

“Adolescent Birth Rates: Comparing the Standard with the Conditional Unintended Birth Rate Across Age Groups”

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Topic

Although global adolescent birth rates have declined over the past several decades, the pace of this decline varies greatly across geographies. Unintended births—which are those that follow from pregnancies that were not desired at the time they occurred—are widely associated with adverse health and economic outcomes. Adolescents are at a uniquely high risk for unintended births due to various factors ranging from reduced access to contraceptives to higher risks of sexual violence. Further, little attention has been paid to childbearing desire during adolescence, which is a core construct of reproductive autonomy, and the proportion of women who desire to avoid a pregnancy likely varies across the life course. Given the unique nature of adolescent reproductive health and fertility, adolescent birth rates warrant specific attention.

Theoretical Focus

The concept of bodily autonomy recognizes an individual’s decision to have a child or not. Standard unintended birth rates are calculated by including all women in the denominator of the metric, regardless of whether they desire a birth or not. As a result, rates constructed using the standard approach do not recognize variation in fertility desires, as the denominator includes both women who desire a pregnancy and those who do not. Further, they include women who are not at risk of pregnancy. Specifically, as many adolescents are not yet sexually active or only have intermittent sexual exposure, calculating rates amongst all adolescents in the denominator might understate the chances of a sexually active adolescent experiencing an unintended birth.

We have previously reported the conditional unintended pregnancy rate (CUPR) as an alternative to the standard rate. The CUPR uses the total population of women wishing to avoid a pregnancy as the denominator, using the construct of contraceptive demand as a proxy, instead of all women of reproductive age. Thus, the denominator for the CUPR includes both women who are classified as having an unmet need for family planning ([according to the World Health Organization's definition](#)) or those who are using a method of contraception (modern or traditional). To report the CUPR, data for the denominator were obtained in aggregate at the country-level from the United Nations Population Division.

While we believe that the CUPR more fully captures women's success in preventing pregnancies when they so desire than the standard definition, further revision to the denominator would improve the conditional rate, especially amongst adolescents. Unmet need, which is central to calculating the CUPR, is the subject of much criticism. In particular, it assumes that all married women are sexually active; an assumption that research shows to be inaccurate. By including women not at risk of a pregnancy in the denominator due to a lack of sexual activity, rates calculated using unmet need in the denominator may be less comparable across age groups given important differences observed by age in marital status and sexual activity. Further, unmet need considers women who want to postpone childbearing for the next two years as having a “need,” when fertility preferences may in fact fluctuate during a shorter period. Shorter-term fluctuations in childbearing desire may occur more frequently during adolescence and early adulthood when many women first enter into marriage and intend to begin childbearing soon thereafter. Finally, the CUPR includes all contraceptive users in the denominator, thereby not allowing for the possibility of contraceptive use for non-contraceptive purposes, which may be a particularly

important issue among adolescents due to the other potential health benefits some hormonal contraceptives offer.

Finally, another difference from our earlier work is that we calculate the conditional unintended *birth* rate (CUBR) instead of the CUPR. Studying births (as opposed to pregnancies) allows us to produce age-disaggregated estimates given differences in global data availability. We believe that the CUBR therefore emphasizes reproductive autonomy by incorporating a woman's ability to avoid (postpone, space, or stop) childbearing regardless of pregnancy experience.

For the reasons above, we propose several modifications to the CUPR that we believe not only improve the measure but are also likely to have a differential impact on understanding adolescents' success in preventing undesired births when compared to other age groups. In short, we revise the denominator of the CUBR to include sexually active women who do not desire a pregnancy within the next year.

Data

Our preliminary analyses use data from 295 Demographic and Health Surveys (DHS) conducted between 1985 and 2021 in 75 countries. We aim to explore whether the relationship between the CUBR and the standard rates varies across age categories, across regions, and over time. Before the conference, we intend to expand our data to include other global surveys to include an even larger range of countries and time periods, such as additional DHS, Multiple Indicator Cluster Surveys, and National Surveys of Demographic Dynamics, which we are currently processing.

Research Methods

To better understand women's success in avoiding unintended births, we report CUBRs among adolescents and young adults (aged 15-19 and 20-24 years, respectively) and compare these rates to those among reproductive-aged women in other age groups defined in 5-year increments. We report preliminary results using the most recent survey from each country; in addition, we explore temporal change by using the first and last survey in each country to explore trends over time amongst adolescents and young adults in comparison to other age groups.

The standard unintended birth rate is calculated as the number of unintended births over the total population of women in each age group. The CUBR is defined as the number of unintended births over women with recent sexual activity (defined as last 30 days) and who are either 1) fecund, not pregnant, and do not want a child in the next year, or 2) currently pregnant and did not want to become pregnant when they did or post-partum amenorrheic who did not want their last birth or had their last birth either than desired. We also constructed average annual rates of change from the first to the last surveys available for each country; specifically, we compared rates in the earliest and latest years available and divided by the years elapsed to produce the mean.

Prior to the conference, we will update our analyses to apply Bayesian statistical techniques to provide more robust country-level estimates that will be obtained from a time series hierarchical model that accounts for variation over time as well as across regions and subregions. This will enable us to examine whether the magnitude of change observed amongst adolescents and young adults differs from other age groups. Further, we intend to explore other factors that may contribute to variation between age groups that are particularly salient amongst adolescents, including geography and marital status.

Expected Findings

We present preliminary results related to trends in the adolescent unintended birth rates in low- and middle-income countries to understand if adolescent women are more or less successful in avoiding unintended births compared to women in other reproductive ages in low- and middle-income countries. We expect the results of our Bayesian analyses to produce similar, though more robust, results for a larger set of countries and longer time period.

Our preliminary results suggest that while the CUBR is larger than the standard rate among all age groups, the magnitude of the difference is greatest among younger age groups (**Figure 1**). According to the CUBR, adolescents (aged 15-19 years) have among the highest unintended birth rates when compared to older age groups, their CUBR being exceeded only by the rates found among young adults (aged 20-24 years) and no other age groups. In contrast, the standard rates suggest that adolescents have among the lowest unintended birth rates compared to women in other age categories (higher only than women aged 40 years and above).

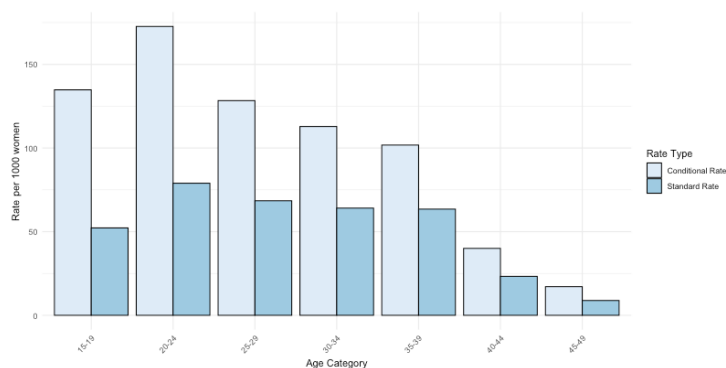


Figure 1: Standard vs Conditional Unintended Birth Rate Across 5-year Age Categories

Across all surveys, the magnitude of the difference between the conditional and the standard rates increases as the proportion of women at risk of an unintended birth in each age category decreases. As such, we observe that the ratio between the conditional and the standard unintended birth rate is highest among adolescents aged 15-19 years, with less than 40% of women at risk of an unintended birth in that age category, followed by those aged 20-24 years (**Figure 2**).

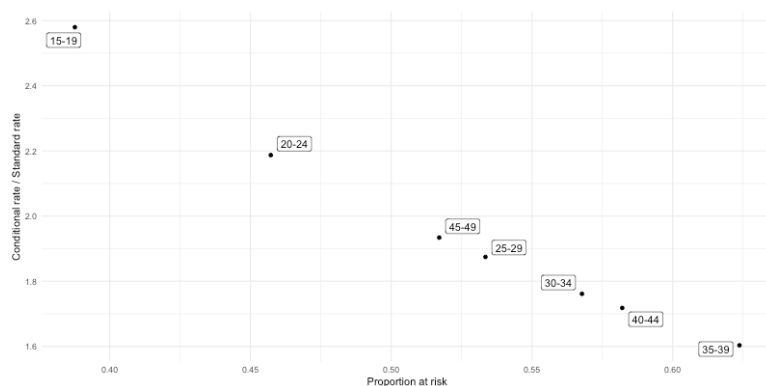


Figure 2: Ratio of the Conditional Unintended Pregnancy Rate to the Standard Unintended Rate in Relation to the Proportion of the Population at Risk of an Unintended Pregnancy

Using the conditional metric versus the standard also affects regional comparisons (**Figure 3**). The standard rates suggest that adolescents in Africa and in Latin America have similar unintended birth rates, whereas the conditional rates indicate substantially higher rates of unintended births among adolescents in Africa than in any other region. While there is considerable variation by age across regions, in general, women become increasingly more successful in preventing unintended births as they progress past their early 20s in all regions. Further, the standard rate and the CUBR tend to become more similar as age increases in all regions.

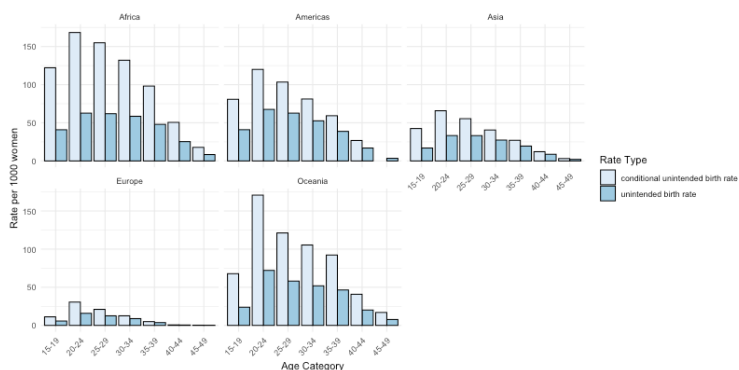


Figure 3: Standard vs Conditional Unintended Birth Rate Across 5-year Age Categories by Region

According to both metrics, unintended birth rates have declined across all age groups over time; however, the rate of decline is smaller amongst adolescents than that observed among most other age groups (**Figure 4**), suggesting that less progress has been made over time. Interestingly, however, the average annual rate of decline in the CUBR among adolescents is greater than that derived from the standard rate. Thus, the standard rate may ultimately understate the reductions in the unintended birth rate amongst adolescents over time.

Our preliminary results show that the CUBR provides a different understanding of adolescent's ability to avoid unintended childbearing than the standard rate, while allowing us to observe greater nuance across age groups and regions. Our findings reveal substantial disparities among regions in adolescents' ability to implement their reproductive preferences, especially when comparing Africa to elsewhere. Adolescents have also made smaller gains over time compared to other age groups in their ability to avoid childbearing when they so desire. Our results highlight the importance of measuring and investing in adolescent sexual and reproductive health through a new lens.

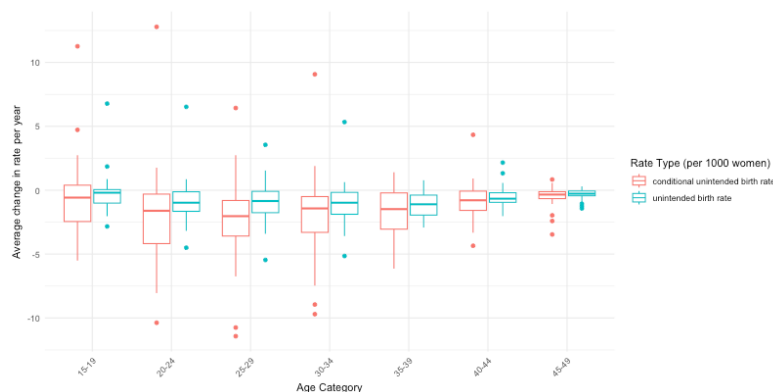


Figure 4: Box plot showing average annual change in the conditional and standard rates by age categories between first and last survey by country