Do unintended births influence readiness for future use of modern contraception among women in Mexico?

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JUSTIFICATION

The use of modern contraceptives is estimated to have prevented 308 million unintended pregnancies in 2017. Nevertheless, 214 million women of reproductive age in developing regions who want to avoid pregnancy are not using a modern contraceptive method (WHO 2019). In the developing world, each year unintended pregnancies result in an estimated 29.5 million unplanned births (estimate of 2015-2019, unpublished database, Bearak et al., 2021).

The percentage of unintended births for the period 2015-2019 has been estimated at 44.9% for the Latin American region, 47.7% for the Caribbean, 35.6% for Central America and 49.1% for South America. Worldwide unintended births have greatly declined over a 30-year period 1990-2019, while in the Latin American region the percentage of unintended births slightly increased between 1990 to 2004 and slightly declined from 2005 to 2019, resulting in unintended births remaining constant during the last 30 years (Bearak et al., 2018; unpublished database, Bearak et al. 2021).

Unintended pregnancies have been a concern from the human rights perspective but also as a public health problem. The negative effect of unintended pregnancies on the health of births and women and women's quality of life has been documented (Gipson et al, 2008, Singh et al., 2018; Herd et al, 2016), but further research still is needed to fully understand its impact. Research on the association between future use of contraception after experiencing an unintended birth is very limited still, most of the evidence is from developed countries and focused primarily on unmarried adolescent girls, neglecting adult and married women who are also at risk for unintended pregnancy (Fotso et al., 2014). More recently, a study for two countries of Latin America, Peru and Colombia, has examined the influence of unintended births on changes in contraceptive behavior

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(Batyra, 2020). The study of unintended births in Mexico is relevant because of the health effect on the mother, the child and the family, women's quality of life, but also because contraceptive use that helps reduce unintended pregnancies has stalled.

Mexico is a middle-income country with a successful family planning program implemented in the mid-1970s. It attained an impressive increase in contraceptive use among married women, with a shift in the prevalence from 30% to 69% between 1977 and 1997. After this period, contraceptive uptake has been slow and has remained relatively constant for the last 15 years with a prevalence of around 72% (Juarez and Valencia, 2010; Juarez et al., 2013; Juarez, Gayet and Mejia-Pailles, 2018). Each time more, the desire for smaller families is growing throughout the country, and unintended pregnancies and births may increase and be widespread (Singh et al., 2014; Juarez et al., 2013). Evidence indicates that an increase in contraceptive use is associated with a reduction of unintended pregnancies and births (Singh et al., 2014; Singh et al., 2018; Bearak et al., 2018); and given that in Mexico contraceptive prevalence has plateaued, it is of great concern the implications that the lack of increase in uptake of contraception will have in unintended pregnancies and births.

Research on unintended pregnancies and births is very limited in the country. Several studies have focused on unmet need for contraception, i.e. women who do not want another child and do not use a contraceptive method (CONAPO, 1998; CONAPO 2010; Gayet and Juarez, 2016; CONAPO, 2020), a few on women ideal family size preferences and the desire or not of more children (Menkes and Mojarro, 2006); and to our knowledge only one study estimates for 2014 the proportion of unintended births for different subgroups of the population (CONAPO, 2016), but for Mexico, the effects on future contraceptive use after experiencing an unintended birth remains unexplored. The scarcity of research on this topic for the country is partly due to the lack of information that would allow this kind of analysis. Two recent surveys -2014 y 2018- have incorporated a question that makes it possible to study unintended births.

Unintended births may be classified as unwanted and mistimed. The relevance of this separation of unintended births in these two categories is because they refer to two different outcomes and types of women. Hayford and Guzzo (2016) argue, that unwanted and mistimed births are a result of the same proximate determinant, sex

without effective contraception or no contraception, however, unwanted births by definition occur at the end of the childbearing career (although the end of childbearing occurs at diverse ages for different women). In contrast, for women reporting the birth was mistimed, the event may occur either early or later in their childbearing career. This is an essential difference as women in either category would be at different stages of the reproductive career, with different marriage conditions and family systems. So the profile of women with an unwanted birth might be very different from those with a mistimed birth. The new information now available for Mexico on preference status of last birth allows to identify unintended births and if these are unwanted or mistimed.

OBJECTIVES

As research on unintended births is very limited for Mexico, the objectives of this study are: 1) to provide an estimate of the level of recent unintended births, separating them into unwanted and mistimed, 2) to explore the associated socio-economic and demographic factors to unwanted and mistimed births, and 3) to investigate the use of modern contraceptive methods in relation to the experience of the recent previous birth unwanted and mistimed and controlling for its associated socio-economic and demographic factors factors.

DATA AND METHODS

This research uses the 2018 National Survey of Demographic Dynamics of Mexico (ENADID 2018), and focus on women aged 15-49 years who have had a child born alive during the last five years before the date of the survey. For this last child born alive it was obtained information on its fertility preference. To construct the variable of fertility preference of the last child born alive, the following question on the desire of pregnancy of the last child born alive was considered: “At the time you became pregnant with (name), did you want to become pregnant? Did you want to wait longer? Did you not want to become pregnant?”

For the woman’s intention to have a future child, we used the questions “Desire for more children (for women with children): In addition to the children you have had, would you like to have another one?” and “Time before the next child: How many years would you like to wait to have another child?”.

A descriptive analysis of women according to the preference of the last child born alive was conducted. First, we carried out a bivariate analysis, subsequently, we examined a polychoric correlation between the independent variables of the models, and then a multinomial logistic regression model to characterize the women according to the reported desire for the last child born alive was estimated. Also, a descriptive analysis on the use of modern contraceptive methods at the time of the survey, and a logistic regression model was conducted. In the later multivariate analysis, the central factor to examine is whether the use of modern contraceptive methods at the time of the survey is associated with the future women's reproductive intentions given that her last child born alive was wanted, unwanted or misted; the model controls for other variables of interest.

STATA 15 (StataCorp., College Station, Texas, USA) was used for the analysis and all data were weighted.

RESULTS

For the last birth in the five years before the survey, 61.4% of the women said the birth was wanted, 18.5% unwanted and 20.1% mistimed. Almost 40% of women reported an unintended birth.

Table 1 (all tables are at the end) shows the distribution of women according to the socio-economic and demographic variables of interest (age in five-year groups, union status, schooling level, number of children ever born alive, urban or rural residence, region of residence[1], access to health services). In addition, the table includes the proportions of women by fertility preference for the last recent birth (wanted, unwanted, mistimed) for each of the variables examined in the study.
Respect the fertility preference of the last birth, women between 25 and 39 years of age had the highest proportions of wanted, younger women mentioned a higher proportion of mistimed, and adolescent women and those over 35 years of age a higher proportion

[1] As Mexico has not an official division of regions, these were constructed based on the poverty level of the 32 states, but leaving Mexico City, the capital, as a separate region because of its very different attitude and behavior regarding reproductive health: Region 1: Mexico City; Region 2: States with less than 40% of the population in poverty; Region 3: states with between 40% and less than 65% of the population in poverty and Region 4: with 65% or more of their population living in poverty.

of unwanted. Unmarried women reported a larger proportion of mistimed births or unwanted, compared with currently married and previously married women. Those with 3 or more children, living in urban areas and living in Mexico City present a higher proportion of the last birth unwanted. Those with no access and those with partial access to health services reported a higher proportion unwanted, compared to those with full access to public health services and those with private health services.

Table 2 shows the results of the multinomial logistic regression of the socio-economic and demographic factors associated with the reported desire of the recent last birth born alive. Once adjusted for all the factors, women who said the birth was mistimed, compared with those who reported the last birth being wanted, were younger, never-married women, with more schooling, had more children born alive, and did not live in Mexico City. There were no differences between those who lived in rural or urban areas and between the different types of access to health services. Also, women who reported their birth was unwanted were to a greater extent adolescents, and women aged 20-24 years followed by those aged 45-49 years, never-married women, those with 3 or more children, those living in urban areas, those living in Mexico City, and those who did not have access to health services, compared with women who said they wanted the last birth. The second part of the model compares women who reported their recent last child was unwanted with those who said the recent last birth was mistimed. Findings indicate that at age 30 and over, an older age corresponds to a greater RRR for women with an unwanted last birth compare to those with a mistimed birth. And RRR are higher for never-married compared to married, for those with lower educational level, for those who had 3 or more children, for those who lived in Mexico City, and for those who did not have access to health services compared to those who had private services. There were no differences between women who lived in rural or urban areas and between those who had partial or total access to health services compared to those who had no access.

Table 3 presents the proportions of modern contraceptive use according to the variables of interest, and we focus on the variable related to fertility preference of the recent last child and future fertility intention. The proportion of contraceptive use is higher among women who do not intend to have another child in the future whatever was the fertility preference of the previous: 71.7% of women are using modern contraception if the

previous birth was wanted, 74.5% if it was mistimed and 75.7% is it was unwanted. As seen, the highest percentage is observed among women whose last birth was unwanted.

Table 4 estimates adjusted odds ratios for multivariable logistic regression of factors independently associated with the current use of modern contraception. Adolescents, women formerly in a union, those with higher education, those who had 3 or more children, those residing in urban areas, in Mexico City, and those who had full access to public health service have higher ORs of using modern methods. Regarding the variable of interest on the association between the use of modern contraception and the fertility preference of the recent last child and intention of future child, the ORs are higher for women whose last birth was mistimed and do not want a future child (1.3) and women whose last birth was unwanted and do not want a future child (1.2), compared to women whose last birth was wanted and no want a future child. This means that the experience of having had a recent unintended child increases the odds of using modern contraceptive methods when another child is not wanted in the future.

CONCLUSION

In other countries, it has been reported that women with an unintended pregnancy experiment another unintended pregnancy in the future, whether it ends up in abortion or a birth. Until present, it is not known with precision if some of the women take actions as a response of the previous unintended birth and avoid another subsequent unintended birth. This research provides evidence for the case of Mexico, where women with a recent previous unintended birth, whether unwanted or mistimed, are more likely to use a modern contraceptive method to avoid an unintended child in the future than those who did not have an unintended child.

A result that calls attention in relation to the measurement of unwanted births, is that although it is assumed that they occur at the end of their childbearing career, there is a high proportion of adolescents that answer the birth was unwanted. Within the logic of this measurement, adolescents should have answered that the birth was mistimed, but maybe the circumstances in which they had the child led them to respond that they did not want the child at all (for example, a birth associated with rape or being never-married and without support).

In conclusion, findings indicate that for Mexico, having the recent last birth unwanted or mistimed impacts future contraceptive behavior of women. The negative experience of a mistimed or unwanted birth on a women's life seems to emerge as a readiness for future use of modern contraception when the next child is not wanted or wanted at a later time.

REFERENCES

Batyra E. Contraceptive Use Behavior Change After an Unintended Birth in Colombia and Peru, *International Perspectives on Sexual and Reproductive Health*, Vol. 46, 2020, pp. 9-19. https://doi.org/10.1363/46e8420

Bearak J, Popinchalk A, Alkema L, Sedgh G. Global, regional, and subregional trends in unintended pregnancy and its outcomes from 1990 to 2014: estimates from a Bayesian hierarchical model, *The Lancet Global Health*, Volume 6, Issue 4, E380-E389, April 01, 2018. https://doi.org/10.1016/S2214-109X(18)30029-9

Bearak J, Popinchalk A, Alkema L, Sedgh G. Unpublished database, Guttmacher Institute, 2021.

CONAPO. *La situación demográfica de México 2010*, Mexico City: Consejo Nacional de Población (CONAPO), 2010. ISBN: 970-628-960-7

CONAPO. *La situación demográfica de México 1997*, Mexico City: Consejo Nacional de Población (CONAPO), 1998. ISBN: 970-628-263-7

CONAPO. Preferencias reproductivas y embarazo no planeado y no deseado (Chapter 5), in Consejo Nacional de Población (CONAPO), ed., *Situación Sexual y Reproductiva: República Mexicana*, Mexico City: CONAPO, 2016, pp. 107-116. ISBN: 978-607-427-283-3

CONAPO. *La situación demográfica de México 2020*, Mexico City: Consejo Nacional de Población (CONAPO), 20210. ISBN: 2683-247X

Fotso JC, Izugbara C, Saliku T, Ochako R. Unintended pregnancy and subsequent use of modern contraceptive among slum and non-slum women in Nairobi, Kenya. *BMC Pregnancy Childbirth*. 2014 Jul 10;14:224. doi: 10.1186/1471-2393-14-224. PMID: 25012817; PMCID: PMC4096734.

Gayet, C and F. Juárez. "Necesidades no satisfechas de métodos anticonceptivos", in Consejo Nacional de Población (CONAPO), ed., *Situación Sexual y Reproductiva: República Mexicana*, Mexico City: CONAPO, 2016, pp. 191-199. ISBN: 978-607-427-283-3

Gipson JD, Koenig MA, Hindin MJ. The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. *Stud Fam Plann*. 2008 Mar;39(1):18-38. doi: 10.1111/j.1728-4465.2008.00148.x. PMID: 18540521.

Hayford, S.R. and Guzzo, K.B. Fifty Years of Unintended Births: Education Gradients in Unintended Fertility in the US, 1960–2013. *Population and Development Review*, 2016, 42: 313-341. https://doi.org/10.1111/j.1728-4457.2016.00126.x

Herd, P., Higgins, J., Sicinski, K., & Merkurieva, I. The Implications of Unintended Pregnancies for Mental Health in Later Life. *American journal of public health*, 2016, 106(3), 421–429. https://doi.org/10.2105/AJPH.2015.302973

Juárez F and Valencia J, Las usuarias de métodos anticonceptivos y sus necesidades insatisfechas de anticoncepción, in: Chávez Galindo AM and Menkes C, eds., *Procesos y tendencias poblacionales en el México contemporáneo. Una mirada desde la ENADID 2006,* Mexico City: Centro Regional de Investigaciones Multidisciplinarias (CRIM), Universidad Autónoma de México (UNAM), 2010, pp. 201–235.

Juárez F et al., Unintended Pregnancy and Induced Abortion in Mexico: Causes and Consequences, New York: Guttmacher Institute, 2013.

Juarez, F., Gayet C and Mejia-Pailles G. Factors associated with unmet need for contraception in Mexico: evidence from the National Survey of Demographic Dynamics 2014, *BMC Public Health*, 2018, 18: 546. https://doi.org/10.1186/s12889-018-5439-0

Menkes, Catherine and Octavio Mojarro Preferencias reproductivas en el último tramo de la transición demográfica en México, in CONAPO (ed) *La situación demográfica de México* 2006, Mexico City: CONAPO, 2006, pp. 65-74. ISBN: 970-628-844-9

Singh S, Darroch JE and Ashford LS, Adding It Up: The Costs and Benefits of Investing in Sexual and Reproductive Health 2014, New York: Guttmacher Institute, 2014.

Singh S et al., *Abortion Worldwide 2017: Uneven Progress and Unequal Access*, New York: Guttmacher Institute, 2018.

WHO. Contraception. Evidence brief, WHO/RHR/19.18, World Health Organization, 2019. Accesed: https://apps.who.int/iris/bitstream/handle/10665/329884/WHO-RHR-19.18-eng.pdf

Table 1. Proportion of women with a birth in the last 5 years before the date of the survey and fertility preference of that birth by selected variable. Mexico, ENADID 2018.

	Total		%			
Selected variables	%	N	wanted	mistimed	unwanted	Total
Age Group						
15-19	7.7%	1860	49.7%	27.9%	22.5%	100%
20-24	23.1%	5591	55.1%	26.3%	18.6%	100%
25-29	27.6%	6677	62.4%	20.1%	17.4%	100%
30-34	21.0%	5087	68.0%	13.2%	18.8%	100%
35-39	13.7%	3319	66.8%	10.3%	22.8%	100%
40-49	6.9%	1658	60.8%	7.5%	31.8%	100%
Current Marital Status						
Currently in Union	47.5%	11483	65.8%	16.2%	18.0%	100%
Formerly in Union	44.6%	10794	60.4%	19.7%	19.9%	100%
Never married	7.9%	1914	40.7%	25.0%	34.2%	100%
Education						
<10 years	53.1%	12846	59.8%	17.9%	22.3%	100%
10+ years	46.9%	11346	63.2%	19.1%	17.7%	100%
Number of Children born alive						
1	36.5%	8818	64.0%	20.6%	15.4%	100%
2	32.7%	7916	65.7%	19.4%	14.9%	100%
3 or more	30.8%	7457	53.8%	14.9%	31.3%	100%
Type of residence						
Rural	27.3%	6603	62.7%	18.7%	18.6%	100%
Urban	72.7%	17589	60.9%	18.4%	20.7%	100%
Region of residence						
Region 1	4.8%	1166	62.6%	12.5%	24.9%	100%
Region 2	35.2%	8510	62.0%	18.0%	20.1%	100%
Region 3	47.9%	11587	60.8%	19.0%	20.2%	100%
Region 4	12.1%	2928	61.9%	20.1%	18.0%	100%
Access to Health Services						
No Social Security Health Service	12.8%	3103	58.3%	20.2%	21.5%	100%
Partial Access Public Health Service	52.2%	12634	59.6%	19.1%	21.3%	100%
Full Access Public Health Service	32.7%	7915	65.0%	16.9%	18.2%	100%
Private Health Service	2.2%	540	69.7%	16.5%	13.9%	100%
ALL	100%	24192	61.4%	18.5%	20.1%	100%

Table 2. Multinomial regression of factors independently associated with not wanting or wanted later the last child born in the last 5 years among women of reproductive age. Mexico 2018.

Fertility preference of last birth	RRR	P>|t|
Last Birth wanted	**(base outcome)**	
Last Birth mistimed		
Age Group		
15-19	Ref	
20-24	0.735	0.000
25-29	0.425	0.000
30-34	0.232	0.000
35-39	0.177	0.000
40-49	0.137	0.000
Current Marital Status		
Currently in Union	Ref	
Formerly in Union	1.068	0.176
Never married	2.279	0.000
Education		
<10 years	Ref	
10+ years	1.255	0.000
Number of Children born alive		
1	Ref	
2	1.506	0.000
3 or more	2.154	0.000
Type of residence		
Rural	Ref	
Urban	1.104	0.083
Region of residence		
Region 1	Ref	
Region 2	1.363	0.030
Region 3	1.508	0.005
Region 4	1.577	0.003
Access to Health Services		
No Social Security Health Service	Ref	
Partial Access Public Health Service	0.925	0.277
Full Access Public Health Service	0.882	0.104
Private Health Service	1.064	0.753
_cons	0.217	0.000
Last Birth unwanted		
Age Group		
15-19	Ref	
20-24	0.642	0.000
25-29	0.386	0.000
30-34	0.313	0.000
35-39	0.341	0.000
40-49	0.472	0.000
Current Marital Status		
Currently in Union	Ref	
Formerly in Union	1.136	0.010
Never married	4.031	0.000
Education		
<10 years	Ref	
10+ years	1.060	0.263
Number of live births		
1	Ref	
2	1.481	0.000
3 or more	4.668	0.000
Type of residence		
Rural	Ref	
Urban	1.261	0.000
Region of residence		
Region 1	Ref	
Region 2	0.773	0.029
Region 3	0.841	0.155
Region 4	0.693	0.007
Access to Health Services		
No Social Security Health Service	Ref	
Partial Access Public Health Service	0.919	0.235
Full Access Public Health Service	0.832	0.016
Private Health Service	0.646	0.018
_cons	0.265	0.000

Fertility preference of last birth	RRR	P>|t|
Last Birth mistimed	**(base outcome)**	
Last Birth unwanted		
Age Group		
15-19	Ref	
20-24	0.873	0.192
25-29	0.907	0.377
30-34	1.346	0.015
35-39	1.928	0.000
40-49	3.456	0.000
Current Marital Status		
Currently in Union	Ref	
Formerly in Union	1.064	0.305
Never married	1.769	0.000
Education		
<10 years	Ref	
10+ years	0.844	0.006
Number of live births		
1	Ref	
2	0.983	0.830
3 or more	2.167	0.000
Type of residence		
Rural	Ref	
Urban	1.142	0.063
Region of residence		
Region 1	Ref	
Region 2	0.567	0.000
Region 3	0.558	0.000
Region 4	0.440	0.000
Access to Health Services		
No Social Security Health Service	Ref	
Partial Access Public Health Service	0.993	0.940
Full Access Public Health Service	0.943	0.536
Private Health Service	0.607	0.033
_cons	1.224	0.429

Note: _cons estimates baseline relative risk for each outcome.

Note: Strata with single sampling unit treated as certainty units.

Table 3. Proportion of women with a birth in the last 5 years before the date of the survey and current modern contraceptive use. Mexico, ENADID 2018.

Current use of modern contraception	% Modern contraceptive use		
	No use	Yes Use	Total
Fertility preference of last birth & intention of future child			
Last Birth wanted & No future child wanted	28.3%	71.7%	100.0%
Last Birth wanted & Future child wanted in ≥ 2 yrs.	38.9%	61.1%	100.0%
Last Birth wanted & Future child wanted within 2 yrs.	53.2%	46.8%	100.0%
Last Birth mistimed & No future child wanted	25.5%	74.5%	100.0%
Last Birth mistimed & Future child wanted in ≥ 2 yrs.	35.7%	64.3%	100.0%
Last Birth mistimed & Future child wanted within 2 yrs.	46.2%	53.8%	100.0%
Last Birth unwanted & No future child wanted	24.3%	75.7%	100.0%
Last Birth unwanted & Future child wanted in ≥ 2 yrs.	39.8%	60.2%	100.0%
Last Birth unwanted & Future child wanted within 2 yrs.	39.6%	60.4%	100.0%

Table 4. Adjusted odds ratios for multivariable logistic regression of factors independently associated with current use of modern contraception for women in reproductive age. Mexico 2018.

Covariables	Exp(B)	Sig.	[95% Conf. Interval]
Age Group		0.000	
15-19	1.000		
20-24	0.728	0.000	0.65-0.82
25-29	0.708	0.000	0.63-0.80
30-34	0.737	0.000	0.65-0.84
35-39	0.797	0.003	0.69-0.92
40-49	0.751	0.001	0.63-0.89
Current Marital Status		0.000	
Currently in Union	1.000		
Formerly in Union	1.227	0.000	1.15-1.31
Never married	0.435	0.000	0.39-0.48
Education		0.000	
<10 years	1.000		
10+ years	1.374	0.000	1.29-1.47
Fertility preference of last birth & future child			
Last Birth wanted & No future child wanted	1.000	0.000	
Last Birth wanted & Future child wanted in ≥ 2 yrs.	0.956	0.311	0.88-1.04
Last Birth wanted & Future child wanted within 2 yrs.	0.488	0.000	0.43-0.55
Last Birth mistimed & No future child wanted	1.290	0.000	1.16-1.43
Last Birth mistimed & Future child wanted in ≥ 2 yrs.	1.141	0.038	1.01-1.29
Last Birth mistimed & Future child wanted within 2 yrs.	0.661	0.003	0.51-0.86
Last Birth unwanted & No future child wanted	1.215	0.000	1.11-1.33
Last Birth unwanted & Future child wanted in ≥ 2 yrs.	0.981	0.816	0.84-1.15
Last Birth unwanted & Future child wanted within 2 yrs.	0.955	0.788	0.68-1.33
Number of Children born alive		0.000	
1	1.000		
2	1.769	0.000	1.64-1.91
3 or more	3.106	0.000	2.82-3.42
Type of residence		0.000	
Rural	1.000		
Urban	1.179	0.000	1.10-1.26
Region of residence		0.000	
Region 1	1.000		
Region 2	0.684	0.000	0.59-0.79
Region 3	0.727	0.000	0.63-0.84
Region 4	0.402	0.000	0.34-0.47
Access to Health Services		0.000	
No Social Security Health Service	1.000		
Partial Access Public Health Service	1.098	0.036	1.01-1.20
Full Access Public Health Service	1.397	0.000	1.27-1.54
Private Health Service	0.967	0.754	0.79-1.19
Constant	1.671	0.000	