Differences in Adolescent Sexual and Reproductive Health in Latin America by Ethnoracial, Rural-Urban, and Information Exposure Groups

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Theoretical Focus

Adolescent fertility and pregnancy rates in Latin America and the Caribbean (LAC)—42 births per 1,000 adolescent women aged 15-19— are among the highest in the world. Increasingly, these rates are driven by unintended pregnancies (Rodríguez Vignoli 2017),[1] which have been associated with poverty, limited access to general and sexual education, gender inequalities, restrictive cultural norms, and lack or limited access to contraception (Azevedo et al. 2012). In turn, adolescent fertility and pregnancy are associated with adverse life course outcomes, such as lower educational attainment, limited economic opportunities, and adverse health outcomes for both the mother and child. While countries in the region have been implementing strategic programming to address adolescent fertility and pregnancy, progress has been slow and uneven across the region (Rodríguez Vignoli 2017).

Previous research has documented trends in adolescent births by wealth status and urban/rural residence in Latin America, finding that adolescent pregnancy occurs most often among the poorest, most rural, and youngest (Neal et al. 2018). Other research has also assessed trends and inequities in adolescent childbearing across generations and over time (Sanhueza et al. 2023). Other research has assessed the role of sexual behavior in this process (Samandari and Speizer 2010). Another line of research has systematically assessed the role of public policies or targeted programs (e.g., conditional cash transfers, education, health, and life skills) on adolescent pregnancy in the region (Rodríguez Ribas 2021). Researchers and practitioners have provided guidance on paths and solutions for targeted policies, such as the importance of accounting for the societal context of the study (i.e., individual, relational, family, community, and societal levels), implementing innovative solutions to provide comprehensive sexuality education through modern media, and carefully measuring the effectiveness of the targeted interventions (Córdova Pozo et al. 2015). Research in low- and middle-income countries has found that media plays a crucial role in the sexual and reproductive health of adolescents, especially regarding dating, relationships, sexual practices, and access to services (Guse et al. 2012; Nigenda et al. 2016; Olumide and Ojengbede 2016).

Policy reports emphasize that adolescent pregnancy in Latin America is not equally distributed between and within countries, or across ethnoracial groups or rural-urban residents (Pan American Health Organization 2020). However, limited research has assessed the relationship between sexual and reproductive health outcomes (e.g., early pregnancy, contraception use) among adolescents in marginalized communities (e.g., rural, Indigenous, or Afro-descendant populations). Even less research has examined the role of media information exposure in moderating this relationship. This study will fill these gaps in the literature, explore heterogeneities in sexual and reproductive health outcomes among adolescents in Latin America, and contribute to targeted policy and programming that relies on media to reach adolescents.

Data

This analysis uses pooled cross-sectional Demographic and Health Survey (DHS) data for Bolivia, Colombia, Guatemala, and Peru—collected between 1986 and 2015—to conduct a population-based cross-sectional study of adolescent sexual and reproductive health. DHS data is a publicly available, nationally representative survey of women aged 15–49 collected by ICF International in collaboration with host country governments (Croft, Marshall, and Allen 2018). The survey uses a two-stage stratified cluster-sampling design to select women within households and clusters randomly.

I included these four countries (Bolivia, Colombia, Guatemala, and Peru) because they have substantial ethnic and/or racial diversity (Montenegro and Stephens 2006), including in DHS data (i.e., Bolivia: 64.53%; Colombia: 86.61%; Guatemala: 57.15%; Peru: 17.01%). I limited my sample to adolescent women of reproductive age (15–19 years), married or cohabitating, and with complete survey

[1] While intended pregnancies are defined as those that are conceived when a baby is desired, unintended pregnancies include both those that are unwanted (e.g., a baby is not wanted at any time) and those that are mistimed (e.g., a baby is wanted eventually, but not until a later time). Both mistimed and intended pregnancies are considered wanted (Kaufmann, Morris, and Spitz 1997).

data on sexual and reproductive health and media usage. My study sample includes 11,743 women (level-1) and 6,067 clusters (level-2).

Research Methods

Dependent Variables

Building off formative work (Mena-Meléndez 2022), the dependent variables for this study will be number of births, contraceptive use, and pregnancy termination. First, the number of births measures the number of children born to a woman during their lifetime (i.e., "What is the total (number of births) births during your life?"). While this value is continuous (i.e., 1-5), responses were recoded as "1-2," "3-4," and "5+" number of births. Second, contraceptive use measures whether a woman is currently using a contraceptive method or not (i.e., "Which [contraceptive] method are you using?"). In the survey, the possible answers to this question are: "using modern method," "using traditional method," "non-user intends to use," and "non-user does not intend to use."[2] Third, terminated pregnancy measures whether a woman has ever had a spontaneous termination (e.g., miscarriage, stillbirth, extrauterine pregnancy, fetal intrauterine death, or other termination) or an induced termination (e.g., abortion). The survey's possible responses to this question are: "yes" and "no."

Independent variables

The first independent variable of interest is ethnoracial self-identification, which is a dichotomous variable indicating whether a woman is indigenous and/or afro-descendant or not. I used language spoken at home as a proxy for indigenous and/or afro-descendent self-identification (Afro-descendant, Aymara, Quechua, Guarani, Garifuna, Maya, Xinca), which has been the primary marker of ethnoracial identity used in the past (Telles and Torche 2019). While other research recommends using multiple self-identification measures, interviewer-ascribed phenotypic classifications, and multiple sub-categories of race and ethnicity (Perreira and Telles 2014; Telles, Flores, and Urrea-Giraldo 2015), DHS data does not collect such measures. The secondary independent variable of interest is place of residence (rural, urban), which measures whether a woman lives in a rural or urban area of their country. Finally, the third independent variable of interest will be exposure to information about family planning on traditional and modern media (e.g., radio, television, newspaper/magazine, mobile phone, social media). Additionally, I will control for household wealth (poorest, poorer, middle, richer, and richest), years of education (0, 1–3, 4–6, 7–9, ≥10 years), occupation (not working, managerial, clerical, sales, agricultural, domestic and other services, manual labor), husband's education (0–23), age at-first-birth (15–19, 20–34, 35+), birth interval (>2, 2–4, 4+), and pregnancy intention (intended, unintended).

Analyses

To explore the relationship between ethnoracial, rural-urban, and media exposure and sexual and reproductive health, I will conduct the analyses in three steps. First, I will assess the distribution of the above characteristics across ethnoracial identification and rural-urban residence. Then, I will conduct chi-square tests to examine bivariate associations. Third, I will construct three multilevel logistic and multinomial regression models to measure the relative odds of births, contraceptive use, and pregnancy termination by ethnoracial self-identification and rural-urban residence while controlling for selected characteristics. To respect the hierarchical design of DHS data, I will use a two-level multilevel logistic approach, whereby individual women units (level-1) are nested within survey cluster units (level-2). The models will include a random intercept at the cluster-level—to capture heterogeneity among clusters—and fixed effects for all other individual-level coefficients.[3]

Across all models, I also included an interaction term between ethnoracial self-identification, place of residence, and information exposure from media to examine if information exposure moderates the relationship between ethnoracial self-identification and place of residence on my outcomes of interest. Previous research indicates that in non-linear models, the product of the interaction (i.e., coefficient) can

[2] Modern contraceptive methods included: the pill, IUD, injection, diaphragm, NorplantTM or implant, condom, female condom, foam and jelly, female sterilization, male sterilization, other contraceptive methods, and country-specific contraceptive methods. Traditional or folk contraceptive methods included: lactational amenorrhea, periodic abstinence (rhythm), and withdrawal.

[3] Compared with single-level regression analysis that assumes that all individuals are independent, this methodology accounts for the fact that individuals in the same cluster may have similar characteristics (Guo and Zhao 2000).

be misleading and insufficient for drawing conclusions (Berry, DeMeritt, and Esarey 2010; Long and Freese 2001; Mize 2019). Based on methodological recommendations, I will present results using predicted probabilities (from the coefficient estimates) and rely on tests of the predictive probabilities to determine whether interactive effects exist between ethnoracial self-identification and place of residence and information exposure. All analyses and descriptive statistics will be weighted (to account for under- and over-sampling as per DHS complex survey design) using the *svy* command in Stata 16 (Hahs-Vaughn et al. 2011).

Expected Findings

Drawing on previous formative work (Mena-Meléndez 2020, 2022), I expect to observe differences in the distribution of these outcomes by ethnoracial identity and place of residence. **Table 1** presents a preliminary descriptive analysis of the distributions of sexual and reproductive health outcomes for adolescents in Bolivia, Colombia, Guatemala, and Peru (1986–2015). We observe statistically significant differences in number of births, contraceptive use, and pregnancy terminations by ethnoracial identity. Overall, women who identify as ethnoracial minorities report a slightly higher number of births and report lower reliance on modern contraceptives and less experience with pregnancy termination. Similarly, we also observe statistically significant differences by place of residence. Rural women report a slightly higher number of births and report lower reliance on modern contraceptives and less experience with pregnancy termination. I expect to observe a similar pattern when I run the three multilevel logistic regression models to measure the relative odds of the three outcomes. However, I believe the relationship between ethnoracial identity and place of residence and the three outcomes will be moderated by information exposure from the media.

Table 1: Percentage distribution of sexual and reproductive health outcomes of married or cohabitating women aged 15–19 by ethnoracial self-identification and urban-rural residence
(Source: author's calculations of Demographic and Health Surveys data on four countries, 1986–2015; N(level-1)=11,743; N(level-2)=6,067)

	Ethnoracial identity		**Place of residence**		
	Indigenous and/or afro-descendent	Non-Indigenous and/or afro-descendent	Rural	Urban	All
Number of births					
1-2	88.91	95.10	91.56	96.34	93.77
3-4	10.96	4.88	8.39	3.63	6.19
≥5	0.13	0.02	0.05	0.03	0.04
Contraceptive use					
Using modern method	25.69	47.85	34.67	52.88	43.08
Using traditional method	14.17	12.18	12.98	12.19	12.61
Non-user, intends to use	35.26	33.12	36.89	29.74	33.58
Non-user, does not intend to use	24.88	6.84	15.46	5.20	10.72
Pregnancy termination					
Yes	5.01	6.94	5.33	7.91	6.52
No	94.99	93.06	94.67	92.09	93.48

Chi-2 analyses of cross-tabulations reported all p-values at ≤0.05

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