Contraception Needed to Avoid High-Fertility-Risk Births, and Maternal and Child Deaths That Would Be Averted

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Background

Millennium Development Goal (MDG) 4 calls for a reduction in child mortality and MDG 5 for an improvement in maternal health to reduce the maternal mortality ratio (MMRatio). The Sustainable Development Goals (SDG) targets call for reducing neonatal mortality to 12 or fewer deaths per 1,000 live births, the under-five mortality to 25 or fewer deaths per 1,000 live births, and the global maternal mortality to less than 70 deaths per 100,000 live births. It has been generally accepted that fertility behavior affects both the mother's and the child's health and survival. Three characteristics and five risks have been identified: age of the mother at the birth of her child (too young or too old), parity at birth (too many), and the interval between pregnancies and birth (too short or sometimes, too long). While the conventional measure of unmet need relies on women's stated preference to space and/or limit births, this report calculates an alternate measure of unmet need that considers a woman who falls in a high-risk fertility behavior category to be in need of family planning. The report estimates the number of maternal and child deaths that could be averted if this alternative risk-based unmet need were satisfied.

A variety of studies since the 1980s have described and assessed the overall effects of contraceptive use on the health and survival of women (Ahmed et al. 2012; Cleland et al. 2012; Fortney 1987; Ross and Blanc 2012; Stover and Ross 2010; Trussell and Pebley 1984; Winikoff and Sullivan 1987) and to a lesser extent, children (Hobcraft 1987; Trussell and Pebley 1984). These studies have employed different analytic approaches to quantifying the potential for increases in contraceptive use to avert maternal and child deaths. While most previous studies have extracted estimates of fertility risk from other published sources, the current study uses recent DHS survey data to directly calculate estimates of mortality risk and fertility rates. Furthermore, while previous studies have most often presented global or regional estimates for the number of deaths averted by contraceptive use, this study provides country-specific and regional estimates. The study examines the potential impact of eliminating fertility risk-based need on mortality among mothers and children, considering the effects of both the reduction in the number of births and the reduction in the percentage of births in high-risk behavior categories.

Data and Methods

This study defines high-risk fertility behaviors as giving birth at less than 18 years of age and at 40 or more years of age as the age risk, becoming pregnant again at less than 27 months after a preceding birth as the pregnancy spacing risk, and having 4 or more births as the parity risk. The data come from 45 Demographic and Health Surveys (DHS) conducted between 2006 and 2012 with 691,362 non-pregnant women. Data from the United Nations World Population Prospects were also used.

The number of child deaths that could be averted by satisfying unmet risk-based need and need for a long-acting and permanent method of family planning (LAPM) is calculated using both the reduction in the number of births and the reduction in the risk of dying due to avoiding births in high-risk fertility behavior categories. The probabilities of dying for children in a risk category are drawn from a recent study by Rutstein and Winter (2014).

Reduced age-specific maternal mortality rates (MMRate) are calculated with maternal deaths excluded from the numerator if the mother was less than 18 years of age, 40 years or older, or the birth was of order 4 or higher. The age-specific rates are combined for the MMRatio, weighting by the age-distribution of respondent women.

Preliminary Results

Overall across the 45 study countries, 29 percent of women have a short birth-to-pregnancy interval risk, 43 percent have a high parity risk, and 32 percent have a risk because of age. The sum of the percents exceeds 100 because women face multiple risks. Among the 69 percent of women who face at least one fertility-related risk, 28 percent of women have one risk, 39 percent have double risks, and 2 percent face all three possible risks.

Two-thirds of non-pregnant fecund women have a need to use contraception based on their fertility risk status. Nearly half the non-pregnant women (46 percent) have a need for a limiting method because they have had 3 children already or are 40 years of age or over. Among these women, those not currently using contraception have an unmet need.

The overall level of unmet need is estimated by combining unmet need from desires with unmet need from fertility risk. Twenty-one percent of non-pregnant women have an unmet need for contraception because of their desires or their risk, 5 percent for an unmet spacing method, and 16 percent for a limiting method. Another 20 percent are using a spacing method but have a need for a LAPM. In total, 41 percent of women have a need for focused efforts by family planning programs. Only two out of five women who need focused efforts and who visited a health facility in the preceding year were informed about family planning or contraceptive methods.

If women were to satisfy their unmet risk-based needs for contraception or were to obtain more effective methods of family planning, substantial numbers of under-five deaths and maternal deaths could be averted. According to our calculations, over half of infant and under-five deaths could be averted, with 3.2 million deaths averted out of the 5.6 million deaths projected for 2015. Even more spectacular is the number of maternal deaths that could be averted, 109,000 out of the 155,000, which represents a reduction of 70 percent. It is unrealistic to assume that risk-based unmet need can be eliminated completely, because of conflicts with fertility desires and rejection of use of contraception by some women, their husbands or partners, families, or religions. However, satisfying half of the unmet risk-based need would be a highly effective, cost-effective intervention. For many women, risk-based needs and desire-based needs coincide, and a substantial portion of risk-based unmet needs will be satisfied if women can achieve their preferred number and spacing of births.

Discussion and Conclusions

According to our calculations, if women were to satisfy their unmet risk-based needs for contraception or were to obtain more effective methods of family planning, substantial numbers of under-five deaths and maternal deaths could be averted. The numbers of child deaths averted in our analyses are much greater than some other predictions, such as those produced by the FamPlan/LiST model tool (Bhutta et al. 2014; Jo et al. 2014). See Walker et al. (2013) for a description of the LiST tool. The differences lie in the different approaches. To estimate the number of deaths averted by increases in contraceptive use, the FamPlan/LiST model considers only those reductions in infant and child deaths that are transmitted through direct causes of death for which there is published evidence that links fertility risks to pregnancy and delivery complications. Reductions in births are also considered. However, published model results represent various scenarios of increases in the contraceptive prevalence rate over a period of years rather than eliminating the unmet need due to fertility risk. By contrast, the approach taken here uses the observed risk of mortality for infant and under-five children that is associated with fertility behavior after controlling for a host of confounding factors. These risk estimates are not limited to transmission through direct causes of death for which there is published evidence. Given the lack of available data for middle and low income countries that link fertility risk behavior to specific causes of death, as well as indirect

and underlying causes, we believe that the FamPlan/LiST model severely underestimates the potential impact of contraceptive use on mortality.

This study has several limitations. For the projected number of deaths averted in 2015, we use the latest DHS estimates of fertility, infant, under-five and maternal mortality rates. We assume that those rates are accurate and have not changed from the periods of measurement (three years before the survey for fertility rates, five years for infant and child mortality, and seven years for maternal mortality rates) to the current year. Population estimates for women are based on UN medium level population projections published in 2013 and projected from 2005-10 data. This study also assumes no change in other interventions to reduce mortality, which may cause fewer deaths averted to be attributable to contraception.

In conclusion, avoiding high fertility behavior risk could avert substantial numbers of young child and maternal deaths. Women need to be informed of their fertility risks and contraceptive choices, and provided with timely, effective, and high quality family planning services. It is incumbent upon national health programs, international health donors, and private for-profit and not-for-profit health programs to serve women with unmet needs for contraception in order to cost-effectively avert maternal and child deaths and to reach the Sustainable Development Targets 3.1 and 3.2.

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