



# Trends in teenage motherhood in Ecuador: challenges and inequalities

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## Abstract

**Objectives** To describe trends in teenage motherhood (TM), based on the socioeconomic groups teenagers belong to, and factors related to their first experience of heterosexual intercourse (FEHI). We took into consideration women aged 20–24 years, comparing three surveys from 1999, 2004, and 2012.

**Methods** We obtained data from the Ecuadorian Demographic and Health Surveys about 4,696 women aged 20–24 years who had given birth as teenagers. Prevalence ratios and their confidence intervals (95% CI) were calculated to estimate changes in socioeconomic inequalities and factors related to the FEHI.

**Results** The prevalence of TM increased from 48% in 1999 to 60% in 2012 among women with complete primary education. The social gradient among socioeconomic groups were sustained. We detected no changes in the socioeconomic inequalities characterizing TM, and in the factors related to the FEHI across the three studies in Ecuador.

**Conclusions** Socioeconomic inequalities in TM and disadvantageous circumstances at FEHI remained unchanged for 14 years. Some factors are vital for reducing teenage motherhood in Ecuador: gender-equitable economic development, access to comprehensive-sexual education, contraception, health services, and safe abortion.

**Keywords** Inequalities · Socioeconomic factors · Sexual behaviour · Trends · Teenage pregnancy · Ecuador

## Introduction

Since 1994, when the International Conference on Population and Development, ICPD was held, reducing adolescent childbearing has been a global priority. More than two decades later, reducing TM remains an aim of political and societal activity worldwide (UN 2019), as a global indicator of Sustainable Development (SDG3). Another important global indicator of Sustainable Development (SDG5) is women's access to the means to prevent TM.

TM is associated with a variety of adverse outcomes for both women (Tabet et al. 2016) and children. These outcomes involve high risk of neonatal mortality (Neal et al. 2018) and long-term developmental issues (Falster et al. 2018). Moreover, TM is considered a symptom of socioeconomic disadvantage, often leading women into a circle of poverty (UNFPA 2013). Also, it aggravates disadvantageous conditions for women in modern societies, by accentuating gender and socioeconomic inequalities (Rodríguez-Vignoli 2014). This is especially true in countries lacking policies to overcome potential TM effects.

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TM is influenced by interlinked social, structural, interpersonal and behavioural factors. Risk of TM is increased by low educational attainment (Islam et al. 2017; Kunnuji et al. 2018; Wado et al. 2019), income inequalities, poverty and material deprivation (McCall et al. 2015). From 1990 to 2012, there was a global decrease in the adolescent birth rates (ABR), with the largest regional declines in South Asia. Declines closely followed rising socioeconomic status and where greater where income inequalities were lower in 1990. On the contrary, long-term socioeconomic and gender inequalities have been shown to have an important impact in slowing down the decline in adolescent birth rates across countries (Santelli et al. 2017; Decker et al. 2017).

Adolescents' first sexual intercourse is also a factor that influences TM trends (Manlove et al. 2009). Early sexual intercourse is less likely to be consensual or to involve the use of contraception, increasing the risk of pregnancy (Woog and Kågesten 2017). Also, the age of the first sexual partner is inversely linked to women's consent for sexual intercourse, degree of control and agency over this experience, and use of contraception (Kaestle et al. 2002). These factors are strongly influenced by societal and socioeconomic factors.

On the latter subject, empirical evidence on structural and intermediate factors associated to TM has been mostly developed in high-income countries. Also, most of the studies on risk and protective factors for adolescent sexual and reproductive health are focused in Sub-Saharan African low- and middle-income countries (Mmari and Sabherwal 2013).

Among Latin Americans, 15% of all pregnancies occur among girls younger than 20 years (United Nations et al. 2015). In low- and middle-income countries, there is also a high number of age-specific births among girls aged 12–15 years (Benova et al. 2018; Liang et al. 2019). In contrast, in Western Europe and other high-income countries, ABR are now very low among adolescents (younger than 20 years), representing 4% of all births (Eurostat 2019).

In Ecuador, a South American country, rates of TM have increased in the last two decades, while global fertility has declined (Rodríguez-Vignoli 2014). The country has one of the highest rates of teenage pregnancy in the South American region, with 18% of women getting pregnant between 12 and 19 years (SENPLADES 2013). The proportion of unplanned childbearing increased from 13% in 1994 to 23% in 2004 in adolescents aged 15–19 years (Ishida et al. 2009). Risk of teenage pregnancy was greater in women living in very poor households, those not enrolled in school, or who had experienced sexual abuse during childhood and adolescence (Goicolea et al. 2009).

In the country, social structures are related to gender norms that constrain adolescents' agency and control over their sexuality (Varea 2008; Goicolea et al. 2010a; Santillana and Castello 2010). Indeed, such structures have a strong influence over women's use of contraception and decision-making during the first heterosexual intercourse. However, this evidence is representative of adolescents attending public facilities in the biggest cities of Ecuador (Guijarro et al. 1999; Chedraui et al. 2004). They do not explore the influence on TM of interpersonal factors related to adolescents' first sexual experience, and how this influence changes over time.

The Ecuadorian policy for the prevention of pregnancy in girls and adolescents defines TM as “a social and public health problem, revealing inequalities, social injustice and a violation of human rights ...” Nevertheless, evidence is lacking on the effects of structural and intermediate factors with TM for benchmarking, policy, and public health decision-making in the country. Thus, this study aims to describe trends in teenage motherhood (TM), based on the socioeconomic groups teenagers belong to, and factors related to their first experience of heterosexual intercourse (FEHI). We took into consideration women aged 20–24 years, comparing three surveys from 1999, 2004, and 2012.

## Conceptual framework

Social determinants of health, defined as the conditions in which people are born, live, learn, work, play, worship, and age (Office of Disease Prevention and Health Promotion 2015), are shaped by families, communities, and the distribution of money, power, and resources. All these aspects are affected by policy choices at each level (World Health Organisation 2008).

Social inequalities in health refer to “systematic differences in health between different socioeconomic groups within a society. As they are socially produced, they are potentially avoidable and are widely considered unacceptable” (Whitehead and Dahlgren 2007). The construct socioeconomic position (SEP) is an aggregate concept that includes both resource-based and prestige-based measures, as a link to both childhood and adult social class position (Krieger et al. 1997). It can be measured through educational level (Galobardes et al. 2006), a structural determinant of adolescents' health and well-being (Viner et al. 2012; Maness et al. 2016), and an empowerment factor for girls (Williamson 2013).

Following Carpenters' gendered-sexuality framework (Carpenter 2010), the factors related to the FEHI are capable of capturing social gendered patterns. Such patterns include specific sexual conducts and attitudes, encouraging sexual scripts grounded on hegemonic masculinity for men

(Connell 1987), and the passive/submissive attitude for women.

TM inequalities can be understood as the unequal distribution of maternity during adolescence according to educational attainment (SEP), which reflect material, resources, and other resources of the family of origin. The FEHI factors are social determinants of TM as they influence women's agency to freely consent to sexual intercourse, and decide on contraception use to avoid early motherhood.

## Methods

### Study design, information source and study population

We analysed secondary data from the Ecuadorian Demographic Survey, the Maternal and Child Health Survey from ENDEMAIN 1999 and 2004 (CEPAR 2001, 2004), and the National Survey on Health and Nutrition from ENSANUT-2012 (Freire et al. 2013). These are three countrywide serial surveys conducted periodically (approximately every 5 years) in a non-institutionalized population. They collected information on fertility, contraceptive use, infant and child mortality, and sexual and reproductive health.

The ENDEMAIN surveys were conducted in a representative sample of women of fertile age (WFA, 15–49 years old) in Ecuador, and were carried out by the Centre for Studies on Population and Social Development (CSPSD). The ENSANUT-2012 edition was representative of the Ecuadorian population aged  $\leq 69$  years. In each dwelling, women in their fertile age were considered eligible for the application of the WFA questionnaire, which was administered by the National Institute of Statistics and Census of Ecuador (INEC).

The surveys are representative at the national and provincial levels, and the participation rates in 1999, 2004, and 2012 were 90.9%, 88.7%, and 81.8%, respectively. All databases and complete information about the survey methods are available online: <https://microdata.worldbank.org/index.php/home> <https://www.ecuadorencifras.gob.ec/institucional/home/>.

The questionnaires were anonymised and administered in face-to-face interviews at the women's homes by a team of interviewers trained by the CSPSD and INEC. The participants gave written informed consent. The individual WFA questionnaire was used to collect information on sociodemographic characteristics, fertility, and reproductive preferences, with no substantial changes in the formulation and content between the three survey editions. Only women aged 15–24 years were asked to provide

detailed retrospective information about their first experience of heterosexual intercourse (CEPAR 2000, 2005; INEC 2015).

The study population consisted of women aged 20–24 years who were born and resident in Ecuador, and who reported having ever had sex. We considered women in this age range because: (1) younger cohorts were still at risk of teenage pregnancy and needed a different assessment of the factors related to their maternity; (2) we wanted to better capture socioeconomic position measured through educational attainment; and (3) we hypothesised that older cohorts might be less inhibited about answering questions about their sexuality if they were in their homes. The final sample consisted of 1470 women in 1999, 1082 in 2004, and 2144 in 2012.

### Measurement and variables

We constructed the dependent variable, teenage motherhood, using data from the History Pregnancies and Births Section of the three surveys. This variable was dichotomised into two categories, “yes” and “no”, using the definition of adolescence of the World Health Organization in 2014: people aged between 10 and 19 years. Thus, all women who reported having given birth aged between 10 and 19 years were considered adolescent mothers.

Educational attainment was categorised at three levels: (1) no schooling or incomplete primary education; (2) complete primary education; (3) complete secondary education or higher.

The factors related to the FEHI were (1) age at first heterosexual intercourse: we grouped women according to the legal definition for women's consent to sexual intercourse and statutory rape in Ecuador (10–13 year olds, 14–16 year olds, and 17–19 year olds, (Ministerio de Justicia Derechos Humanos y Cultos 2014); (2) use of contraceptive methods (Yes/No); and (3) age of the first sexual partner ( $\leq 17$  years or  $\geq 18$  years).

The proportion of missing data was  $< 6\%$  for all the independent variables in the three surveys. We carried out an analysis of missing data and observed random distribution of the independent variables among women who were teenage mothers and those who were not.

### Data analyses

All analyses were weighted to maintain the representativeness of the population. First, we performed a univariate analysis of the distribution of the outcome and explanatory variables. Next, we conducted a chi-square test to determine differences in the prevalence of TM according to educational attainment and individual and interpersonal factors related to the FEHI across surveys. Then, we

wanted to study the association between TM, educational attainment, and each psychosocial and individual factor. We therefore calculated crude prevalence ratios (cPR) and their confidence intervals (95% CI) through bivariate weighted Poisson regression models with robust variance (Espelt et al. 2016). We considered that PR was better suited to our study than other measures of inequality, such as the Relative Index of Inequality, because the socioeconomic variable included in the models are not strictly hierarchical (Garcia-Subirats et al. 2014).

We analysed the interaction between year of the survey and each independent variable: proxy of socioeconomic position – educational attainment and psychosocial individual and interpersonal factors related to the FEHI. A significant interaction between the year of the survey and each variable was interpreted as a change over time in socioeconomic inequality and in individual and interpersonal factors associated with TM across the years. Individuals with missing data were removed from the analyses. The analyses were run in Stata 13 (StataCorp 2013).

## Results

The proportion of TM in Ecuador was 61.5% in 1999, 57.7% in 2004, and 61.0% 2012. Most of the women in the study sample had low educational attainment. In all three studies, more than half of the women experienced their FEHI between the age of 17 and 19 years, with a sexual partner aged  $\geq 18$  years. A total of 90.3% of teenage mothers in the sample did not use contraception at FEHI in 1999; this percentage decreased to 88.3% in 2004, and 68.5% in 2012 (Table 1).

We found differences in the prevalence of TM among women from the most disadvantaged socioeconomic groups in the three surveys. Indeed, the percentages of women with no studies or incomplete primary studies experiencing TM were 70.9%, 68.5%, and 77.0% in 1999, 2004 and 2012, respectively ( $p < 0.05$ ). Moreover, 48.3%, 44.2% and 60.1% of women with complete primary studies experienced TM in 1999, 2004, and 2012, respectively ( $p < 0.01$ ). We also analysed the prevalence of TM by factors related to the FEHI. Our results revealed that differences between periods were statistically significant among women who had their FEHI when aged 17–19 years: 41.1% in 1999 36.6% in 2004, and 45.6% in 2012 ( $p < 0.05$ ). Moreover, the prevalence of TM was highest in women who reported having had their FEHI at the age of 16 or earlier. We found no statistically significant differences according to the age of the first sexual partner, but did find significant differences for women who did not use contraception at FEHI (Table 2).

The results of the bivariate Poisson regression models (Table 3) showed that the social gradient among socioeconomic groups remained unchanged across the three periods. Women with no schooling or incomplete primary education showed the highest probability of TM in the three studies: from 1999 (cPR = 2.5; 95% CI: 1.7–3.6) to 2004 (cPR = 2.3; 95% CI: 1.6–3.3) and 2012 (cPR = 2.7; 95% CI: 2.1–3.5). Additionally, the probability of TM increased from 1999 (cPR = 1.7; 95% CI: 1.2–2.5) to 2012 (cPR = 2.1; 95% CI: 1.6–2.8) in women with complete primary education. On the contrary, factors related to the FEHI revealed different results between the study periods.

Among women who reported having had their FEHI aged 10–13 years, the likelihood of TM remained steady between 1999 and 2004, and showed a slight decrease in 2012 (cPR = 2.0; 95% CI: 1.7–2.3). Among women aged 14–16 years at FEHI, an increasing trend in TM was observed between 1999 (cPR = 2.0; 95% IC: 1.8–2.3) and 2004 (cPR = 2.3; 95% CI: 2.0–2.6), followed by a decrease in 2012 (cPR = 1.8; 95%; CI: 1.6–2.1). We also calculated the likelihood of TM according to the age of the first sexual partner, and found that it decreased slightly from 1999 to 2004, and was steady from 1999 to 2012. Finally, we found a steady trend across all three studies in the probability of TM according to the use of contraception. However, none of these results was statistically significant during the study period.

## Discussion

This study describes trends in TM and how these trends differ by socioeconomic group and factors related to FEHI in women aged 20–24 years in Ecuador in 1999, 2004, and 2012. Although the prevalence of TM declined slightly between 1999 and 2004, more than 60% of these women gave birth during adolescence in 1999 and 2012. Except for 2004, women from the most deprived socioeconomic groups showed an upward prevalence of TM, with the most striking increase occurring in women with complete primary education in 2012. Furthermore, the prevalence of TM increased from 1999 to 2012 in women aged 17–19 years at FEHI, and was higher in women not using contraception during the FEHI in the three studies. The bivariate analyses showed that the social gradient among socioeconomic groups was sustained in all three studies. Most importantly, analysis of the interaction showed that there were no changes in the socioeconomic inequalities of TM in Ecuador or in the factors related to the FEHI in the 14-year period across the three studies.

Previous studies have reported that the adolescent birth rate (ABR) declines more slowly in low-, middle- and high-income countries (Sedgh et al. 2015) with longstanding

**Table 1** Weighted distribution of study variables. Data from women aged 20–24 years in Ecuador (1999, 2004, and 2012)

Variables	1999 ( <i>n</i> = 1,470)		2004 ( <i>n</i> = 1,082)		2012 ( <i>n</i> = 2,144)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<i>Teenage motherhood</i>						
Yes	904	61.5	624	57.7	1,308	61.0
No	566	38.5	458	42.3	836	39.0
Missing	0	0.0	0	0.0	0	0.0
<i>Educational attainment</i>						
No schooling or incomplete primary education	941	64.0	657	60.7	898	41.9
Complete primary education	436	29.6	332	30.6	825	38.5
Secondary or further	93	6.4	93	8.7	421	19.7
Missing	0	0.0	0	0.0	0	0.0
<i>First heterosexual intercourse variables</i>						
<i>Age at first heterosexual intercourse (years)</i>						
10 – 13	70	4.7	63	5.9	71	3.3
14 – 16	611	41.6	432	39.9	752	35.1
17 – 19	778	52.9	565	52.2	1,258	58.6
Missing	12	0.8	22	2.1	63	3.0
<i>Age of first sexual partner (years)</i>						
≤ 17	198	13.5	168	15.5	343	16.0
≥ 18	1,227	83.5	855	79.0	1,688	78.7
Missing	46	3.1	59	5.5	113	5.3
<i>Use of contraception</i>						
Yes	133	9.1	117	10.8	614	28.7
No	1,327	90.3	955	88.3	1,470	68.5
Missing	10	0.7	10	0.9	60	2.8

The total of each variable does not coincide because of missing values

socioeconomic inequalities, than in those with lower initial inequalities (Santelli et al. 2017). Moreover, decreases in the ABR have been associated with increase in the level of national wealth, a leap in socioeconomic status, and decreased income inequalities. On the contrary, unequal gender development has been strongly related to early adolescent childbearing in low- and middle-income countries (Decker et al. 2017).

In Ecuador, a history of long-term and deep-rooted socioeconomic and gender-based inequalities has diminished the potential impact of reducing inequalities among historically oppressed groups. For instance, women's salaries are between 13 and 26% lower than their male peers. Also, unpaid domestic and care work by women represents 15% of the domestic growth product in Ecuador (INEC 2012; Salazar et al. 2014). Consequently, the economic growth may not have been inclusive, and therefore may not have reduced the prevalence of TM in the last decade. Indeed, the results of the present study showed that the socioeconomic gradient in TM held steady across the period of the three studies, and it increased for women with complete primary education in 2012.

TM increased between 1999 and 2012 in women aged 17–19 years at FEHI and in those not using contraception. Moreover, although not statistically significant, in all the three surveys women who experienced their FEHI aged 10–13 years and 14–16 years were more likely to have been teenage mothers. This striking finding underscores the perpetuation of sexual abuse suffered by girls aged < 14 years in Ecuador. Even though Ecuadorian legislation criminally penalises sexual contact with girls under 14 years old as statutory rape (Ministerio de Justicia Derechos Humanos y Cultos 2014), such crime still occurs. Similarly, in a recent report on the determinants of teenage pregnancy in Colombia, it was found that sexual abuse is a major risk factor for TM. This risk is associated with lower probability of condom use. Thus, sexual abuse and related lack of use of contraception is a shared risk for TM in the South American region.

In Ecuador, there are strong cultural and social values regarding sexuality and the idealisation of motherhood, even during adolescence. These values intersect with structural violence and power, undermining women's collective and individual agency (Goicolea et al. 2009). There

**Table 2** Prevalence of teenage motherhood by variables of interest among women aged 20–24 in Ecuador (1999, 2004, and 2012)

Teenage motherhood	1999 ( <i>n</i> = 1,470) 61.5 % ( <i>n</i> )	2004 ( <i>n</i> = 1,082) 57.7 % ( <i>n</i> )	2012 ( <i>n</i> = 2,144) 61.0 % ( <i>n</i> )	<i>p</i> -value
<b>Educational attainment</b>				
No schooling or incomplete primary education	70.9 (668)	68.5 (450)	77.0 (691)	< 0.05
Complete primary education	48.3 (210)	44.2 (147)	60.1 (496)	< 0.01
Secondary or further	28.2 (26)	29.8 (27)	28.7 (121)	0.98
<b>Age at first heterosexual intercourse (years)</b>				
10 – 13	89.7 (62)	79.0 (50)	89.1 (64)	0.27
14 – 16	84.0 (514)	83.2 (359)	84.0 (631)	0.96
17 – 19	41.1 (320)	36.6 (206)	45.6 (573)	< 0.05
<b>Age of first sexual partner (years)</b>				
≤ 17	78.6 (155)	71.5 (120)	80.3 (275)	0.26
≥ 18	58.5 (717)	54.8 (469)	56.6 (956)	0.48
<b>Use contraception at first sexual intercourse</b>				
Yes	41.0 (55)	38.1 (44)	42.0 (258)	0.82
No	63.6 (843)	60.3 (577)	68.4 (1006)	< 0.01

The total of each variable does not coincide because of missing values. The percentages are calculated referring to the number of women in each group, indicated in the previous table, minus the missing values

**Table 3** Trends in teenage motherhood according to socioeconomic groups and factors related to the first experience of heterosexual intercourse. Data from women aged 20–24 years in Ecuador (1999, 2004, and 2012)

Survey year	1999	2004	2012	<i>p</i> -value interactions			
	Variables	cPR (95% C.I.)	cPR (95% C.I.)	cPR (95% C.I.)	2004/1999	2012/1999	2012/2004
<b>Educational attainment</b>							
No schooling or incomplete primary education	2.5 (1.7–3.6)	2.3 (1.60–3.3)	2.7 (2.1–3.5)	0.74	0.78	0.96	
Complete primary education	1.7 (1.2–2.5)	1.4 (1.00–2.2)	2.1 (1.6–2.8)	0.61	0.40	0.90	
Secondary or further	1	1	1				
<b>Age at first sexual intercourse (years)</b>							
10 – 13	2.2 (1.9–2.5)	2.2 (1.8–2.7)	2.0 (1.7–2.3)	0.93	0.27	0.51	
14 – 16	2.0 (1.8–2.3)	2.3 (2.0–2.6)	1.8 (1.6–2.1)	0.25	0.19	1.00	
17 – 19	1	1	1				
<b>Age first sexual partner (years)</b>							
≤ 17	1.4 (1.2–1.5)	1.3 (1.1–1.5)	1.4 (1.3–1.6)	0.73	0.49	0.88	
≥ 18	1	1	1				
<b>Use contraception at first sexual intercourse</b>							
Yes	1	1	1				
No	1.6 (1.2–2.0)	1.6 (1.2–2.1)	1.6 (1.4–1.9)	0.92	0.75	0.82	

*cPR*: Crude prevalence ratios

*cPR* resulting from including each independent variable and the interaction with each survey year

*p*-values < 0.05 reflect significant changes across survey years

are major barriers to avoid an early pregnancy: (1) double standards for adolescent boys' and girls' sexual behaviour; (2) the influence of romantic love on contraceptive use in young couples; and (3) the reluctance of healthcare

personnel to provide counselling and contraception for adolescents (Varea 2008; Goicolea et al. 2010a; Santillana and Castello 2010). Additionally, in Ecuador sexual education is mainly delivered in public schools through

isolated talks based on a biological approach (SENPLADES 2013). Moreover, sexual education is not provided in a context of gender-relations and human rights. These limitations diminish the potential of sexual education to lessen traditional gender norms and reduce sexual and reproductive health risks.

At the macro level, political tradition is grounded in a conservative perspective of all issues related to sexuality and sexual autonomy (Cifuentes Ruiz 2016). This resulted in abolishment of forward-thinking policies, in interventions implemented without previous effectiveness assessment, and in conservative proposals (Paz 2018). Consequently, in the 14-year study period, the effectiveness of interventions has been impaired in Ecuador. In contrast, interventions clearly enhanced adolescents' ability to achieve better sexual and reproductive health and reduced teenage pregnancy rates and motherhood in other countries.

Importantly, although there are two grounds for legal abortion in Ecuador, access to safe and informed procedures is not currently available. Therefore, women from the most deprived socioeconomic groups have no alternative but to undergo an unsafe abortion, or to continue with an unplanned or unwanted pregnancy. Furthermore, the National Assembly has recently rejected to ease the law in rape cases, and women are criminalized for interrupting pregnancies in unsafe conditions (Zaragocin Sofía et al. 2018).

Our study has a limitation related to the characteristics of cross-sectional data. Indeed, our indicator to measure socioeconomic position is susceptible to reverse causality (i.e. lower educational levels could result from TM). However, we consider women's education to be a potentially useful indicator of early life circumstances, thus measuring material and social resources in the family of origin. Therefore, we believe that the differences observed between educational attainment groups also reflect women's socioeconomic position during their adolescence. Our assumption is based on the fact that women with better resources and social support have access to higher educational levels. The latter is especially accurate for the 1999 and 2004 surveys, considering that access to universal education was not guaranteed in those periods. This limitation was unavoidable given the characteristics of our information source. The surveys included no other socioeconomic indicators for the time when the events analysed in our study took place. Also, our data can be susceptible to a social bias for questions on a sensitive matter such as sexual behaviour, which may have inhibited some women from answering. Nevertheless, the selection of women aged between 20 and 24 years intended to reduce this bias. Despite these limitations, we believe that

our results are of paramount importance for further policy planning and resource allocation.

In the last 14 years, Ecuador has not achieved the reduction of socioeconomic inequalities in TM prescribed in local policies. Women in the country still endure adverse circumstances at the time of the FEHI, and this fact may partially explain the sustained inequalities in TM. Furthermore, gender structures constraining women's agency and power may be considered as a consequence of:

- A political tradition based on a conservative-religious perspective that has continuously rejected sexual and reproductive health policies;
- A dominant heteropatriarchal social context, with negative attitudes towards adolescents' sexuality and freedom of choice;
- Barriers to access means of early pregnancy prevention: comprehensive sexual education, contraception, and legal and safe abortion. These barriers derive from a negative social image of teenage involvement in sexual practices at the societal and health personnel level and they need to be tackled (Goicolea et al. 2010b).

In order to reduce inequalities in TM in Ecuador, gender-based strategies should be implemented to improve women's socioeconomic conditions: (1) providing fair employment conditions and opportunities; (2) offering equal salaries for equal jobs; (3) relieving women from the exclusive responsibility of unpaid domestic labour that impoverishes them; (4) avoiding inequalities in access to material and social resources, mainly caused by place of residence and ethnicity. Such improvements would give girls and young women a sense of better life opportunities, other than motherhood. Moreover, they would decrease the powerful influence of a social context that idealises maternity, even at young ages.

It would be necessary to again support the construction and follow-up of adolescent-friendly services, which have been disrupted since 2011 (Svanemyr et al. 2017). Also, it is necessary to reintroduce the financial support to the national strategy for adolescent pregnancy and gender-based violence prevention, which has recently been retired by the current government. Additionally, policies must be further developed and implemented on compulsory sexual-affective education. Such policies must be based on a gender perspective and provided in a human rights framework. Finally, legal reforms are vital to provide informed and safe abortion to reduce TM. Future policies and strategies should be assessed at each step of the planning and implementation phases. Heavy resources were invested in policies across the 14-year period analysed, but they were cancelled without evidence of their success or lack thereof. Also, resources should be allocated on continued capacity building of the health staff to

decrease the influence of personal bias and beliefs related to sexuality. Finally, there is a need to enhance the existing surveys in order to collect more accurate information on women socioeconomic, sexual and reproductive trajectories.

In conclusion, this study deepens in the social, interpersonal and individual factors influencing TM. Certain recommendations can be inferred from these results regarding necessary changes on structural, education and health services factors to tackle TM. Strategies and policies to overcome the possible effects of early motherhood should be implemented in Ecuador. These strategies are increasingly relevant considering that the lockdown measures applied during the COVID-19 emergency have increased exposure to sexual abuse and pregnancy for girls and adolescent women in their households (Plan Internacional 2020).

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## Compliance with ethical standards

**Conflict of interest** The author(s) declare that they have no conflict of interest.

**Ethical approval** Considering that this study implied no testing on human subjects, it is exempt of being considered by an ethic panel. Nevertheless, an informed consent form was fulfilled, and the participants were informed of the nature of the study. Importantly, the data base used in our study are freely available on the web site of the National Institute of Statistics and Census and protected by the data protection law of Ecuador.

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