have another within 2 years.

Figure 1: Distributions of prospective fertility preference by site, 2016

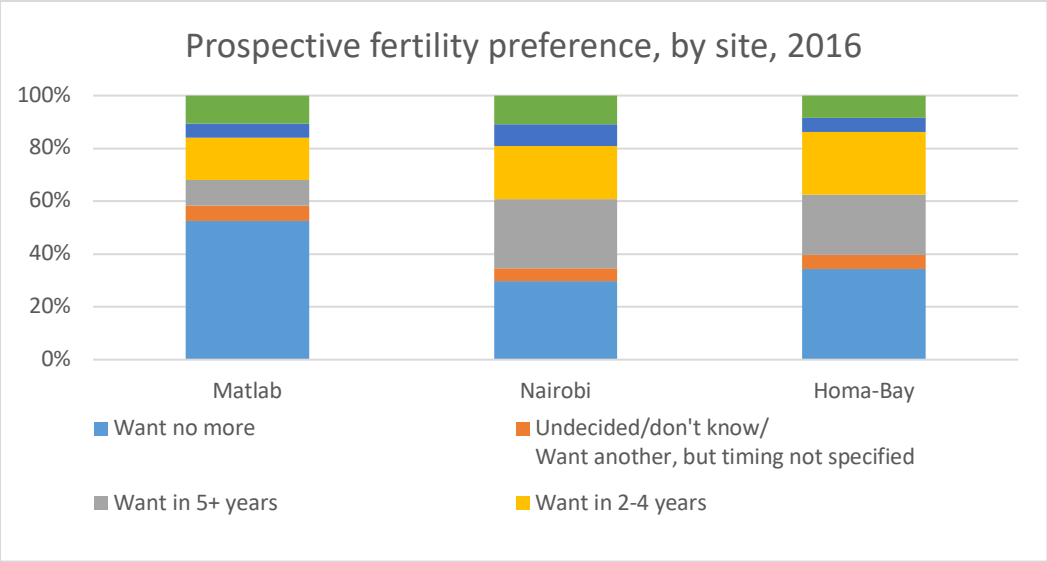


Figure 2A and B presents distributions of additional items aimed to measure strength and ambivalence in fertility preferences by the standardized pregnancy wantedness in Nairobi. Apart from women who want to have a child now, soon or within 2 years, about 90% of women reported that pregnancy prevention is very important. There were little differences in the percentages by whether they want to stop or wait future childbearing.

The ambivalence ascertained by the hypothetical questions varied by the stated fertility desire. More women wanting no more children stated they would be worried about telling the

pregnancy to their husbands/partners, families, financial consequences and impact on their own health than those wanting to have another child. There is clear variation by duration of preferred waiting time among spacers. Women wanting to have another now or soon had little ambivalence according to these additional items.

Figure 2A: Distributions of desire to avoid pregnancy and certainty of stated preference by the standardized fertility preference, Nairobi, 2016

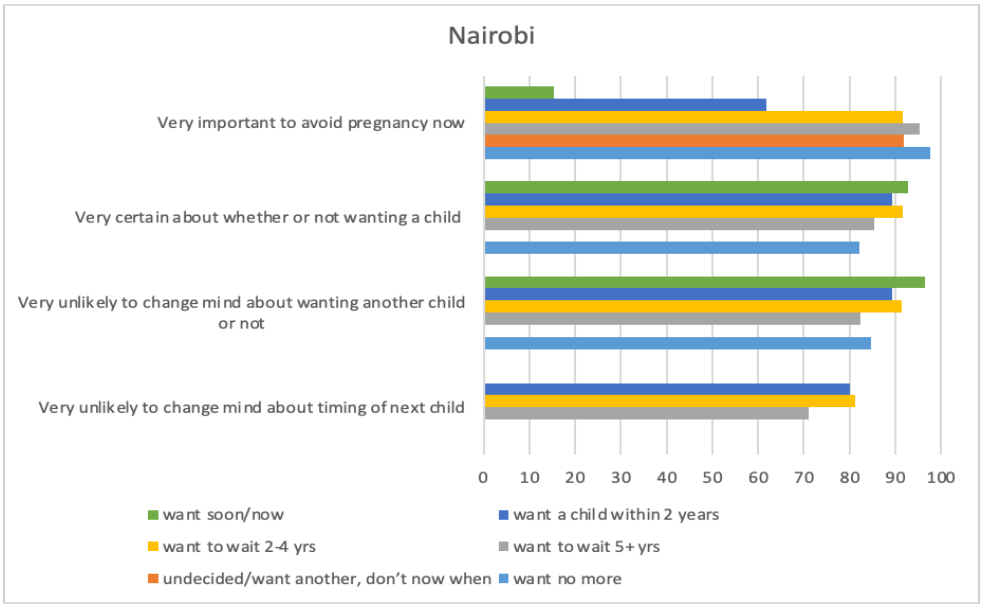
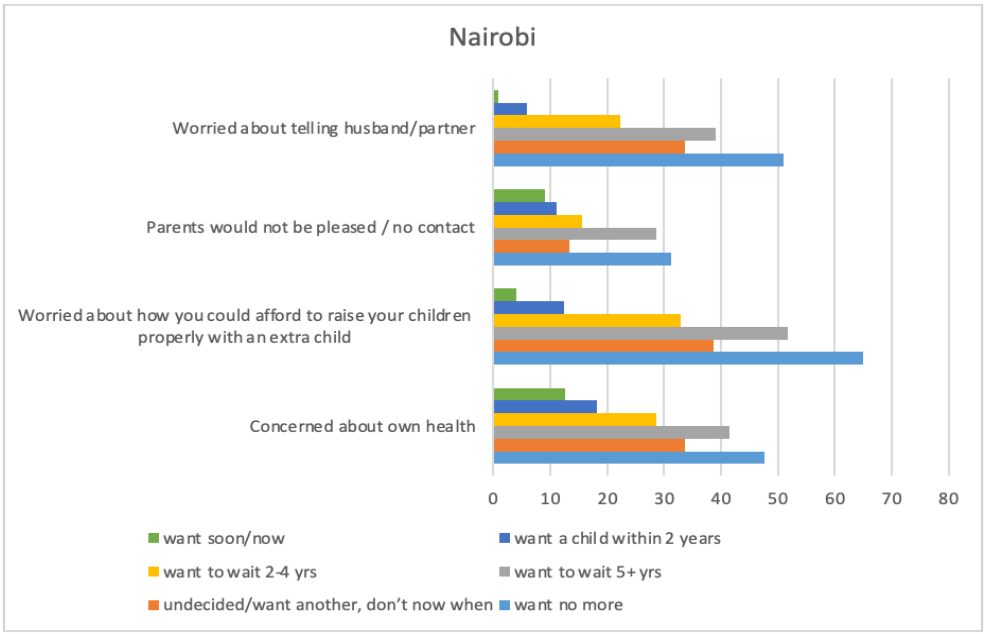


Figure 2B: Distributions of ambivalence of fertility preferences by the standardized fertility preference, Nairobi, 2016



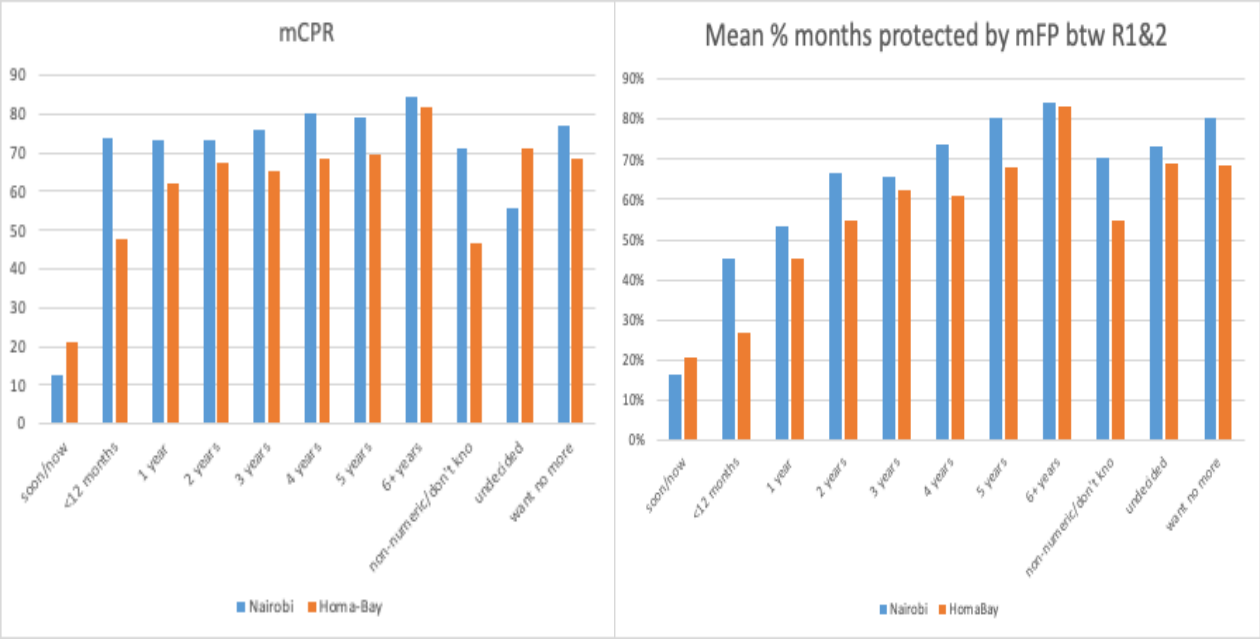


Figure 3A: Modern contracpetive prevalence by the standard fertiltiy preferences, Nairobi and Homa-Bay

Figure 3B; % of months protected by modern contraceptive method by the standard fertiltiy preferences, Nairobi and Homa-Bay

Figure 3A shows prevalence of modern contraceptive use by pregnancy wantedness and site from the baseline survey. The prevalence among women wanting soon/now are only 10-21% (13% in Nairobi, and 21% in Homa-Bay). Modern contraceptive use was consistently high among all other groups and the differences were small, while women who were undecided, don't know or wanted another but don't know when had lower prevalence. Figure 3B shows mean % of months protected by modern methods between round 1 and 2. The months protected was ascertained by the monthly contraceptive calendar data collected in round2. Unlike Figure 3A, there are clear gradients – the longer the preferred waiting time the higher mean% of months protected by the method in both Homa-bay and Nairobi. Furthermore, use of short-acting methods (primarily condom and pills) was more common among women who want to wait for a shorter time (results not shown). This may imply that preferred waiting time may be positively associated with extent of motivation to use a method consistently or/and use of long-acting methods.

Similar clear gradients were found in % of women who became pregnant between round 1 and 2 (See Figure 4).

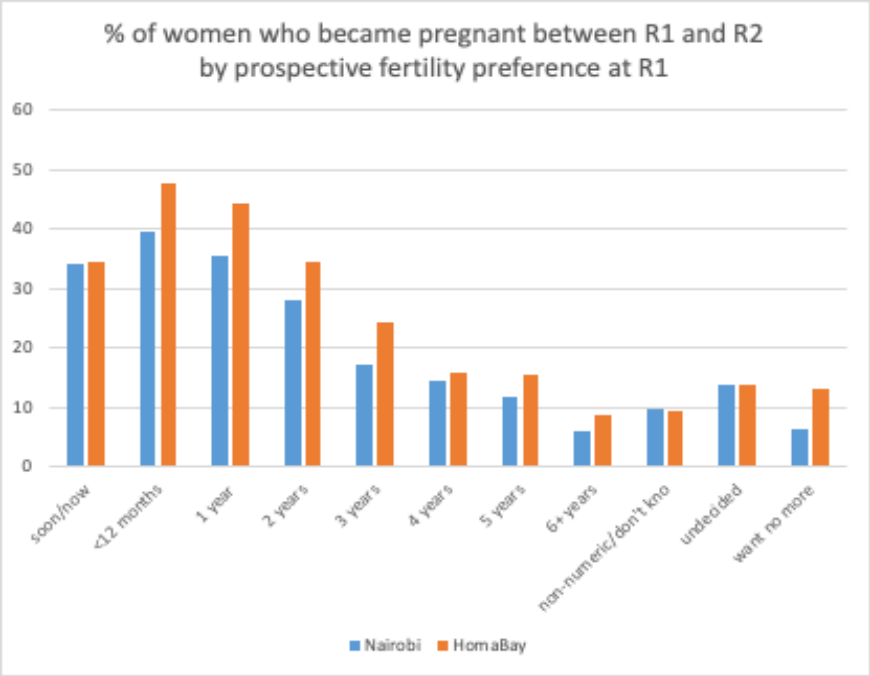


Figure 4: Percent of women who became pregnant between R1 and R2 by prospective fertility preference at R1

Appendix 1: Survey questionnaire

SECTION 7. FERTILITY INTENTIONS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
701	CHECK 403: NEITHER STERILIZED ☐ ↓	HE OR SHE STERILIZED ☐	→ 736
702	CHECK 306: NOT PREGNANT OR UNSURE ☐ ↓	PREGNANT ☐	→ 723
FUTURE FERTILITY PREFERENCE (NON PREGNANT WOMEN)			
703	How important is it to you to avoid becoming pregnant now? Would you say very important, somewhat important, or not at all important?	VERY IMPORTANT ..... 1 SOMEWHAT IMPORTANT ..... 2 NOT AT ALL IMPORTANT 3	
704	Now I have some questions about the future. Would you like to have (a/another) child, or would you prefer not to have any (more) children?	HAVE (A/ANOTHER) CHILD ..... 1 NO MORE/NONE ..... 2 CANNOT GET PREGNANT ..... 3 UNDECIDED/DON'T KNOW 98	→ 736 → 710
705	How certain are you about whether or not you want a child in the future?	VERY CERTAIN ..... 1 SOMEWHAT CERTAIN ..... 2 UNCERTAIN/UNSURE 98	
706	How likely is it that you might change your mind regarding whether you want another child or not?	VERY LIKELY ..... 1 SOMEWHAT LIKELY ..... 2 VERY UNLIKELY ..... 3 DON'T KNOW/UNSURE 98	
707	CHECK 704: WANT A/ANOTHER CHILD ☐ ↓	WANT NO MORE CHILD ☐	→ 710
708	How long would you like to wait from now before the birth of (a/another) child?	MONTHS ..... 1 ☐☐ YEARS ..... 2 ☐☐ SOON/NOW ..... 93 OTHER _____ (SPECIFY) 96 DON'T KNOW 98	→ 710
709	How likely is it that you might change your mind regarding timing of having another child?	VERY LIKELY ..... 1 SOMEWHAT LIKELY ..... 2 VERY UNLIKELY ..... 3 DON'T KNOW/UNSURE 98	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
710	If you became pregnant in the next few weeks, would you be worried or not worried about telling your husband/partner?	WORRIED . . . . . 1 NOT WORRIED . . . . . 2 UNSURE 3	
711	If you became pregnant in the next few weeks, would your parents be pleased or not pleased?	PLEASED . . . . . 1 NOT PLEASED . . . . . 2 UNSURE . . . . . 3 NO PARENT/NO CONTACT WITH PARENT(S) . . 4	
712	If you became pregnant in the next few weeks, would you be worried or not worried about how you could afford to raise your children properly with an extra child.	WORRIED . . . . . 1 NOT WORRIED . . . . . 2 UNSURE . . . . . 3 THIS WOULD BE THE FIRST CHILD 4	
713	If you became pregnant in the next few weeks, would you be concerned or not concerned about the effect on your own health?	CONCERNED . . . . . 1 NOT CONCERNED . . . . . 2 UNSURE 3	
714	CHECK 707: WANT A(NOTHER) CHILD ☐ ↓ WANT NO MORE CHILD ☐		→ 716
715	CHECK 708: ALL OTHER RESPONSES ☐ ↓ WANT SOON ☐		→ 717
716	If you became pregnant in the next few months, would you consider or not consider terminating the pregnancy?	CONSIDER 1 NOT CONSIDER . . . . . 2 UNSURE 3	
HUSBAND'S FERTILITY DESIRE			
717	In the last 12 months has your husband/partner discussed with you his wishes for a(nother) child?	YES . . . . . 1 NO 2	
718	How important is it to him to avoid you becoming pregnant now? Would you say very important, somewhat important, or not at all important?	VERY IMPORTANT . . . . . 1 SOMEWHAT IMPORTANT . . . . . 2 NOT AT ALL IMPORTANT . . . . . 3 DON'T KNOW 98	
719	Does your husband/partner want any (more) children with you?	YES . . . . . 1 NO . . . . . 2 UNDECIDED 3 DON'T KNOW 98	→ 734
720	How likely is it that your husband/partner might change his mind regarding whether he want another child or not?	VERY LIKELY . . . . . 1 SOMEWHAT LIKELY . . . . . 2 VERY UNLIKELY . . . . . 3 DON'T KNOW/UNSURE 98	
721	CHECK 719 HUSBAND/PARTNER WANTS A/ANOTHER CHILD ☐ ↓ HUSBAND/PARTNER WANTS NO MORE CHILD OR UNDECIDED ☐		→ 734
722	How long would he like to wait from now before the birth of (a/another) child?	MONTHS . . . . . 1 ☐☐ YEARS . . . . . 2 SOON/NOW . . . . . 93 DON'T KNOW . . . . . 98 OTHER _____ 99 (SPECIFY)	→ 734

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