

Unintended Pregnancy and Low Birthweight in Ecuador

Elizabeth Eggleston, DrPH, Amy Ong Tsui, PhD, and Milton Kotelchuck, PhD, MPH

ABSTRACT

Objectives. This study assessed the relationship between unintended pregnancy and infant birthweight in Ecuador, differentiating between unwanted and mistimed pregnancies.

Methods. Analyses focused on a subsample of women (n=2490) interviewed in the 1994 Ecuador Demographic and Maternal-Child Health Survey. Logistic regression was used to assess the relationship between pregnancy intention status and low birthweight after control for other factors.

Results. Infants from unwanted pregnancies were more likely than infants from planned pregnancies to have low birthweight (odds ratio=1.64, 95% confidence interval=1.22, 2.20). Mistimed pregnancy was not associated with low birthweight.

Conclusions. Unwanted pregnancy, but not mistimed pregnancy, is associated with low birthweight in Ecuador. Further research is needed to understand the mechanism through which pregnancy intention status affects birthweight. (*Am J Public Health.* 2001;91:808-810)

Recent research suggests that infants from unintended pregnancies may be at a greater risk of low birthweight than infants from planned pregnancies. A US study that examined the separate impacts of *unwanted* (unintended, in women not wanting more children), *mistimed* (unintended, in women desiring a child in the future), and *planned* (intended) pregnancies revealed that infants from unwanted but not mistimed pregnancies were slightly more likely than infants from planned pregnancies to be of low birthweight. When maternal behaviors such as cigarette smoking were added to the model, however, unwanted pregnancy was no longer a significant predictor of low birthweight in that study.¹

A study of first births to US women aged 18 to 26 years revealed no difference in the prevalence of low birthweight between infants from unintended pregnancies (a combined category of unwanted and mistimed) and those from planned pregnancies.² However, another US study showed that intrauterine growth retardation was significantly more likely among infants from unintended pregnancies (unwanted and mistimed combined) than among infants from planned pregnancies.³

A literature search located only 1 published study on unintended pregnancy and low birthweight that included women from developing countries. The study showed that among users of natural family planning in 4 countries (Colombia, Italy, the United States, and Chile), no significant difference in low birthweight existed between infants from unintended pregnancies (unwanted and mistimed pregnancies combined) and infants from planned pregnancies.⁴ Findings were not presented by study site, so it is unclear whether an association between pregnancy intention status and low birthweight was absent in all countries.

The purpose of this study was to assess the relationship between unintended pregnancy and infant birthweight in Ecuador, differentiating between unwanted and mistimed pregnancies.

Methods

The women in this study represented a subsample of women interviewed in the 1994 Ecuador Demographic and Maternal-Child Health Survey, a national survey of a random sample of 13 582 Ecuadoran women of reproductive age that was conducted with funding

and technical assistance from the Centers for Disease Control and Prevention.⁵ The sample for this study included 2490 women who experienced a live singleton birth between January 1992 and the survey interview (interviews were conducted during May-August 1994) and reported their infant's birthweight. Women's most recent birth was included in the analysis. A total of 1616 women were excluded from the study because they did not report their infant's birthweight.

Pregnancy intention status was determined, as in most survey research, by asking women to recall their feelings at the time of conception: "At the time you became pregnant with [child's name], did you want the child at that time [*planned*], did you want to wait more time [*mistimed*], or did you not want more children [*unwanted*]?"

Women were asked whether their infant was weighed at the time of birth or in the following 7 days and, if so, how much the infant weighed. Infants weighing 2500 g or less were considered low-birthweight infants.

A multivariate logistic regression model was estimated to assess jointly the effects of pregnancy intention status and other factors on birthweight. The dependent variable was birthweight (low vs other), and the independent variable of interest was pregnancy intention status. Control variables, identified in previous research as covariates of low birthweight, included women's reports of pregnancy and delivery characteristics (site of delivery, prenatal care, anemia, blood pressure, cigarette smoking, alcohol consumption) and sociodemographic characteristics (age group, sex of infant, birth order, urban/rural residence, and maternal education).

Socioeconomic status was originally considered as a possible covariate of low birthweight, but it was later dropped owing to its collinearity with education. A weighting factor was applied to all observations to com-

At the time of the study, Elizabeth Eggleston was a doctoral candidate in, and Milton Kotelchuck was with, the Department of Maternal and Child Health, University of North Carolina at Chapel Hill. Amy Ong Tsui is with the Department of Maternal and Child Health and the Carolina Population Center, University of North Carolina at Chapel Hill.

Requests for reprints should be sent to Elizabeth Eggleston, DrPH, Population Leadership Program, 2168 Shattuck Ave, Suite 300, Berkeley, CA 94704 (e-mail: eeggleston@hotmail.com).

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TABLE 1—Logistic Regression Analyses of Low Birthweight: Ecuador, 1992–1994 (n = 2490)

	Odds Ratio	95% Confidence Interval
Pregnancy intention status		
Unwanted	1.64	1.22, 2.20
Mistimed	1.18	0.88, 1.60
Pregnancy/delivery characteristics		
Gave birth in medical facility	0.84	0.63, 1.11
Received any prenatal care	1.15	0.85, 1.55
Anemic	0.96	0.76, 1.22
High blood pressure	1.59	1.22, 2.07
Unknown blood pressure	1.13	0.86, 1.48
Smoked during pregnancy	1.53	0.76, 3.09
Drank alcohol during pregnancy	1.54	1.04, 2.30
Sociodemographic characteristics		
Younger than 20 y	0.72	0.50, 1.06
Older than 34 y	1.53	1.09, 2.16
Male child	0.76	0.61, 0.94
First birth	1.85	1.43, 2.40
Birth 5+	0.87	0.60, 1.26
Urban residence	0.79	0.62, 1.00
No formal education	2.97	1.75, 5.02
Primary education	1.12	0.87, 1.45

Note. "Planned" is reference category for pregnancy intention status; "normal/low" is reference category for blood pressure; "20–34 years" is reference category for age; "2–4 births" is reference category for birth order; "secondary" is reference category for education. Other dummy variables coded "1" if yes, "0" otherwise.

compensate for the sampling design and interregional differences in response rates of the Ecuador Demographic and Maternal–Child Health Survey.

Results

Table 1 shows the results of the logistic regression model. Infants from unwanted pregnancies were significantly more likely than infants from planned pregnancies to be of low birthweight (odds ratio [OR]=1.64, 95% confidence interval [CI]=1.22, 2.20). Mistimed pregnancy was not associated with low birthweight. Two pregnancy characteristics, high blood pressure and use of alcohol during pregnancy, were significantly predictive of low birthweight. A number of sociodemographic factors also significantly increased low birthweight: maternal age of older than 34 years, female sex, first birth order, and no formal education of the mother (or an uneducated mother).

Discussion

As was found in some US studies,^{1,3} Ecuadoran infants from unwanted pregnancies were significantly more likely than those from planned pregnancies to be of low birthweight. Mistimed pregnancy was not associated with low birthweight.

The mechanism by which pregnancy intention status affects birthweight is not yet fully understood. Unwanted pregnancy may contribute to low birthweight by means of maternal behaviors such as nonuse of prenatal care and smoking or alcohol consumption during pregnancy.^{6–11} However, this study revealed an independent association between unwanted pregnancy and low birthweight even after control for these factors. It is likely that the content and quality of prenatal care (information not available from the Ecuador Demographic and Maternal–Child Health Survey), rather than the mere use of services, had a meaningful impact on birthweight.

Infants from unwanted pregnancies may also have been more likely to be low in birthweight because their mothers ate a less nutritious diet than women with planned pregnancies and gained inadequate weight during pregnancy.^{7,9} Stress and depression may have contributed to low birthweight as well.^{12–14} Unfortunately, the Ecuador Demographic and Maternal–Child Health Survey did not collect information on maternal nutrition, stress, or depression during pregnancy. Data on weight gain were collected, but 36% of women did not report how much weight they gained during pregnancy.

Several measurement constraints should be kept in mind when considering the findings of this study. First, numerous researchers have commented on the difficulty of quantifying women's feelings about their pregnancies (e.g., Trussell et al.,¹⁵ Sable,¹⁶ and Bachrach and Newcomer¹⁷), and biases inherent in the preg-

nancy intention status measure used in the Ecuador Demographic and Maternal–Child Health Survey may limit the findings of this study. Further work is needed to refine currently used measures of pregnancy intention and attitudes toward pregnancy.

Second, the generalizability of these results is limited by the exclusion of a large number of women who did not report their infant's weight. Previous analyses, reported elsewhere,¹⁸ indicated that these women were more likely than others to have characteristics associated with low birthweight.

(We estimated a second logistic regression model among all women who experienced a live singleton birth in the time period of interest, using birth size as a proxy for weight among infants missing birthweight data. All women surveyed were asked, "In comparison to other newborns, what do you consider to be [your child's] size when he/she was born—very small, small, medium-sized, or large?" Mothers' assessments of birth size as "very small" were coded as low birthweight if birthweight was missing. If weight was reported, low birthweight was coded according to numeric weight. Unwanted pregnancy remained a significant predictor of low birthweight [OR=1.34, 95% CI=1.06, 1.71], and mistimed pregnancy was not associated with low birthweight. Despite the obvious limitations of birth size as an indicator of birthweight, its use reinforced the findings of our analysis involving only infants with reported numeric birthweights.)

This low-birthweight study is one of the few conducted among populations of developing countries, and it emphasizes the importance of distinguishing between the effects of unwanted and mistimed pregnancies. Although the potential biases of the pregnancy intention status measure and the exclusion of many women from the study as a result of missing birthweight data cannot be ignored, the study highlights the potential health value of helping women and couples avoid unwanted pregnancy. Reducing the number of unwanted pregnancies in Ecuador by improving access to and quality of family planning services may contribute to reducing the proportion of infants low in birthweight. □

Contributors

E. Eggleston planned the study, analyzed the data, and wrote the paper. A. O. Tsui and M. Kotelchuck advised on study design and data analysis and contributed to the writing of the paper.

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