MEASUREMENT BRIEF:
FERTILITY PREFERENCES

WEDGE

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INTRODUCTION

This measurement brief is designed to give an overview of how fertility preferences and unwanted fertility are measured across countries in the Global South.

Fertility preferences play an important part in determining use of contraception and future fertility behavior (e.g. England et al.,2016; Hayford and Agadjanian, 2012; Moreau et al., 2013; Schoen et al., 1999; Yoo, Guzzo, and Hayford, 2014; Edin and Kefalas, 2011). Unintended pregnancies and births that are not planned are associated with adverse health related, social, and economic outcomes for women and their families (e.g., Gipson et al. 2008, Singh et al. 2010, Tsui et al. 2010, Sedgh et al. 2013). Given that majority of unintended pregnancies occur in developing regions (Bearak et al. 2018), measuring unintended pregnancies and unplanned births in this context is crucial (for e.g. Casterline and El-Zeini 2007; Koenig et al. 2006). Population policy and the evaluation of family planning programs are also determined by examining the levels and trends in unwanted pregnancy (Casterline and El-Zeini 2007). UN Sustainable Development Goal (SDG) 5 aims to attain gender equality and empower all women (one of the key targets under this is to ensure universal access to sexual and reproductive rights by 2030) and goal 3 aims to ensure healthy lives and promote well-being for all at all ages (including lowering global maternal mortality to 70 per 100,000 live births; and reducing neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births by 2030) (United Nations Secretary General 2014). This underscores the need to properly measure fertility preferences, which are key to understanding fertility patterns, fertility differentials across groups, motivations behind child-bearing, how to prevent unwanted births, and examining the impact of birth intendedness on maternal and child health (Casterline and El-Zeini 2007; Santelli et al. 2003; Rocca et al. 2010).

This measurement brief begins by discussing the various definitions of fertility preferences, unwanted births and related terminologies commonly used in the literature. It also briefly discusses the key ways in which fertility preferences and unwanted births are measured across some major demographic surveys, and highlights some of the challenges with the existing measurements. Thereafter, the brief discusses some of the more recent measures and highlights how they are improvements over past measures. The brief ends by exploring future directions for measuring fertility preferences and unwanted fertility.

CONCEPTUALIZATION: WHAT ARE FERTILITY PREFERENCES?

Definition and Terminology

Data on fertility preferences form an important part in demographic surveys, and indicators of fertility preference are used to figure out the demand for children in a given population (for e.g. McClelland 1983, Roy et al. 2008). Due to the time differences between the point where people decide to have kids and the point where couples act on their decision and actual childbirth occurs, fertility decisions are impacted by various life events, and other factors that could cause people to reconsider proceptive or contraceptive choice and behavior (Bongaarts 2001; Morgan 2003). Actual fertility rates are a reflection of fertility intentions and other events that curb, delay or uphold their fulfillment (Schoen et al.1999; Quesnel-Vallee

and Morgan 2003). Literature in demography often utilizes the terms "intention" "desire" "ideals" and "preferences" interchangeably (Kodzi, Johnson, and Casterline, 2010, Hayford and Agadjanian, 2012, Yeatman et al. 2020); though distinctions have been made between 'fertility preferences' or 'fertility desires' and 'fertility intentions' for e.g. social psychologists focus on intentions rather than preferences (Cleland et al. 2020). An individual's fertility intentions are a result of a 'decision-making process' or a 'goal-related plan' rather than an ideal (Hin et al. 2011). Intentions are impacted by latent 'ideals' or 'desires' but are more specific compared to ideals and restricted by reality (Miller 1994; Bühler 2010; Hin et al. 2011). The brief will use the terminology 'fertility desires' throughout even while citing literature that uses the terminology 'intentions'. Though some surveys measure intentions, it is much more common for them to measure desires (for e.g. Demographic and Health Surveys (DHS) measures desires by asking questions such as 'Did you yourself want to have a(nother) baby?"; "How long would you like to wait before the birth of a(nother) child)" etc.). Fertility researchers have encouraged that the terminology used be aligned with measurement (Kost and Zolna 2019; Kost et al. 2018; Miller et al. 2004; Yeatman et al. 2020).

How we measure fertility preferences for individuals

Two important and most commonly used measures of fertility preferences used in demographic surveys are questions measuring desire for more children and ideal family size. Questions on fertility preferences are usually administered to women of reproductive age groups (usually aged 15-49) and in some surveys to men too.

Desire for More Children

This measure indicates how soon respondents want a child, and whether they want to limit childbearing.

For e.g. the DHS asks currently married women and men aged 15-49:

'Whether they wanted more children and, if so, how long they would prefer to wait before the birth of the next child. Women and men who are sterilized are assumed not to want any more children.'

This enables us to make distinctions between women who wanted to postpone their next birth (and thus would be motivated to use contraception) from those who wanted a child relatively faster. In contrast to the DHS only a few of the World Fertility Survey (WFS) surveys included a follow up question on how soon the next child was wanted (Feyisetan and Casterline 2000).

Ideal Family Size

This measure indicates the number of children a woman (or a couple) would choose to have, given their estimates of costs and benefits of childbearing and with full control of their fertility (Easterlin, 1978; McCleland, 1983). Due to factors such as ineffective contraception, couples may not have perfect control over the number of children they have and this could lead to unwanted births (Bongaarts, 1990).

Most surveys on fertility include a question on this. For example, WFS, older multinational surveys (between 1974-1987), asked:

"If you could choose exactly the number of children to have in your whole life, how many would that be?"

One of the criticisms of the way ideal family size was measured using the WFS was that it could be more sensitive to the number of children women have already had, and that specifically for women at higher parities it would be a reflection of rationalizing the number of children women have had. The DHS asks a similar question, but it added separate questions for respondents without children (similarly worded as the WFS) and with children (this was reworded slightly to include the phrase, *"if you could go back to the time when you had no children..."* Specifically, the DHS asks these questions to men and women aged 15-49.

Respondents with no living children were asked: 'If you could choose the exact number of children you would like to have in your lifetime, how many would you have? '

Respondents with living children were asked: 'If you could go back to the time when you had no children and choose the exact number of children you would like to have in your lifetime, how many would you have chosen?'

It is expected that the WFS version would show a higher correlation with the existing number of children respondents already have compared to the DHS question since this asks women to go back to a time when they did not have any children; though it still doesn't fully solve the problem.

Table 1. Larger Demographic Surveys Measuring Fertility Preferences

Survey	Who was interviewed	Topics on which questions were asked
World Fertility Survey (WFS)	Ever-married women in child-bearing ages ending at 50.	Included questions on: a) Desired family size b) Whether more children were wanted c) The wanted status of the most recent birth or pregnancy d) The number of additional children wanted
Demographic and Health Survey (DHS)	Following are the sub-samples interviewed for questions on the right. a) Currently married women and men age 15-49 b) Current pregnancies and births in the 5 years before the survey to women age 15-49 c) Women and men age 15-49 d) Captures the demographic impact of fertility that would prevail in 3 years precceding the survey if all unwanted births were prevented.	a) Desire for more Children b) Need for Family Planning Services c) Ideal Number of Children d) Wanted Fertility Rates
Multiple Indicator Cluster Surveys (MICS)	Women aged 15-49	Following questions were asked on the desire for the last birth a) Was there a live birth in the last 2 years? Copy name of last birth listed in the birth history to here and use where indicated: b) When you got pregnant with (name of the last born child), did you want to get pregnant at that time?[Yes; No] c) Number of births [Only one; Two or more] d) Did you want to have a baby later on, or did you not want any children? [Later; No more/None]

CONCEPTUALIZATION: WHAT DO WE MEAN BY UNWANTED FERTILITY?

Definitions and Terminology

Unwanted fertility would include unwanted pregnancies that end in births. Two important parts fundamental to studying levels of unwanted fertility are the number of children desired and fertility regulation. One of the main reasons why it's essential to measure levels of unwanted fertility is to compare what fertility rates would be if a woman's fertility preferences prevailed over observed fertility rates. Several studies in the past have found a positive association between variables measuring women's empowerment and women's ability to make decisions relating to fertility; a few studies also found an inverse association between women's empowerment and unintended pregnancy (for more details see the review article by Upadhyay et al. 2014).

Unwanted fertility is defined by demographers as follows:

Pregnancies that occur at a time when a woman or a couple did not wish to have another birth are regarded as unwanted. That is, child wantedness is determined directly, and entirely, on the basis of parental fertility preferences. To be more precise, at issue are fertility preferences at the time of conception; this is the phenomenon of interest if the ultimate goal is to assess the potential impact of more perfect fertility control. (Casterline and El-Zeni (2007: 731))

Some of the most often used terms in literature on fertility preference and subsequent behavior include intended and unintended pregnancies; and wanted and unwanted births.

Based on the assumption that pregnancy is a conscious decision, unintended and intended pregnancies can be defined as follows by Santelli et al. 2003:

Unintended pregnancies: Pregnancies reported to have been either unwanted (they might have occurred when women/couples desired no children, or no more children) or mistimed (when pregnancies occurred prior to the time they were desired).

Intended pregnancies: If pregnancies are reported to have happened at the "right time" or later than desired (because of infertility or difficulties in conceiving). Intentions are often reported or measured exclusively for pregnancies that end in live births; those pregnancies that end in abortion are usually assumed to have been unintended.

The National Family Health Survey (NFHS) (a large-scale, multi-round survey conducted in a representative sample of households throughout India) gives the following definition of unwanted and wanted births:

Unwanted birth: Any birth in excess of the number of children a woman reported as her ideal number.

Wanted birth: Any birth less than or equal to the number of children a woman reported as her ideal number.

Please see **Table 2: "Ideal family Size and Total Wanted Fertility Rate from the latest DHS Surveys.pdf**"

MEASUREMENT ASSESSMENT: FERTILITY PREFERENCES AND UNWANTED FERTILITY

Challenges

- Though scholars in the field recognize that fertility desires are important in understanding broad fertility trends, there is disagreement about the utility of fertility preferences in predicting subsequent fertility behavior at the individual level (Bongaarts 1992; Cleland et al. 2020; Morgan 2001; Ní Bhrolcháin and Beaujouan 2019; Schoen et al. 2000; Yeatman et al. 2020). High prevalence of unintended pregnancies and unmet need for contraception despite improved access (Bearak et al. 2018; Kuang and Brodsky 2016) has led scholars to claim that fertility desires could lack predictive validity (Aiken et al. 2016; Machiyama et al. 2017; Morgan and Bachrach 2011; Rocca et al. 2019; Sable 1999). Standard measures of fertility preferences have been critiqued because they are not able to properly consider the uncertainty, ambivalence, and complexity that surrounds childbearing (Aiken et al. 2016; Gomez et al. 2018; Gibby and Luke 2019).

- Respondents often give ambiguous responses to questions that ask them about the ideal number of children that they want. They often answer, "up to God", in which case all births they have, are accounted for as wanted, this could lead to measurement error (e.g. Bonagaarts 1990, 2011).

- Many large surveys provide cross-sectional data and thus use 'retrospective recall technique' for measuring unwanted and unintended births. This technique includes retrospective reports of fertility preferences at the time of conception once the birth in question has occurred. Cross-sectional data on pregnancy/birth history asks women whether the pregnancy was wanted or not at the time of conception. Some surveys also ask whether a pregnancy was wanted at that time or at a later point to make distinctions between mistimed and unwanted pregnancies. These measures are susceptible to ex-post revisions. These reports can be rather biased because respondents are often unwilling to label a pregnancy or birth as unwanted (e.g. Bongaarts 1990, Bankole and Westoff 1998, Koenig et al. 2006, Yeatman and Sennott 2015, Rackin and Morgan 2018). This method would usually lead to underestimating unintended and unwanted pregnancies, and thus surveys such as DHS are moving away from using direct retrospective recall in order to measure unintended pregnancies (Casterline and el-Zeini 2007, Koenig et al. 2006).

- Another measure of unwanted fertility uses cross-sectional data on ideal number of children that the respondent wants and compares it to the number of living children at the time of conceptions for the births that are recorded in birth history data (used by DHS to measure unwanted fertility). This assumes that ideal family size doesn't change over time, however this is not necessarily true. The measure 'ideal family size' is also susceptible to the rationalization bias since respondents may report their ideal family size close to their actual number of children, this in turn could lead to under-reporting of unwanted fertility (e.g. Yeatman et al. 2013).

- Prospective techniques avoid the problem of 'ex-post rationalization' by asking respondents questions about the additional number of children they want before their pregnancy. Longitudinal studies that look at intentions at a given point and subsequent behavior at a later point enable researches to use prospective measures. However, since fertility preferences could change over time and reports are obtained months or years before a pregnancy, it may not exactly reflect 'wantedness at conception' (Rackin and Morgan 2018).

Other Measures

a) **Coomb's Scale**: This is an improved technique that measures ideal family sizes (e.g. Goldberg and Coombs 1963) and helps enhance the understanding of ideal

family size by collecting information on the hierarchy of desired family sizes (Hin et al. 2011). Since a single-item measure takes into account very little variation in fertility desires, it is useful have a measure that can distinguish between those who want at least two children from those who want at most two children. Measuring first and second choices with this technique also increases the understanding of acceptability of childlessness amongst respondents (since wanting no children or one child is often not perceived to be a socially desirable answer and respondents may avoid giving these answers if asked for only one choice for ideal family size) (Hin et al. 2011). This method has been adopted by scholars who work in the context of developing countries (e.g. Ahmed 1981 in the context of Bangladesh; Jennings and Pierotti 2016 in the context of Nepal). See Jennings and Pierotti 2016 for their excellent example of a study that uses the scale with data from the Chitwan Valley Family Study. Link to the paper is given below:

Jennings, E. A., & Pierotti, R. S. (2016). The influence of wives' and husbands' fertility preferences on progression to a third birth in Nepal, 1997–2009. Population studies, 70(1), 115-133.

b) **Emotional Response to Fertility:** As a response to some of the critiques of the conventional measures of fertility, researchers have emphasized two other aspects of fertility preferences: emotions and expectations. Emotional responses to a pregnancy or birth are as important as other measures of fertility preference that measure subsequent childbearing (Aiken et al. 2016; Hartnett 2012; Jones 2017; Gibby and Luke 2019). Emotions can be evaluated retrospectively (by asking a respondent about their response to a past pregnancy for e.g. Santelli et al. 2009; however this measure would also be susceptible to ex-post rationalization), or prospectively (this measure would try to understand the respondent's happiness about the possibility of becoming pregnant; e.g. Aiken 2015; Jones 2017; Speizer 2006).

c) **London Measure of Unplanned Pregnancy (LMUP):** This is a six-item scale that takes into account 'contraceptive use, intention, desire to have a child, discussion/agreement with partner, and behaviour change in preparation for pregnancy'(Cleland et al. 2020). While using this measure or other similar measures it is important to come up with a series of questions that provide data of greater reliability and face validity compared to the present measures used

> **LONGITUDINAL STUDIES IN LOW- AND MIDDLE-INCOME COUNTRIES MEASURING FERTILITY INTENTIONS AND SUBSEQUENT BEHAVIOR**
>
> In a review article, Cleland et al. 2020 summarize 28 longitudinal studies examining the relationship between fertility preferences and subsequent behavior in the Asian and African context. They found no consistent association between women's desire to delay child-bearing and eventual fertility, however the aspiration to stop childbearing was a strong determinant of subsequent fertility. Partner's desire is also of somewhat importance. Table 1 in the article also provides an in-depth description of the sample used in the surveys and results from the studies reviewed (most of these studies include non-sterilized, non-pregnant, fecund, married women of reproductive age). Following is a link to the review article:
>
> Cleland, J., Machiyama, K., & Casterline, J. B. (2020). Fertility preferences and subsequent childbearing in Africa and Asia: A synthesis of evidence from longitudinal studies in 28 populations. Population studies, 74(1), 1-21.

by the DHS. These questions should be brief and to the point so that they could be integrated into future surveys (Cleland et al. 2020). This measure has been field-tested in India and Malawi (Rocca et al. 2010; Hall et al. 2013).

Future Directions

Recent literature suggests that future work on fertility preferences should focus on the following points (e.g. Cleland et al. 2020; Gibby and Luke 2019):

- An all-encompassing theoretical framework that accounts for multiple aspects of fertility preferences and also completely accounts for the role of ambivalence and uncertainty.

- Instability in fertility preferences (particularly in the context of developing countries) are often patterned (for e.g. in Malawi women change their preferences in response to transitions in relationship status and situations around pregnancies). Theoretically too there are efforts to develop more advanced measures of fertility. These suggest that fertility preferences should only rarely be treated as a fixed statement of a feasible plan, and researchers should expect fertility behaviors to respond to contingencies, inputs, and shifts that occur at the micro and macro levels (for e.g. Trinitapoli and Yeatman 2018; Hayford 2009;. Sennott and Yeatman 2012; Yeatman, Sennott, and Culpepper 2013). Thus, adopting a life course perspective when studying fertility preferences could be useful.

- Since cross-sectional surveys such as DHS would continue using retrospective measures of fertility preference, despite low validity of these measures

population estimates of unintended fertility will depend on these measures. Thus, it is important to work on improving retrospective evaluation (e.g. through measures such as LMUP).

- The role of fecundability in impacting desires and understanding weak or fluid desires to delay childbearing needs more attention.

- Though a greater number of studies are interviewing both partners about fertility desires, this should preferably always be the case.

- Larger number of follow-up interviews (e.g., through telephone) should be collected in longitudinal studies in order to reduce the gap in timing between the measuring of fertility desires and a pregnancy occurring. This also helps study changes in situations that could lead to changes in fertility preference.

- Questions in the DHS do not allow for proper detection of reasons for postponement. This short-coming could be addressed through some additional questions. For respondents who do not want any more children, an additional follow-up question could inquire if their stance would change if the situation changed. Again, for those who want more children before asking them about the preferred waiting time, they could be asked if they have a defined view on this, or if this preferred waiting time would depend on future circumstances.

- There should be a focus on new prospective measures of emotions and expectations near pregnancy points in order to better understand an individual's motivations and provide them with services they need.

REFERENCES

Ahmed, N. R. (1981). Family size and sex preferences among women in rural Bangladesh. *Studies in Family Planning*, 100-109.

Aiken, A. R. (2015). Happiness about unintended pregnancy and its relationship to contraceptive desires among a predominantly Latina cohort. *Perspectives on sexual and reproductive health*, *47*(2), 99-106.

Aiken, A. R., Borrero, S., Callegari, L. S., & Dehlendorf, C. (2016). Rethinking the pregnancy planning paradigm: unintended conceptions or unrepresentative concepts?. *Perspectives on sexual and reproductive health*, *48*(3), 147.

Bankole, A., & Westoff, C. F. (1998). The consistency and validity of reproductive attitudes: evidence from Morocco. *Journal of biosocial science*, *30*(4), 439-455.

Bearak, J., Popinchalk, A., Alkema, L., & Sedgh, G. (2018). Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model. *The Lancet Global Health*, *6*(4), e380-e389.

Bhrolcháin, M. N., & Beaujouan, É. (2019). Do people have reproductive goals? Constructive preferences and the discovery of desired family size. In *Analytical family demography* (pp. 27-56). Springer, Cham.

Bongaarts, J. (1990). The measurement of wanted fertility. *Population and development review*, 487-506.

Bongaarts, J. (1992). Do reproductive intentions matter?. *International Family Planning Perspectives*, 102-108.

Bongaarts, J. (2001). Fertility and reproductive preferences in post-transitional societies. *Population and development review*, *27*, 260-281.

Bongaarts, J. (2011). Can family planning programs reduce high desired family size in sub-Saharan Africa?. *International perspectives on sexual and reproductive health*, *37*(4), 209-216.

Bühler, C., Gauthier, A., Goldstein, J. R., & Hin, S. (2010). Measuring preferred family size. *Unpublished manuscript. Rostock and Hannover: Max Planck Institute for Demographic Research and Leibniz University*.

Casterline, J. B., & El-Zeini, L. O. (2007). The estimation of unwanted fertility. *Demography*, *44*(4), 729-745.

Cleland, J., Machiyama, K., & Casterline, J. B. (2020). Fertility preferences and subsequent childbearing in Africa and Asia: A synthesis of evidence from longitudinal studies in 28 populations. *Population studies*, *74*(1), 1-21.

Easterlin, Richard A. (1978). "The economics and sociology of fertility: A synthesis," in Charles Tilly (ed.), Historical Studies of Changing Fertility. Princeton: Princeton University Press, pp. 57-133.

Edin, K., & Kefalas, M. (2011). *Promises I can keep: Why poor women put motherhood before marriage*. Univ of California Press.

England, P., Caudillo, M. L., Littlejohn, K., Bass, B. C., & Reed, J. (2016). Why do young, unmarried women who do not want to get pregnant contracept inconsistently? Mixed-method evidence for the role of efficacy. *Socius*, *2*, 2378023116629464.

Feyisetan, B., & Casterline, J. B. (2000). Fertility preferences and contraceptive change in developing countries. *International family planning perspectives*, 100-109.

Gibby, A. L., & Luke, N. (2019). Exploring multiple dimensions of young women's fertility preferences in Malawi. *Maternal and child health journal*, *23*(11), 1508-1515.

Gipson, J. D., Koenig, M. A., & Hindin, M. J. (2008). The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. *Studies in family planning*, *39*(1), 18-38.

Goldberg., D & Coombs, C. H. (2017). Some applications of unfolding theory to fertility analysis. In *Scaling* (pp. 311-332). Routledge.

Gomez, A. M., Arteaga, S., Ingraham, N., Arcara, J., & Villaseñor, E. (2018). It's not planned, but is it okay? The acceptability of unplanned pregnancy among young people. *Women's Health Issues*, *28*(5), 408-414.

Hall, J., Barrett, G., Mbwana, N., Copas, A., & Stephenson, J. (2013). Understanding pregnancy planning in a low-income country setting: validation of the London measure of unplanned pregnancy in Malawi. *BMC pregnancy and childbirth*, *13*(1), 1-8.

Hartnett, C. S. (2012). Are Hispanic women happier about unintended births?. *Population research and policy review*, *31*(5), 683-701.

Hayford, S. R. (2009). The evolution of fertility expectations over the life course. *Demography*, *46*(4), 765-783.

Hayford, S. R., & Agadjanian, V. (2012). From desires to behavior: Moderating factors in a fertility transition. *Demographic research*, *26*, 511.

Hin, S., Gauthier, A., Goldstein, J., & Bühler, C. (2011). Fertility preferences: what measuring second choices teaches us. *Vienna Yearbook of Population Research*, 131-156.

Jennings, E. A., & Pierotti, R. S. (2016). The influence of wives' and husbands' fertility preferences on progression to a third birth in Nepal, 1997–2009. *Population studies*, *70*(1), 115-133.

Jones, R. K. (2017). Change and consistency in US women's pregnancy attitudes and associations with contraceptive use. *Contraception*, *95*(5), 485-490.

Kodzi, I. A., Johnson, D. R., & Casterline, J. B. (2010). Examining the predictive value of fertility preferences among Ghanaian women. *Demographic research*, *22*, 965.

Koenig, M. A., Acharya, R., Singh, S., & Roy, T. K. (2006). Do current measurement approaches underestimate levels of unwanted childbearing? Evidence from rural India. *Population studies*, *60*(3), 243-256.

Kost, K., & Zolna, M. (2019). Challenging unintended pregnancy as an indicator of reproductive autonomy: a response. *Contraception*, *100*(1), 5-9.

Kost, K., Maddow-Zimet, I., & Kochhar, S. (2018). Pregnancy desires and pregnancies at the state level: Estimates for 2014.

Kuang, B., & Brodsky, I. (2016). Global trends in family planning programs, 1999–2014. *International perspectives on sexual and reproductive health*, *42*(1), 33-44.

Machiyama, K., Casterline, J. B., Mumah, J. N., Huda, F. A., Obare, F., Odwe, G., ... & Cleland, J. (2017). Reasons for unmet need for family planning, with attention to the measurement of fertility preferences: protocol for a multi-site cohort study. *Reproductive health*, *14*(1), 1-11.

McClelland, G. H. (1983). *Family-size desires as measures of demand*. Acad. Press.

Miller, W., Severy, L., & Pasta, D. (2004). A framework for modelling fertility motivation in couples. *Population studies*, *58*(2), 193-205.

Moreau, C., Hall, K., Trussell, J., & Barber, J. (2013). Effect of prospectively measured pregnancy intentions on the consistency of contraceptive use among young women in Michigan. *Human reproduction*, *28*(3), 642-650.

Morgan, S. P. (2001). Should fertility intentions inform fertility forecasts? Paper presented at the U.S. Census Bureau Conference on the Direction of Fertility in the United States, Alexandria, VA.

Morgan, S. P. (2003). Is low fertility a twenty-first-century demographic crisis?. *Demography*, *40*(4), 589-603.

Morgan, S. P., & Bachrach, C. A. (2011). Is the Theory of Planned Behaviour an appropriate model for human fertility?. *Vienna yearbook of population research*, *9*, 11-18.

Quesnel-Vallée, A., & Morgan, S. P. (2003). Missing the target? Correspondence of fertility intentions and behavior in the US. *Population research and policy review*, *22*(5), 497-525.

Rackin, H. M., & Morgan, S. P. (2018). Prospective versus retrospective measurement of unwanted fertility: Strengths, weaknesses, and inconsistencies assessed for a cohort of US women. *Demographic research*, *39*, 61.

Rocca, C. H., Krishnan, S., Barrett, G., & Wilson, M. (2010). Measuring pregnancy planning: An assessment of the London Measure of Unplanned Pregnancy among urban, south Indian women. *Demographic research*, *23*, 293.

Rocca, C. H., Ralph, L. J., Wilson, M., Gould, H., & Foster, D. G. (2019). Psychometric evaluation of an instrument to measure prospective pregnancy preferences: the desire to avoid pregnancy scale. *Medical care*, *57*(2), 152.

Roy, T. K., Sinha, R. K., Koenig, M., Mohanty, S. K., & Patel, S. K. (2008). Consistency and predictive ability of fertility preference indicators: Longitudinal evidence from rural India. *International Family Planning Perspectives*, 138-145.

Sable, M. R. (1999). Pregnancy intentions may not be a useful measure for research on maternal and child health outcomes. *Perspectives on Sexual and Reproductive Health*, *31*(5), 249.

Santelli, J., Rochat, R., Hatfield-Timajchy, K., Gilbert, B. C., Curtis, K., Cabral, R., ... & Unintended Pregnancy Working Group. (2003). The measurement and meaning of unintended pregnancy. *Perspectives on sexual and reproductive health*, 94-101.

Schoen, R., Astone, N. M., Kim, Y. J., Nathanson, C. A., & Fields, J. M. (1999). Do fertility intentions affect fertility behavior?. *Journal of Marriage and the Family*, 790-799.

Schoen, R., Astone, N. M., Nathanson, C. A., Kim, Y. J., & Murray, N. (2000). The impact of fertility intentions on behavior: The case of sterilization. *Social Biology*, *47*(1-2), 61-76.

Sedgh, G., Singh, S., & Hussain, R. (2014). Intended and unintended pregnancies worldwide in 2012 and recent trends. *Studies in family planning*, *45*(3), 301-314.

Singh, Susheela, Gilda Sedgh, and Rubina Hussain. 2010. "Unintended pregnancy: Worldwide levels, trends, and outcomes," Studies in Family Planning 41(4): 241–250.

Speizer, I. S. (2006). Using strength of fertility motivations to identify family planning program strategies. *International Family Planning Perspectives*, 185-191.

Trinitapoli, J., & Yeatman, S. (2018). The flexibility of fertility preferences in a context of uncertainty. *Population and Development Review*, *44*(1), 87.

Tsui, A. O., McDonald-Mosley, R., & Burke, A. E. (2010). Family planning and the burden of unintended pregnancies. *Epidemiologic reviews*, *32*(1), 152-174.

United Nations Secretary General. (2014). The road to dignity by 2030: ending poverty, transforming all lives and protecting the planet. Synthesis Report of Sectary-General on the Post-2015 Sustainable Development Agenda.

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Upadhyay, U. D., Gipson, J. D., Withers, M., Lewis, S., Ciaraldi, E. J., Fraser, A., ... & Prata, N. (2014). Women's empowerment and fertility: a review of the literature. *Social science & medicine*, *115*, 111-120.

Sennott, C., & Yeatman, S. (2012). Stability and change in fertility preferences among young women in Malawi. *International Perspectives on Sexual and Reproductive Health*, *38*(1), 34.

Yeatman, S., Sennott, C., & Culpepper, S. (2013). Young women's dynamic family size preferences in the context of transitioning fertility. *Demography*, *50*(5), 1715-1737.

Yeatman, S., & Sennott, C. (2015). The sensitivity of measures of unwanted and unintended pregnancy using retrospective and prospective reporting: Evidence from Malawi. *Maternal and child health journal*, *19*(7), 1593-1600.

Yeatman, S., Trinitapoli, J., & Garver, S. (2020). The enduring case for fertility desires. *Demography*, *57*(6), 2047-2056.

Yoo, S. H., Guzzo, K. B., & Hayford, S. R. (2014). Understanding the complexity of ambivalence toward pregnancy: Does it predict inconsistent use of contraception?. *Biodemography and social biology*, *60*(1), 49-66.

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