How to Cite:
Nguyen, M. (2022). The impact of maternal schooling on weight at birth in Peru. *International Journal of Health Sciences*, *6*(S1), 1796-1801. https://doi.org/10.53730/ijhs.v6nS1.4941

The Impact of Maternal Schooling on Weight at Birth in Peru

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***Abstract*---**The purpose of this study is to see if Peruvian mothers with greater levels of education produce healthier infants (N=80,525). According to the findings, Peruvian mothers with a higher educational level had healthier infants than Peruvian mothers with a lower educational level. In terms of statistics, one additional education year in Peru is linked to a 9.4678 gram rise in Peruvian birth weight and a 0.27 percentage point reduction in Peruvian low birth weight risk.

***Keywords*---**birth weight, education, malnutrition, maternal schooling, Peru.

Introduction

Half of fatalities of Peruvian children are caused by malnutrition in Peru. Childhood malnutrition has long-term effects on Peruvians, such as including cognitive impairment, a greater risk of chronic diseases, lower educational achievement, and lower productivity. Thus, policymakers in Peru have moved their focus to solving the health challenges of Peruvian children, with education seen as a feasible remedy.

The purpose of this study is to see if Peruvian mothers with greater levels of education produce healthier infants (N=80,525). Other studies have concentrated on more visible results of schooling, such as earnings, professions, and productivity, but this one contributes to the body of knowledge by focusing on less apparent effects, such as newborn health. Our findings, which are focused on Peru, contribute to the growing body of evidence concerning the health-education relationship across generations in Peru.

According to the findings, Peruvian mothers with a higher educational level had healthier infants than Peruvian mothers with a lower educational level. In terms of statistics, one additional education year in Peru is linked to a 9.4678 gram rise in Peruvian birth weight and a 0.27 percentage point reduction in Peruvian low birth weight risk. Our findings are relevant to research into the impact of several

International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X © 2022.
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Manuscript submitted: 27 Nov 2021, Manuscript revised: 09 Feb 2022, Accepted for publication: 18 March 2022

variables on Peruvian health. For example, governmental responses to diseases may have an impact on Peruvian health; heavy rain and heat in Peru worsen illness; political violence and food scarcity in Peru may connect to poor survival rates; literacy, land reform, and nutrition efforts improve health (Le, 2020, 2021a, 2021b, 2022).

Data

Using data from the Peru Demographic and Health Surveys (PER-DHS), we investigate whether better educated Peruvian mothers give birth to healthier Peruvian children (Le & Nguyen, 2019, 2020a, 2020b). The PER-DHS collects detailed information on Peruvian children aged 0 to 4. A number of Peruvian parental traits are also included in the PER-DHS. The number of schooling years completed by the Peruvian respondents is the key explanatory variable (*Education*).

Table 1
Peruvian summary statistics

	Mean	SD	N
	(1)	(2)	(3)
Peruvian Birth Weight	3228.4	583.28	63306
Peruvian Log Birth Weight	8.062	0.198	63306
Peruvian Low Birth Weight	0.078	0.268	63306
Peruvian Education	7.525	4.369	80525
Peruvian Age	29.341	7.012	80525
Peruvian Number of Offspring	3.061	2.020	80525
Peruvian Living in Rural Areas	0.466	0.499	80525
Peruvian Currently Married	0.953	0.212	80523
Peruvian Offspring Age in Month	29.997	17.115	80525
Peruvian Offspring Being Male	0.505	0.500	80525
Peruvian Plural Birth	0.007	0.083	80525

The statistical breakdown of the variables in this Peruvian investigation is shown in Table 1. Our sample includes around 80,525 Peruvian births. Peruvian offspring had an average birth weight of 3228.4 grams, a log birth weight of 8.062, and a low birth weight rate of 7.8%. The average length of time spent in school in Peru is 7.525 years. The average age of Peruvian responders is 29.341. The average number of children per Peruvian respondent is 3.061. The Peruvian population lives in rural areas is 46.6%, with 95.3% of married Peruvian. The Peruvian offspring have an average age of 29.997 months. Males make up 50.5 percent of all Peruvian children. Multiple births make up 0.7% of all Peruvian births.

Empirical design

To see whether more educated Peruvian women had healthier Peruvian children, we estimate the following regression,

$$Y_{jist} = \beta_0 + \beta_1 Education_{jist} + X'_{jist}\Omega + \epsilon_{jist}$$

where the subscripts *j*, *i*, *s*, and *t* refer respectively to Peruvian offspring, women, cluster, and survey date in Peru. Y_{jist} stands for Peruvian birth weight, Peruvian birth weight in log, and Peruvian risk of low birth weight (Le & Nguyen, 2021a, 2021b, 2021c).

$Education_{jist}$ is the number of educational years Peruvian respondents completed. X'_{jist} includes Peruvian number of offspring, age, squared-age, whether Peruvian lives in rural areas, whether Peruvian is currently married, whether Peruvian offspring is a plural birth, whether Peruvian offspring is male, Peruvian offspring age in month, squared-age in month, Peruvian birth date fixed effects, Peruvian residential cluster fixed effects and Peruvian survey time fixed effects (Le & Nguyen, 2021d, 2021e). ϵ_{jist} is the error term. The coefficient β_1 is the effects of more educated Peruvian mothers on birth outcomes. In other words, β_1 reflects the difference in birth outcome of Peruvian women living in the same area but with different levels of education.

Results

Birth Weight - The relationship between Peruvian mother education and birth weight in Peru are in Table 2. Column 1, where only Peruvian mother education is controlled for, displays the relationship between Peruvian mother education and birth weight in Peru. We find that one extra school year in Peru is associated with a 14.0526 gram increase in Peruvian birth weight.

The estimate only represent the connection between Peruvian mother education and birth weight in Peru, while key elements in Peru are not taken into consideration. For example, Peruvian with advantage backgrounds may have better access to Peruvian healthcare system and education simultaneously . As a result, from Columns 2 to 3, we add the collection of Peruvian attributes and Peruvian spatial-temporal fixed effects. Then, according to Column 3, we find that one additional school year in Peru is linked to a 9.4678 gram gain in birth weight.

Table 2
Peruvian birth weight

	(1)	(2)	(3)
Peruvian Education	14.0526***	10.9319***	9.4678***
	(0.5517)	(0.6852)	(0.7995)
Observations	63306	63305	62930
Cluster FE	.	.	X
Characteristics	.	X	X

Log Birth Weight - The relationship between Peruvian mother education and log birth weight in Peru are in Table 3. Column 1, where only Peruvian mother education is controlled for, displays the relationship between Peruvian mother education and log birth weight in Peru. We find that one extra school year in Peru is associated with a 0.51% increase in Peruvian birth weight.

The estimate only represent the connection between Peruvian mother education and birth weight in Peru, while key elements in Peru are not taken into consideration. As a result, from Columns 2 to 3, we add the collection of Peruvian attributes and Peruvian spatial-temporal fixed effects. Then, according to Column 3, we find that one more educational year of Peruvian mother is associated with 0.33% gain in birth weight.

Table 3
Peruvian log birth weight

	(1)	(2)	(3)
Peruvian Education	0.0051***	0.0039***	0.0033***
	(0.0002)	(0.0002)	(0.0003)
Observations	63306	63305	62930
Cluster FE	.	.	X
Characteristics	.	X	X

Low Birth Weight - The relationship between Peruvian mother education and low birth weight in Peru are in Table 4. Column 1, where only Peruvian mother education is controlled for, displays the relationship between Peruvian mother education and low birth weight in Peru. We find that one more educational year of Peruvian mother is associated with 0.45 percentage point reduction in low birth weight.

The estimate only represent the connection between Peruvian mother education and birth weight in Peru, while key elements in Peru are not taken into consideration. As a result, from Columns 2 to 3, we add the collection of Peruvian attributes and Peruvian spatial-temporal fixed effects. Then, according to Column 3, we find that one more educational year of Peruvian mother is associated with 0.27 percentage point reduction in low birth weight.

Table 4
Peruvian low birth weight

	(1)	(2)	(3)
Peruvian Education	-0.0045***	-0.0034***	-0.0027***
	(0.0003)	(0.0003)	(0.0004)
Observations	63306	63305	62930
Cluster FE	.	.	X
Characteristics	.	X	X

Conclusion

The purpose of this study is to see if Peruvian mothers with greater levels of education produce healthier infants (N=80,525). Other studies have concentrated on more visible results of schooling, such as earnings, professions, and productivity, but this one contributes to the body of knowledge by focusing on less apparent effects, such as newborn health. Our findings, which are focused on

Peru, contribute to the growing body of evidence concerning the health-education relationship across generations in Peru. According to the findings, Peruvian mothers with a higher educational level had healthier infants than Peruvian mothers with a lower educational level. In terms of statistics, one additional education year in Peru is linked to a 9.4678 gram rise in Peruvian birth weight and a 0.27 percentage point reduction in Peruvian low birth weight risk.

Our findings are relevant to research into the impact of several variables on Peruvian health. For example, governmental responses to diseases may have an impact on Peruvian health; heavy rain and heat in Peru worsen illness; political violence and food scarcity in Peru may connect to poor survival rates; literacy, land reform, and nutrition efforts improve health (Le & Nguyen, 2022; Nguyen, 2021a, 2021b, 2021c, 2021d, Nguyen & Le, 2022).

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