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Preventing first births among adolescents in Mexico City's public abortion programme

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ABSTRACT

Introduction We examined parity and age among women seeking an abortion in Mexico City's public first-trimester abortion programme, Interrupcion Legal de Embarazo (ILE). We hypothesised that younger women, especially students, used abortion to prevent first births while older women used abortion to limit births.

Methods We used clinical data from a sample of 47 462 women who had an abortion between 2007 and 2016 and classified them as nulliparous or parous according to previous births prior to the abortion. We used logistic regression to identify sociodemographic and clinical factors associated with using abortion to prevent a first birth (nulliparous) versus limiting births (parous) and calculated absolute multivariable predicted probabilities.

Results Overall, 41% of abortions were in nulliparous women seeking to prevent a first birth, and 59% were in women who already had one or more children. The adjusted probability of using abortion to prevent a first birth was 80.4% (95% CI 78.3 to 82.4) for women aged 12–17 years and 54.3% (95% CI 51.6 to 57.0) for women aged 18–24 years. Adolescents (aged 12–17 years) who were employed or students had nearly 90% adjusted probability of using abortion to prevent a first birth (employed 87.8%, 95% CI 82.9 to 92.8; students 88.5%, 95% CI 82.9 to 94.1). At all ages, employed women and students had higher probabilities of using abortion to prevent a first birth compared with unemployed women and women who work in the home.

Conclusion Legal first-trimester abortion services in Mexico can help prevent first births in adolescents, especially students.

Key messages

- In Mexico City's public abortion programme, ILE, adolescents aged under 18 years have access to legal first-trimester abortion with adult consent.
- Adolescents (aged <18 years) were more likely than women aged 18–24 years to use abortion to prevent a first birth (vs to limit births).
- Young women use abortion to prevent first births; access to legal abortion should be part of policy discussions on how to reduce births in this population.

INTRODUCTION

Adolescents have higher levels of unintended pregnancy than older women in the United States,[1] and a large proportion of adolescent births worldwide are the result of unintended pregnancies.[2] The negative health and social consequences of adolescent birth have been well documented.[3 4] Women who give birth as adolescents consistently achieve lower levels of education across countries and settings;[3 5] preventing a first birth can improve educational and economic outcomes for women as well as health outcomes for subsequent children.[4 6]

Mexico has one of the highest adolescent fertility rates in the Americas; in 2012, 20% of all births in Mexico were to adolescents.[7] The adolescent birthrate reached 76.4 births per 1000 females aged 15–19 years in 2011, declining to 70.5 per 1000 by 2018.[8] This compares to adolescent birthrates of 34 per 1000 in the United States in 2010 (highest among wealthy countries),[2] 84 in Guatemala and 68 in Brazil (2010–2015).[9] The Mexican government has prioritised adolescent pregnancy prevention since 2015, when it implemented a National Strategy for the Prevention of Adolescent

Pregnancy (ENAPEA).[10] Primary prevention of pregnancy via contraception is crucial; however, it remains a challenge for adolescents to access the most effective forms of contraception prior to experiencing a birth in Mexico.[11]

Mexico City decriminalised first-trimester abortion in 2007 and immediately integrated abortion services into the public sector; since then, the public sector abortion programme, Interrupcion Legal de Embarazo (ILE), has provided over 200 000 legal abortions. Adolescents are eligible for services but women aged under 18 years must have an adult's permission.[12] Abortion is also available in the private sector in Mexico City, but providers are not required to report their statistics to official bodies. Abortion at any gestational age remains highly restricted in Mexico's other 31 states. Legal exceptions (eg, rape, risk to health and/or life) exist at state levels but are not uniformly utilised to the full extent of the law.[13]

Earlier estimates in Mexico suggested that women primarily used abortion to limit family size,[14] while research in Africa has shown that young women with higher levels of education used abortion to delay first births.[15] The role of the public abortion programme in Mexico City in delaying or preventing first births, especially among adolescents, is not known. The purpose of this study was to describe parity and age among women seeking abortions in ILE, the public sector abortion programme in Mexico City. We identified factors associated with using abortion to prevent a first birth; we hypothesised that younger women, especially students, would be more likely to seek to prevent a first birth than older women and women not in school.

METHODS

We used clinical data extracted from medical charts from a sample of 47 462 women who had an abortion in one of four high-volume sites in the Mexico City public sector abortion programme, ILE, between 2007 and 2016. Descriptions of data extraction and checking are detailed elsewhere.[16 17] We excluded women who did not receive an abortion due to presenting past the gestational age limit (n=4212/7.65%),[16] suspected ectopic or other reason for referral (n=621/1.13%) or who were missing outcome data (n=305/0.64%).

Our outcome was a binary indicator of whether the abortion was used to prevent a first birth (to a nulliparous women) or limit births (to a parous women). We included sociodemographic and clinical characteristics available in the medical charts. We classified current occupation as unemployed or working in the home/homemaker (ama de casa), employed or student. We grouped age into five categories; categories are unequal to allow us to focus on adolescents and young women compared with older women (12–17, 18–24, 25–29, 30–39, ≤40 years). We classified 12–17 years as adolescent because the public sector abortion programme requires adult permission for women aged

Table 1 Sample characteristics

Characteristic	Full sample (n=47 462) %	Preventing first birth (n=19 592) (41.3%) %	Limiting births (n=27 870) (58.7%) %
Age (years)			
12–17	8.27	16.90	2.20
18–24	47.29	64.00	35.55
25–29	21.51	13.61	27.06
30–39	20.09	4.94	30.74
40–54	2.71	0.41	4.32
Education			
Primary	8.70	2.80	12.85
Secondary	33.04	20.39	41.93
High school	38.83	46.05	33.76
University	17.35	28.62	9.42
State			
Mexico City (Ciudad de México)	71.15	69.70	72.18
Other state	28.73	30.17	27.72
Occupation			
Unemployed/Homemaker	24.49	9.33	35.14
Employed	46.53	49.97	44.12
Student	27.24	38.64	19.22

p<0.001 for all distributions by delaying or limiting. Data were missing for age for 0.13% of obsevations, for education 2.05%, for state 0.10% and for occupation 1.51%. Percentages may not add up to 100% .

under 18 years.[16] We made an indicator variable for whether the woman resided in Mexico City or travelled from another state, where first-trimester abortion is not available on request. We controlled for year and clustered on clinical site to account for non-independence of observations.

We used bivariate statistics (chi-square tests) to test for differences in preventing a first birth versus limiting births by all covariates and logistic regression to identify sociodemographic and clinical factors associated with preventing a first birth versus limiting births. Due to overlap between education and occupation variables (student is an occupational category) we retained only occupation in our multivariable model. We calculated multivariate marginal effects and absolute probabilities of our key covariates (age and occupation) to simplify the interpretation of results.[18]

This study was approved by the Institutional Review Boards of Oregon Health & Science University (OHSU), the Instituto Nacional de Salud Publica, and the Mexico City Ministry of Health (SEDESA). We used Stata version 13 (2013; Stata Corp LP; College Station, TX, USA) for all analyses.

Patient and public involvement

Patients were not directly involved in this secondary data analysis. Development of the study question was informed by national public health priorities and the results will be disseminated to policy and advocacy audiences in Mexico working on adolescent reproductive health.

RESULTS

Overall, 41% of abortions in our sample were to prevent first births (to nulliparous women) and 59% were in women who already had one or more children and sought to limit or space births. Women who had an abortion to prevent a first birth were more educated (46% in high school and 29% in university compared with 34% and 9%, respectively, among parous women) and more likely to be in school (39% nulliparous vs 19% parous; table 1). Women preventing first births were also younger; 17% were aged 12–17 years and 64% were aged 18–24 years compared with 2% and 36%, respectively, among parous women (table 1 and figure 1).

In our multivariable model (table 2), women aged under 25 years had higher odds (12–17 years old, adjusted odds ratio (aOR) 14.73, 95% CI 11.89 to 18.24; 18–24 years old, aOR 3.60, 95% CI 3.05 to 4.24) of using abortion to prevent a first birth compared with women aged 25–29 years; women aged over 30 years had lower odds. Students (aOR 6.09, 95% CI 3.61 to 10.27) and employed women (aOR 5.68, 95% CI 3.35 to 9.62) had higher odds of preventing a first birth compared with unemployed women and women working in the home. Travelling from outside of Mexico City was also associated with using abortion to prevent a first birth versus limiting or spacing births (aOR 1.16, 95% CI 1.08 to 1.26).

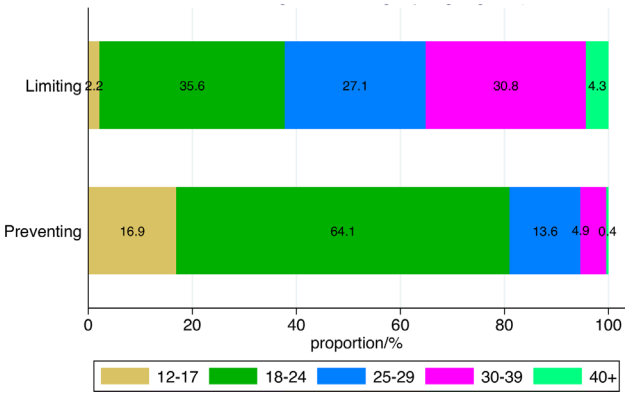

Figure 1 Preventing first births (nulliparous women) or limiting births (parous women) by age group. Mexico ILE programme, n=47 398; p<0.001 (excluding 64 women whose age was missing).

The adjusted probability of using abortion to prevent a first birth was 80.38% (95% CI 78.33 to 82.43) for women aged 12–17 years and 54.33% (95% CI 51.60 to 57.05) for women aged 18–24 years (data not shown). Figure 2 presents age and occupation together and shows that adolescents (aged 12–17 years) who were students or employed had nearly 90% (students, 88.55%, 95% CI 82.97 to 94.12; employed, 87.83%, 95% CI 82.90 to 92.76) adjusted probability of using abortion to prevent a first birth. At all ages, employed

Table 2 Logistic regression model: sociodemographic and clinical factors associated with using abortion to prevent (nulliparous women) versus limit (parous women) births (N = 46,526)

Variable	OR (95% CI)
Age (years)	
12–17	14.73** (11.89–18.24)
18–24	3.60** (3.05–4.24)
Age reference category: 25–29 years old	–
Age (years)	
30–39	0.32** (0.30–0.34)
40–54	0.18** (0.16–0.21)
Occupation reference category: Unemployed/Homemaker	–
Occupation	
Employed	5.68** (3.35–9.62)
Student	6.09** (3.61–10.27)
State reference category: Mexico City	–
State	
Any other state	1.16** (1.08–1.26)

The outcome variable has a value of 1 for preventing (nulliparous) and 0 for limiting (parous).
The model also controls for year and clusters on clinical site.
**p<0.01, .

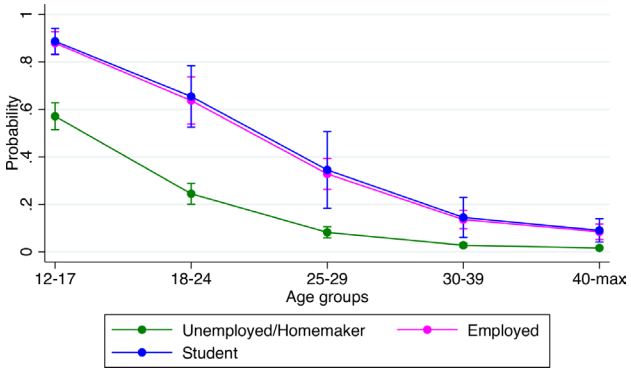

Figure 2 Adjusted probabilities of using abortion to prevent (vs limit) a birth by age group and occupation. Mexico ILE programme, n=46 526. The model also controls for year, state and clusters on clinical site (excluding 936 women whose age or education were missing).

women and students had higher probabilities of using abortion to prevent a first birth compared with unemployed women and women who work at home (figure 2).

DISCUSSION

We found that women seek first-trimester abortion in the Mexico City public sector abortion programme, Interrupcion Legal de Embarazo (ILE), to both prevent first births (41% of clients are nulliparous women) and limit or space births (59% of clients are parous women). Adolescents aged 12–17 years who are students or employed had a nearly 90% probability of using abortion to prevent a first birth, adjusted for other factors. Students and employed women had higher probabilities of seeking abortion to prevent a first birth across age groups, compared with women who did not work outside the home. These findings suggest that expanding access to legal abortion should form part of the strategies employed to support adolescents and young women to reduce early unintended births and to stay in school.

The proportion of nulliparous women in our sample (41%) is similar to experiences in other countries. In Italy, between 39% and 42% of abortion procedures were to nulliparous women between 2004 and 2018. Seven European countries, despite their different socioeconomic contexts and presumably higher access to effective contraception than Mexico, reported similar proportions of induced abortion in nulliparous women, with percentages as low as 35% in the Czech Republic and as high as 51% in Switzerland.[19]

Our findings show that in the Mexico City public abortion programme, younger women in school overwhelmingly use abortion to prevent first births. Previous research in Canada found that a larger proportion of younger women used abortion to delay childbearing than older women.[20] Furthermore, pursuing formal education is among the primary reasons young women seek to prevent a birth and need an abortion,[21] along with socioeconomic reasons.[22 23] Our finding that pregnant adolescents who were in school had a 90% probability of needing an abortion to prevent a first birth support this previous work. Evidence from the United States suggests that receiving a wanted abortion, compared with carrying an unwanted pregnancy to term, improves future aspirations[24] and economic outcomes[25] among women of all ages. Cohort studies focused on adolescents in developed countries have found that adolescents who have abortions have better socioeconomic[26] and educational outcomes[26 27] compared with adolescents who give birth.

However, pursuing higher education and other socioeconomic reasons for abortion have the least popular support in Mexico, according to a national opinion survey about access to abortion for different reasons.[28] Existing abortion laws in Mexico include exceptions that permit access to abortion, at least in theory, for rape, to save the life of the woman, to preserve the health of the woman, and for fetal anomalies. Only two Mexican states have a socioeconomic exception.[29] Moreover, where the health exception exists, it is interpreted narrowly;[13] it does not explicitily include mental health, in conflict with the World Health Organization (WHO) definition of health.[30] While more could be done to expand access to abortion under existing legal frameworks, current exceptions do not include the most common reasons why women need abortion and therefore create barrriers to those in need of services.

Public policy and intervention strategies to prevent adolescent births, in Mexico as in most countries in the region, focus primarily on pregnancy prevention. Primary prevention of pregnancy through improving access to effective contraception is crucial; however, adolescents face multiple challenges to accessing quality contraceptive services, both in primary care and pharmacy settings, in Mexico[31 32] and globally.[33] Furthermore, adolescents have limited access to most effective and long-acting contraceptive methods before experiencing a first pregnancy. A common access point for long-acting reversible contraception (LARC: intrauterine devices and implants) in Mexico is the postpartum setting, which is very effective at spacing subsequent births but has obviously failed to prevent the first birth.[11] Evidence suggests that the public abortion programme in Mexico City (ILE) provides post-abortion contraception at the same rate as immediate postpartum services.[34] In most countries in the Latin American region, programmes emphasise the need to increase access to effective and quality contraception for adolescents to achieve primary prevention of early unintended pregnancies. They are less explicit, however, in supporting strategies for secondary prevention of unwanted births, despite highlighting the goal of eliminating unsafe abortion. In Mexico, ENAPEA does recommend that providers be trained to provide full information to adolescents about abortion laws and to facilitate access to abortion, whenever

legal. Whether this happens, however, is unknown, particularly outside Mexico City.

This study has a limitation common to all cross-sectional observational studies, namely that we are only able to identify associations. Our reproductive history information is limited to the variables included in the clinical record, which are self-reported by the woman seeking an abortion. Our sample does not include all abortions in the public sector legal abortion programme; however, our data come from four high-volume sites, and include one specialised in adolescents. We do not have detailed socioeconomic data, but given that the public sector abortion programme mainly serves a relatively marginalised population, schooling and occupation are useful proxies. We include only the public sector abortion programme, ILE; women seeking care in the private sector may be different, but private sector data are not officially reported, and therefore are not publicly available.

Legal first-trimester abortion in Mexico can help prevent first births in students and economically active adolescents, and among women who are able to travel for abortion services. Mexico's experience can be useful for other countries facing high rates of unintended adolescent childbearing, and can inform current policies and programmes aimed at reducing adolescent births. Prevention of early motherhood can increase schooling rates and educational achievement among adolescents; conversely, more educated or economically active adolescents may be more empowered and motivated to seek an abortion to prevent a first birth. Whether due to contraceptive failure or lack of contraception altogether, unintended pregnancies are common among young women, and access to legal abortion should always be part of the discussion on strategies to effectively reduce and delay untimed, unintended and unwanted births among adolescents and young people.

Correction notice This article has been corrected since it first published. The provenance and peer review statement has been included.

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Contributors BGD conceived the study and secured funding. BGD, EF-R, BSA and RS conducted the analysis. BGD drafted the manuscript and EFR, BS-A, PS-S and RS provided substantive contributions.

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