Incidence of Unintended Pregnancies Worldwide in 2012 and Trends Since 1995

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Introduction

Unintended pregnancies and unplanned births can have serious health, economic and social consequences for women, their children and families (Gipson 2008). If the UN Millennium Development Goals of reducing child mortality and improving maternal health (United Nations 2006) are to be achieved, the incidence of unintended pregnancy and its consequences must be dramatically reduced. Period estimates of the incidence of unintended pregnancy can be used to monitor progress toward that goal. Moreover, this information can be used to estimate the costs and benefits of investing in family planning programs (Singh et al., 2009).

Estimates of the global incidence of unintended pregnancy and pregnancy outcomes have been developed for 1995 and 2008. During that interval the proportion of pregnancies that were unintended increased slightly, from 38% to 41%. However, the unintended pregnancy rate declined from 69 per 1,000 women 15-44 in 1995 to 55 in 2008, a 20% drop that is reflective of the worldwide trend towards increased use of contraception. More than half of all unintended pregnancies ended in abortion in 1995 and slightly under half did so in 2008, indicative of the strength of motivation behind preferences for increasingly smaller families, worldwide.

The paper focuses on regions and subregions rather than countries because of an important data constraint: Estimates of the incidence of abortion, a key component of unintended pregnancy, are available for all regions and subregions, but not for all countries. Estimates of unintended pregnancy are made for a small number of countries where sufficiently complete estimates of abortion and a national survey that measures the planning status of live births, are both available (recent examples of such studies include: Finer and Henshaw, 2006; Prada et al, 2011, Sedgh et al, 2011; Singh et al, 2012).

This paper will present new estimates for 2012 of the numbers, rates and distribution of all pregnancies by their planning status and outcomes: planned births, induced abortion, unplanned (mistimed or unwanted) births and miscarriages resulting from planned and unplanned pregnancies. We will compare findings for developed and developing regions, and major geographic regions and subregions of the world. We will also examine trends in unintended pregnancies and their outcomes between 1995and 2012. We will consider these trends in the context of trends in contraceptive prevalence, contraceptive failure and unmet need for contraception across regions and over time.

Methods and Data Sources

The methodology used for this study will closely parallel that used for previous estimates, ensuring comparability of the estimates over time, necessary for assessing trends.

Estimates for 2012

The number of pregnancies is the sum of all live births, induced abortions and miscarriages. Different data sources and methods are used to estimate the incidence of

each of these events. Estimates will be made for each subregion and these will be summed to create estimates for major regions and for the world. Live birth estimates for 2012 for each subregion will be based on UN Population Division estimates for 2010-2015. The number of induced abortions in 2012 will be estimated by projecting forward the trend in the abortion rates estimated for 2003 (Sedgh et al. 2007a) and 2008 (Sedgh et al. 2012), and applying the projected 2012 rates to UN estimates of the number of women age 15-44 in 2008 . Exceptions to this general approach will be explained in detail.

A model-based approach derived from clinical studies of pregnancy loss by gestational age will be employed to estimate the number of miscarriages (Bongaarts and Potter 1983).[*] The model indicates that these losses are equal to approximately 20% of the number of births and 10% of the number of induced abortions. Findings from a survey of women in the United States support these model-based assumptions (Finer and Henshaw 2006). Although a uniform proportion is applied across all regions and subregions, the miscarriage rate generally differs slightly from region to region because varying proportions of women's pregnancies result in births and induced abortions.

Estimates of unintended pregnancies, 2012

Unintended pregnancies are defined to include unplanned births, induced abortions, and miscarriages that resulted from unintended pregnancies. Regional and subregional estimates of the proportions of births that are unplanned are calculated as the weighted averages of data from the countries in each subregion for which data are available.

Planning status of births: For subregions in Africa, Asia and Latin America, the proportions of births that were unplanned (that is, births that occurred two or more years sooner than desired, or that were not wanted at all), will be estimated on the basis of nationally representative Demographic and Health Surveys and similar surveys conducted in more than 80 countries. Almost all of these surveys employed two standard questions on the intention status of each birth at the time of conception.[†] The questions are: (1) "At the time you became pregnant with (*name*), did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all?" (2) "How much longer would you like to have waited before you got pregnant with (*name*)?" This second question permits identifying those mistimed births that occurred two or more years sooner than desired. Most of the surveys were fielded between 2008 and 2012. For some countries, estimates will be projected or carried forward on the basis of surveys from earlier time periods; detail specifying these countries and the assumptions underlying these decisions will be provided.

For Eastern Europe, CDC surveys will be the main data source, and available surveys represent the majority of the subregion's population. For Northern, Southern and

[*] We use the term miscarriage to refer to all spontaneous fetal losses, including stillbirths. Clinical studies generally document miscarriages starting from the fifth or sixth week of gestation; miscarriages before the fifth week are not typically included in existing studies and are not part of the pregnancy estimates. There is no recent work on this topic, and although the level of spontaneous abortion is believed to vary little at the aggregate level, over time and across countries, there is clearly need to re-examine this issue, to confirm whether levels have not changed over time and whether they remain similar across countries.

Western Europe, data from several independent, subnational studies will be employed. Because of limitations in data coverage, available data will be used to compute a single weighted average of the planning status of births that is applied to all three subregions.

The proportion of births that are unplanned for North America (which is defined by the UN to include the United States and Canada) will be based on the most recent cycle of the National Survey of Family Growth of the United States, which represents 90% of the region.

For Oceania, data on the planning status of births are available from a national survey in Australia, which represents more than half of the population in this region. We will draw upon available surveys for Melanesia and Micronesia, and will consider drawing on other sources, given the scarcity of data for these two subregions

The proportions of births that are unplanned will be applied to UN estimates of the numbers of births estimated to have occurred in 2012 in each region and subregion, to obtain the numbers of unplanned births.

***Intention status of induced abortions*:** All induced abortions are assumed to have been unintended pregnancies. A small proportion is likely to have been intended when conceived, and terminated because of health or other reasons, but this proportion is assumed to be insignificant. Data for the United States suggest that fewer than 5% of abortions result from pregnancies that were intended at the time of conception (Finer and Henshaw 2006).

Intention status of miscarriages: Separate estimations are made for each subregion. The miscarriages that represent 10% of all abortions are classified as unintended pregnancies. The miscarriages that represent 20% of live births are classified according to the intention status of births. Intended and unintended pregnancies are thus assumed to have the same probability of ending in miscarriage. It is possible that unintended pregnancies are more likely to end in miscarriages than intended pregnancies, if women whose pregnancies are unintended are more likely to engage in behaviors that are sufficiently risky to cause a miscarriage. Empirical information on the planning status of miscarriages is extremely scarce. A national survey in the United States in 2002 found that the proportion of all fetal losses that were unintended was slightly higher than, but not markedly different from, the proportion of live births that were unintended (40% compared to 34%) (Finer and Henshaw, 2006). According to a recent review of literature on differences in maternal behavior during pregnancy by pregnancy planning status, a few studies in developed countries have found a positive association between unintended pregnancies and maternal risk behaviors (particularly alcohol and drug use, cigarette smoking, and caffeine intake), but most studies yielded mixed or no effects (Gipson et al. 2008). The review also noted a dearth of research from developing countries, and did not directly study differentials in the incidence of miscarriage. In the absence of sufficient empirical evidence on the outcomes of miscarriages by their intention status, we assume they have the same intention status distribution as do live births.

Calculation of pregnancy rates: Total, intended and unintended pregnancy rates per 1,000 women aged 15–44 in each subregion will be estimated using United Nations estimates of the 2012 midyear population of women 15-44 for each subregion and region.

Estimates of pregnancies by planning status and outcome, 1995 and 2008

Estimates for 1995 and 2008 are taken from earlier publications that used a comparable methodology and similar sources as described above (Henshaw et al. 1999; Singh et al 2010).

Classification by Regions and Sub-regions

We will use the regional classification used by the United Nations (UN) Population Division (United Nations Department of Economic and Social Affairs 2009).

Results

We will discuss the following estimates for 2012, analyzing variations and patterns among regions and subregions of the world:

- Numbers of pregnancies, by planning status and outcome
- Pregnancy rates (number of pregnancies for every 1,000 women of reproductive age)
- Unintended pregnancy rates
- Percent distributions of pregnancies by planning status and outcome

We will also discuss trends in unintended pregnancy incidence (measured both as a rate and as a proportion of all pregnancies) over 1995-2012, a nearly 20 year period. We will identify areas with notable declines in unintended pregnancy incidence, as well as those with negligible change or possibly increases. Finally, we will discuss trends in the proportion of unintended pregnancies ending in abortion, and in the proportion of live births that are unplanned, both indicators of important aspects of reproductive decision-making that may be changing as preferences for smaller families become more widespread, and with possible increases in the strength of motivation to control spacing of births.

Discussion

We will discuss the findings in the context of trends on contraceptive use and in unmet need for contraception and other underlying factors that contribute to the observed patterns. We anticipate that the findings will be the basis for making policy and program recommendations in regard to contraceptive information, counseling and service needs, and implications for health and mortality where abortion is unsafe. The discussion will include a review of the limitations and strengths of the data and estimation approaches.

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