

The relationship of age & antenatal care with immediate uptake of postpartum contraception in poor populations of four Mesoamerican countries: Findings from the baseline evaluation of the Salud Mesoamerica Initiative

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Abstract

The relationship of age & antenatal care with immediate uptake of postpartum contraception in poor populations of four Mesoamerican countries: Findings from the baseline evaluation of the Salud Mesoamerica Initiative

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Objective: To test the association of age and antenatal care (ANC) with immediate uptake of postpartum family planning methods in the poorest populations of Guatemala, Honduras, Mexico, and Nicaragua. **Study Design:** The Salud Mesoamerica Initiative is a results-based financing initiative targeting maternal and child health in the poorest quintile of the population. Using information collected during the household surveys for the baseline round of the evaluation, we ran a country-specific multivariable logit regression predicting immediate uptake of postpartum family planning methods after delivery, accounting for socioeconomic and household characteristics. **Results:** Our total sample size was 4,844 women, all of whom had delivered at least once in the last three years. Using the most recent birth, we found that the proportion of women that did not receive a modern method of family planning within one day after delivery ranged from 40% of women in Nicaragua to nearly 99% in Guatemala. After controlling for sociodemographic and household characteristics, age was not significantly associated with uptake of postpartum family planning methods, but receipt of four ANC visits was a significant predictor in Guatemala (Adjusted Odds Ratio [OR] = 5.81, 95% Confidence Interval [CI] = 1.40-24.12) and Mexico (OR = 2.33, CI = 1.45-3.74). **Conclusions:** Adolescents and older women are equally likely to receive immediate postpartum family planning, but the vast majority receives no method. Uptake of four ANC visits was positively associated with immediate family planning methods in Guatemala and Mexico, but receipt of fewer than four was not. Further research is needed to understand the influences of ANC quality and quantity. *Keywords:* Family planning, postpartum, poverty, Salud Mesoamerica

1. Introduction

Over the past three decades, maternal and neonatal health have been the focus of unprecedented attention, and health systems and technological improvements have resulted in reduced childbirth-related morbidity and mortality rates in many populations.¹ Nevertheless, disparities in maternal and neonatal mortality have increased, and many populations still face high maternal and neonatal risk.¹ Rapid repeat pregnancy, defined as a pregnancy that occurs within two years of a previous delivery, puts an unhealthy amount of stress on a woman's body, which can affect the development and viability of her fetus.² As such, the WHO recommends that a woman space her births between three and five years to allow for the body's full recovery.² Risk of rapid repeat pregnancy and unintended pregnancy are particularly high in resource-poor settings, where it is common to lack access to modern methods of family planning, experience cultural stigmas and beliefs that serve as barriers to modern contraceptive methods, and be less frequently exposed to public health education campaigns. While women are at lower risk of becoming pregnant while breastfeeding, the lactational amenorrhea method (LAM) of family planning is not nearly as effective as many modern methods of contraception, and most women do not practice the LAM in a way that effectively eliminates risk of repeat pregnancy.³ Women must actively prevent pregnancy during this particularly vulnerable period, as the body is recovering and providing nutrients for an infant. The most effective option for women to prevent unintended pregnancies and space births in a healthy and intentional way is to provide women with knowledge about modern family planning options and access to contraception methods after delivery. WHO guidelines recommend immediate uptake of postpartum family planning methods, particularly in rural and low-income populations, where women are more likely to be infrequent users of the healthcare system and less likely to return for postpartum care.²

The Salud Mesoamerica Initiative (SMI) is a results-based financing project focused on maternal and child health in Central America and the southernmost state of Mexico, Chiapas.

Financed by the Bill and Melinda Gates Foundation, the Carlos Slim Foundation, and the Spanish government, the initiative targets the poorest wealth quintile of each participating country. The target populations are historically underserved and vulnerable, and there is a dearth of evidence regarding needs, behaviors, and health service utilization. While there have been continued and rigorous efforts to improve maternal and neonatal healthcare across Central America and Mexico, there remains low contraceptive use and high fertility in the areas served by the SMI.⁴ Even within these populations, large inequities exist that put the poorest of the poor at heightened risk. Moreover, indigenous language speakers are less likely to access health facilities and family planning methods compared to their Spanish-speaking counterparts, further disenfranchising this vulnerable population.⁴ As such, the SMI promotes postpartum family planning methods as a critical strategy for improving maternal and child health in the target communities. In order to better serve these communities, we must identify the factors that are associated with immediate uptake of postpartum family planning methods. With this knowledge, we can better allocate resources, target education campaigns, and understand the cultural influences that might be driving low contraceptive use.

Adolescent women are at heightened risk of childbirth-related mortality not only due to relative mental and physical immaturity, but also due to frequently lacking the social and economic advantages of older populations.⁵ While younger adolescents are likely to be most impacted by these disadvantages, evidence suggests that risks persist into the late teenage years.⁶ Furthermore, adolescents are more likely to have unmet need for family planning methods, and are thus at increased risk of an unplanned pregnancy.^{4,7} Previous analyses have shown that adolescents in Mexico are most likely not to use postpartum family planning methods due to personal reasons (e.g., religious, moral, or cultural) or due to insufficient education opportunities.⁸

Skilled antenatal care (ANC) visits are an opportunity to not only identify high risk pregnancies, but also educate women and promote use of the health system.⁹ Quality ANC

includes counseling about the benefits of birth spacing, and education about how and where to attain contraception methods and the options available for modern family planning. In a previous analysis of low-income women in Mexico, it was found that women who received counseling about family planning during their antenatal care visits were significantly more likely to uptake modern family planning methods.¹⁰ Previous analyses of ANC coverage in the SMI regions demonstrated that uptake varies widely, with only 18% meeting the four visit guideline in Guatemala, and 81% in Nicaragua.¹¹ Rios-Zertuche, et al., call for immediate action to address any possible missed opportunities for ensuring that these women have the knowledge and ability to access modern methods of family planning.⁴ In the present analysis, we respond to this need by describing whether age and quantity of ANC visits attended are associated with immediate receipt of modern family planning methods.

2. Materials and Methods

2.1 Data source

Data used for the present analysis were collected during household surveys conducted during the baseline round of the SMI evaluation in Mexico (state of Chiapas), Guatemala, Honduras, and Nicaragua. Although included in the SMI evaluation, Panama was excluded because immediate postpartum contraceptive use was too low for analysis; the remaining three countries were excluded due to data availability. Survey methodology for the SMI has been described in detail elsewhere; in sum, we identified the poorest fifth of municipalities and selected localities from these municipalities with probability proportional to size.¹² Localities consisted of approximately 150 households, of which 30 eligible households were randomly selected for participation in the full SMI survey. A household was considered eligible if it contained a woman of childbearing age (15 to 49 years) and/or a child under the age of five. Following receipt of informed consent, trained interviewers conducted surveys in Spanish or an indigenous language, where appropriate. For each woman of childbearing age, we collected a full-birth history.

Data were recorded using computer-assisted personal interviewing (CAPI), and sent to a secure database at the Institute for Health Metrics and Evaluation (IHME) for immediate review and quality assurance. The SMI baseline round of data collection began on March 1, 2011 and completed on August 31, 2013. The study was approved by the institutional review boards of the University of Washington, partnering data collection agencies, and the Ministry of Health of each SMI country.

2.2 Definitions

The outcome of interest, immediate uptake of a postpartum family planning method, was determined using the question, “¿Cuánto tiempo después del nacimiento de comenzó a utilizar este método de planificación familiar?” (How long after birth did you begin to use this method of family planning?). Women that reported receiving a postpartum family planning method within one day of delivering were considered to have received family planning methods immediately. The denominator for this variable included all women that delivered in a facility in the last three years. Only women that reported use of a modern method were included in the numerator. The SMI defines the following methods as modern: female sterilization, male sterilization, intrauterine device, injectable, implant, patch, male condom, female condom, diaphragm, spermicide sponge, and the pill.

2.3 Independent variables

The predictors of interest were maternal age and receipt of skilled ANC. Women were grouped into four categories: under 20, 20-24, 25-35, and over 35 years of age. Skilled providers for ANC included doctors and professional nurses. Women that only reported receiving ANC from unskilled midwives, auxiliary nurses without a university degree, community health workers, lab techs, traditional healers, or relatives were not considered to have received skilled ANC.

We controlled for potential demographic, socioeconomic, and household characteristics, including highest level of education attained by the mother, maternal employment, marital

status, previous experience of a miscarriage or abortion, whether this was an intended pregnancy, whether the mother was visited by a community health worker (CHW) in the last month, a primiparous indicator, and an urban/rural indicator. We additionally included both an asset index (categorized as low, medium, or high) and an indicator of wealth, which was defined by how much the household spends per month, and divided into quintiles (lowest, low, medium, high, or highest wealth quintile). We chose to include both assets and wealth because the correlation of 0.23 between the two variables suggested that assets and wealth are discrete characteristics among this population. In Guatemala, Mexico, and Nicaragua, we included indicators of whether anyone in the household spoke an indigenous language, and in Mexico we included an indicator of participation in the conditional cash transfer Prospera (previously Oportunidades) program.

2.4 Analysis

Accounting for survey design using survey weights and `svy` commands in Stata 13.1, we ran multivariable logit regressions to predict immediate uptake of modern postpartum contraception. We stratified by country to account for the vast differences between each setting and to ensure the policy relevance of our results. We rejected the null hypothesis that a coefficient is different from zero if the p-value was lower than 0.05.

3. Results and discussion

3.1 Results

Table 1 contains descriptive information from our sample, which included 1445 women from Guatemala, 846 women from Honduras, 1791 from Mexico, and 762 from Nicaragua. Uptake of immediate postpartum family planning was 1.1% in Guatemala, 8.7% in Honduras, 13.4% in Mexico, and 60.5% in Nicaragua. The country with the highest uptake of all four recommended ANC visits was Nicaragua at 81.4%, and the lowest was Guatemala at 17.0%. Crude and adjusted odds ratios from our country-specific regressions can be found in Table 2.

Guatemala

As shown in Table 2, after controlling for confounders, women in Guatemala that attended the WHO-recommended four ANC visits had significantly higher odds of uptaking family planning methods immediately compared to their counterparts that attended no ANC visits (Odds Ratio [OR] = 5.81, 95% Confidence Interval [CI]=1.40-24.12). Those that attended fewer than four visits did not have significantly different odds than those that did not attend any skilled care.

Those that had experienced a previous stillbirth or abortion were significantly more likely to uptake immediately (OR = 15.22, CI = 2.64 - 87.95). Compared to the lowest monthly expenditure quintile, those who were in the lower monthly expenditure quintile had significantly higher odds of uptake (OR = 18.73, CI = 2.69-130.4). Women that lived in households that spoke an indigenous language had odds of uptaking family planning that were significantly lower than those from purely Spanish-speaking households (OR = 0.16, CI = 0.05-0.56).

Honduras

In Honduras, homemakers had odds of receiving postpartum family planning methods that were significantly lower than their employed counterparts (OR = 0.13, CI = 0.03-0.66). Those that were married had higher odds than those who were unmarried (OR = 16.00, CI = 4.01-63.79). Compared to those who did not plan their most recent pregnancy, those who reported that the pregnancy was intentional had significantly lower odds of uptaking family planning methods (OR = 0.47, CI = 0.25-0.90).

Mexico

Women in Mexico who attended the internationally recommended four ANC visits had an odds ratio nearly twice that of those who received no skilled ANC (OR = 2.33, CI = 1.45-3.75). Women for whom this was their first birth had significantly lower odds of uptaking immediate family planning methods compared to their higher parity counterparts (OR = 0.61, CI = 0.38 - 0.98). Those who had experienced a previous stillbirth or abortion had odds twice those who had never experienced this trauma (OR = 2.06, CI = 1.16-3.67). Those women who were in

middle, higher, or highest monthly expenditure quintiles were significantly more likely to uptake immediate postpartum family planning methods compared to those in the lowest expenditure quintile (Middle: OR = 2.93, CI = 1.34-6.38; Higher: OR = 3.17; CI = 1.50-6.67; Highest: OR = 3.13, CI = 1.41-6.93). Those who spoke an indigenous language in the household had odds of uptake that were half those of individuals that did not live in an indigenous language-speaking household (OR = 0.49, CI = 0.31 - 0.76).

Nicaragua

After controlling for potential confounders, women who were married were significantly more likely to uptake postpartum family planning methods immediately (OR = 3.54, CI = 2.10-5.96). Additionally, those who had received at least one visit from a CHW in the last month had an odds ratio eight times that of their counterparts who did not receive a visit from a CHW (OR = 8.00; CI = 1.27-50.53).

3.2 Discussion

All four countries included in our analysis have national policies encouraging the use of postpartum family planning methods and, in particular, short-acting hormonal methods, which are highly effective and appropriate for uptake immediately after delivery.¹³ Nevertheless, immediate uptake of postpartum family planning methods was very low in each of the four countries included in the present analysis. A distressing 1% of women in Guatemala reported receiving family planning methods within the first day after delivery. As in Darney, et al.'s findings in a nationally representative sample of Mexico, young women were equally likely to uptake postpartum family planning methods compared to their older counterparts.¹⁴ In Mexico and Guatemala, ANC was significantly correlated with postpartum family planning for the population that attended all four recommended ANC visits, suggesting that the WHO-recommended number of visits may effectively serve to increase a woman's likelihood of up taking modern contraception methods immediately after a delivery. More research is needed to

disentangle whether this association is due to the timing or content of the fourth visit, or whether the repetition of educational messages might be serving to introduce women to their options for modern contraception and empower them to uptake those methods immediately after delivery. In Mexico, expansion of access to contraceptives and training of clinicians in voluntary long-acting contraceptive use have been partially attributed to changes to changes in the guidelines for ANC counseling; other countries should consider replicating these changes.

While our results corroborate previous analyses which found low contraceptive use among nationally-representative populations in these countries, the SMI populations are particularly vulnerable to rapid-repeat pregnancy, and childbirth-related morbidity and mortality due to their exceptionally low rates of contraceptive use.^{4,13-15} Complex cultural and religious factors are likely strong barriers to use of family planning methods in these populations; however, as shown in Table 3, immediate postpartum family planning rates of uptake are significantly lower than the rates of general contraceptive use. Therefore, there must be additional barriers to receiving contraceptives immediately, such as a lack of knowledge about risk of pregnancy while breastfeeding and/or a belief that it is better to give the body time to recover prior to beginning a modern method of contraception. With proper education about the importance of receiving modern contraception methods immediately, women can be empowered to act quickly and not rely on a postpartum visit for discussing contraception with their care provider. Efforts to expand education campaigns and improve the quality of education received at ANC should aim to increase immediate uptake to, at minimum, the levels of use more generally.

Our sample is representative of a unique population of poor women; however, the sample is anything but homogenous. Our analysis demonstrated that there are significant, country-dependent relationships between postpartum family planning use and wealth, marital status, and indigeneity. While households in Nicaragua had the highest proportion of met-need for modern contraception and the highest proportion of women receiving family planning

methods immediately after delivery, receipt of at least one CHW visit still significantly increased the odds of receiving immediate family planning methods, underscoring the importance of exposure to health outreach efforts.⁴ Perhaps CHW-focused education campaigns are having a positive and measurable impact on women's health literacy and desire to space their births in Nicaragua. Other countries could learn from Nicaragua's successes in this area.

Given that general rates of contraceptive use are much higher than rates of immediate postpartum family planning use, education campaigns should aim to increase awareness about the benefits of immediate postpartum contraception methods. Rios-Zertuche, et al.'s analysis demonstrated that the injectable was one of the most frequently used methods of contraception, which requires no wait-time for placement after delivery.⁴ Certain education models have been shown to have differential impacts on postpartum family planning use, particularly in adolescent populations, and models that are most effective should be considered for use in these populations.¹⁶ Antenatal care is an excellent opportunity for education outreach.

3.1 Limitations

The present analysis is dependent on self-report data, which is inherently at risk of recall bias. In particular, women may not remember when they received family planning methods after delivery. To minimize this bias, however, we used only a woman's most recent delivery in the last three years.

Our analysis is a descriptive demonstration, but does not causally attribute relationships with postpartum family planning methods to the work of facilities, clinicians, or care quality. The analysis does not describe the stock of the facility at which the woman gives birth. Future analyses should utilize information about health facility stocks to better understand why uptake of immediate postpartum family planning methods is so low, especially given that recent survey data in the countries of interest found that Guatemala had particularly low stock of long-acting contraceptive methods.¹³ However, because general use of contraceptive methods is much higher than immediate use in all four relevant countries, there are some barriers which are

unique to immediate postpartum methods; stock-outs are not likely to be the crux of the problem.

We did not analyze the quality of ANC and thus can only attribute increased family planning to quantities of any skilled care. Our study, however, benefits from large sample sizes and a representative sample of the poorest populations, given that we conducted our own census in order to ensure representativeness.

Finally, our analysis uses uptake of immediate receipt of modern family planning methods after delivery as the outcome of interest; however, this outcome serves as a proxy for risk of rapid repeat pregnancy. We believe this outcome is a strong proxy, given that modern contraception methods are highly effective in preventing pregnancies and we do not have information about women's sexual activity after delivery. Nevertheless, it would additionally be useful to examine the relationship between immediate uptake of modern family planning methods and occurrence of rapid repeat pregnancy.

3.2 Conclusions

Younger mothers are equally likely to uptake postpartum family planning methods as their older counterparts. In Guatemala and Mexico, ANC was significantly associated with uptake of postpartum family planning methods. Nevertheless, uptake of postpartum family planning methods is incredibly low. Predictive factors, including a woman's marital status, wealth quintile, and indigeneity, should be the focus of qualitative research in the future.

The low rates of immediate uptake of family planning methods demonstrates the vulnerability of the SMI population to rapid repeat pregnancies and unintended pregnancies.¹⁴ As such, these women deserve heightened and highly-sensitive attention. Future analyses should use data from the SMI to determine whether women who do not utilize family planning methods are clustered around facilities that are under-stocked in modern methods, and additional culturally sensitive campaigns should help women to understand the maternal and neonatal health benefits of birth spacing.

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