

Socioeconomic Inequalities in Unintended Pregnancy and Abortion Decision

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ABSTRACT *Pregnancy planning allows women to better control their life trajectory and contributes to the future child's health and development. Many studies that have analyzed socioeconomic inequalities in unintended pregnancy only took into account those pregnancies ending in births. Few of them that analyzed unintended pregnancy, including both induced abortion and births, and its socioeconomic determinants, concluded that unintended pregnancy is more frequent in young, poor, or unmarried women. These inequalities have been poorly studied in Europe, especially in the southern European context. The aim of the present study is to describe socioeconomic inequalities in unintended pregnancy and in abortion decision in Barcelona, Spain. The major findings are that unintended pregnancies accounted for 41% of total pregnancy and of these, 60% ended in abortion. From all pregnancies, the proportion of induced abortion reached 25.6%. Compared to women with university studies, those with primary education uncompleted had more unintended pregnancies (OR=7.22). When facing an unintended pregnancy, women of lower socioeconomic position are more likely to choose induced abortion, although this is not the case among young or single women. This study reveals deep socioeconomic inequalities in unintended pregnancies and abortion decision in Barcelona, Spain, where the birth rate is very low and the abortion rate is rising. Women in low socioeconomic positions have many more unintended pregnancies than better educated women. Except for young or single women, the lower the socioeconomic position, the higher the proportion of women who choose an induced abortion when facing an unintended pregnancy.*

KEYWORDS *Unintended pregnancy, Induced abortion, Social inequalities, Economic inequalities, Pregnancy outcome*

INTRODUCTION

Pregnancy planning allows women to better control their life trajectory and certain key aspects of gestation such as avoidable teratogenic exposures, prenatal diagnosis, or application of preventive measures such as folic acid intake,¹ and contributes to the future child's health and development. Although induced abortion (IA) solves a part of the unintended pregnancies problem, it leads to other public health problems as IA are never innocuous nor desirable for women's health^{2,3} and they have an economic cost⁴ both to the individuals involved and to the society.⁵

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Socioeconomic inequalities in unintended pregnancy and abortion decision can be understood as the differences in intellectual and material resources that exist between women according to their socioeconomic position (SEP),⁶ which are translated to unequal opportunities when trying to avoid unintended pregnancies or when choosing the pregnancy outcome (performing an IA or continuing the pregnancy).

An unintended (or an unplanned) pregnancy can be subsequently wanted or not.⁷ It is difficult to calculate the prevalence of unintended pregnancies in a population, as this would require counting both IA and the intendedness of births. Furthermore, to study socioeconomic inequalities in unintended pregnancy at an individual level, it is also necessary to have socioeconomic information for each pregnant woman. Many studies looking for the relationship between SEP and pregnancy planning have mainly analyzed pregnancies that ended in births^{8–10} or differences in abortion rates.^{11–14} Few studies from the United States^{5,15,16} or France¹⁷ have analyzed unintended pregnancy and its socioeconomic determinants at an individual level including both IA and births. These studies found that some determinants for unintended pregnancy were age (adolescents,^{16,18} between 18 and 24,^{5,15} and older than 40¹⁸), being unmarried,^{5,15,16} having a low income level,^{5,15,16,18} a low educational level,¹⁵ and not using contraception or using a not very effective method.¹⁸ The relationship between SEP and abortion rates varied among countries and the study period.^{11–14} These factors also seem to play a role in the abortion decision,¹⁸ as well as some beliefs or attitudes toward abortion.¹⁹

The city of Barcelona, in northwest Spain, has one of the lowest birth rates in Europe (9.8 per 1,000 women in 2004) and an IA rate (9.6 per 1,000 women in 2004)²⁰ higher than many northern European countries.²¹ Both the birth rate and IA rate have been rising during recent years, and so has the proportion of unintended pregnancy and births among teenage mothers.²²

Almost all the IA in Spain are caused by “a physical or psychological danger for women” and not covered by public health insurance.¹³ A local nonprofit association covers IA of women with a socioeconomic risk. In 2004, 22.7% of the total IA in the city were covered by this association.²³ Some inequalities in pregnancy planning have already been shown in the city. Teenage fertility rates vary greatly between districts according to the different income levels²⁴ and pregnancies that ended in births in women from disadvantaged social classes are more often unintended.¹⁰

The existence of adequate information systems in the city of Barcelona represents a unique opportunity to measure inequalities in pregnancy planning in a southern European city, including pregnancies ending in both births and IA. The specific aims of the study were to describe socioeconomic inequalities in the city in: (1) unintended pregnancy and (2) abortion decision.

METHODOLOGY

Design, Setting, and Patients

This is a cross-sectional and population-based study, with data at an individual level. The study population consists of all pregnancies among women resident in Barcelona between 1994 and 2003 that ended in a birth or in an IA (spontaneous abortions were excluded). Barcelona, located in the northeast of Spain, is the second largest city in the country, with a population of 1,578,546 inhabitants.²⁵

The information source for pregnancies that ended in IA was the IA registry of Barcelona.²² As the birth registry of Barcelona collects data on neither mother's

educational level nor pregnancy planning, the information source that we used for those pregnancies ending in births was the control sample of the Barcelona Birth Defects Registry (REDCB), which does collect this information.

Health centers authorized to carry out IA fill in an anonymous and individual questionnaire, which is mandatory by law. The REDCB collects information on all newborns in the city with any birth defect and also a control sample, a randomized selection of 2% of all newborns in the city without birth defects. These controls are independently selected from the cases' appearance and proportional to the number of births in each maternity hospital.¹⁰ The response rate among controls is 94.1%. Three trained nurses collect information about the mothers, using a questionnaire specially designed for the registry, from hospital records and through a personal interview with the mothers either while hospitalized after the delivery or by phone interview if they have already been discharged. Pregnancy intendedness, as well as demographic and socioeconomic variables, is included in the questionnaire.

A mixed sample ($n=3,149$) composed of 2% of all births (controls of the Barcelona Birth Defects Registry) and 2% of all IA during the period was prepared for analysis.

Measurements and Variables

Dependent variables are the following: (1) Intendedness of pregnancy. The REDCB variable "intendedness of pregnancy" was used for births. This is a bi-categorical variable being the answer to the question "Were you looking for this pregnancy?" All IA were considered unintended pregnancies, as more than 98% of IA are legally declared as a result of "a physical or psychological danger for women," and within these cases, those with physical danger represent a very low proportion.²² (2) Pregnancy outcome (birth or IA).

The variable used as an indicator of SEP is educational level. It was categorized in three groups: primary education not completed (<9 years of schooling), primary education completed but without university studies (9–14 years of schooling), and university studies (>14 years of schooling). Confounding or modifying variables are partner cohabitation during pregnancy (yes or no) and women's age (<25, 25–39, >39 years old). The range is 15–49 years old.

Statistical Analysis

A descriptive univariate analysis was performed first. Next, a bivariate analysis using the Chi-squared test was conducted to investigate the relationships between dependent and independent variables. To quantify these, logistic regression models²⁶ were fitted and crude and adjusted odds ratios (OR) for the potential confounders were calculated with corresponding 95% confidence intervals (95% CI).

The presence of interaction between independent variables was also evaluated and logistic regression models included interaction terms when appropriate. All statistical analyses were performed with SPSS software, version 12.0.²⁷

RESULTS

The final sample includes 3,149 pregnancies, of which 2,376 (75.5%) are births and 773 (24.5%) IA (Table 1) by women between 15 and 49 years old.

Pregnant women with primary studies not completed represented 7.5% of all pregnancies, those with university studies, 34.3%, and those with an intermediate

TABLE 1 Characteristics of pregnant women. Barcelona, Spain, 1994–2003

	Pregnancies (<i>n</i> =3,149) ^a	
	<i>N</i>	(%)
Age		
15–24	496	(16.0)
25–39	2,492	(80.2)
40–49	118	(3.8)
Total	3,106	(100)
Cohabitation ^b		
Yes	2,484	(82.9)
No	514	(17.1)
Total	2,998	(100)
Education		
< Primary	226	(7.5)
Middle ^c	1,761	(58.2)
University	1,036	(34.3)
Total	3,023	(100)
Outcome		
Birth	2,376	(75.5)
Induced abortion	773	(24.5)
Total	3,149	(100)
Pregnancy Intendedness		
Intended pregnancies		
Births	1,778	(58.5)
Unintended pregnancies		
Births	490	(16.1)
Induced abortions	773	(24.5)
Total	1,263	(41.5)
Total	3,041	(100)

^aThe total varies because of missing values.

^bIn all tables, cohabitation refers to partner cohabitation.

^cIn all tables, the educational level “middle” refers to women with primary education completed but without university studies (regardless of whether or not they have high school education).

level 58.2%. The proportion of women living with their partner was 82.9% and those younger than 25 years old accounted for 16% (Table 1). The response rate for the variable pregnancy planning in the sample of births was 96.6%. The prevalence of unplanned pregnancies (as a sum of IA and births of an unplanned pregnancy) was 41.5% (Table 1). This proportion varies as a function of partner cohabitation, age, and educational level (Table 2). After adjusting for all other variables, women younger than 25 and older than 39 years are at a higher risk of not planning their pregnancies, with adjusted odds ratios (aOR) of having an unintended pregnancy of 4.37 (95% CI: 3.21–5.94) and 2.84 (95% CI: 1.86–4.35), respectively. The OR of unintended pregnancy for women not living with a partner is 33.09 compared to women living with a partner.

Only 19.7% of pregnancies among women without primary education completed are intended, whereas in women with university studies this proportion reaches 72%. These differences result in an aOR of having an unintended pregnancy of 7.22 (95% CI: 4.82–10.81) in those without primary education completed and of

TABLE 2 Intendedness of pregnancies. Bivariate and multivariate association between intendedness of pregnancy and characteristics of the women, Barcelona, Spain, 1994–2003

	Intended		Unintended		χ^2 <i>p</i> value	OR of unintended pregnancy		
	<i>N</i>	(%)	<i>N</i>	(%)		row OR	(CI 95%)	aOR ^a
Age								
15–24	84	(18.1)	380	(81.9)	9.50	(7.40–12.22)	4.37	(3.21–5.94)
25–39	1,643	(67.8)	782	(32.2)	1		1	
40–49	50	(45.0)	61	(55.0)	2.56	(1.75–3.76)	2.84	(1.86–4.35)
Total	1,777	(59.2)	1,223	(40.8)	<0.01			
Cohabitation								
Yes	1,708	(69.2)	759	(30.8)	1		1	
No	21	(4.1)	492	(95.9)	52.72	(33.78–82.27)	33.09	(20.99–52.17)
Total	1,729	(58.0)	1,251	(42.0)	<0.01			
Education								
< Primary	44	(19.7)	179	(80.3)	10.47	(7.33–14.96)	7.22	(4.82–10.81)
Middle	965	(55.0)	788	(45.0)	2.10	(1.78–2.48)	1.71	(1.40–2.08)
University	736	(72.0)	286	(28.0)	1		1	
Total	1,745	(58.2)	1,253	(41.8)	<0.01			

Totals of different variables are not the same because of missing values.

^aIn all tables, aOR (adjusted) refers to the odds ratio for an independent variable adjusted for the other variables.

1.71 (95% CI: 1.40–2.08) in women having primary education completed but without university studies, compared with those having university studies.

Pregnancies ending in IA represented 24.5% of all pregnancies in the city during the study period. This proportion reaches 60% of cases if only unintended pregnancies are considered (Table 3). Women younger than 25 and older than 39 years old are at a higher risk of ending their pregnancies in IA compared with women in middle age (aOR=3.04; 95% CI: 1.89–4.89 and aOR=2.26; 95% CI: 1.65–3.08, respectively). Considering unintended pregnancy, only women in the oldest group tend to end their pregnancies in an IA more frequently than middle-aged women (aOR=2.14; 95% CI: 1.19–3.84). Partner cohabitation is the variable that most determines pregnancy outcome: 88.3% of women not living with a partner end their pregnancies in an IA. (aOR=40.89; 95% CI: 29.76–56.18)

The association between educational level and pregnancy outcome varies with age and partner cohabitation. The multivariate model used to measure this association contains two statistically significant interaction terms: (1) partner cohabitation and educational level and (2) age and educational level. Table 4 shows the results when interaction was included in the analysis. The association between educational level and pregnancy outcome is strong in women living with their partner. In these women, IA becomes more frequent as educational level decreases; this trend is more evident in women 25–39 years old (Table 4). Conversely, there is no association between educational level and pregnancy outcome in women not living with their partners, except for young women, where the association found has the opposite sense. Among these women (<25 years old not living with their partners), those with no university studies less frequently choose an IA (Table 4).

If only unintended pregnancies are analyzed, the association between educational level and pregnancy outcome is also modified by partner cohabitation and

TABLE 3 Description of pregnancies according to pregnancy intention and outcome. Association between pregnancy outcome and characteristics of the women, Barcelona, Spain, 1994–2003

	Induced Abortion		Births		χ^2			Induced Abortion OR	
	N	(%)	N	(%)	p value	row OR	(CI 95%)	Adjusted OR	(CI 95%)
All pregnancies ¹									
Age									
15–24	282	(56.9)	214	(43.1)		6.65	(5.41–8.18)	3.04	(1.89–4.89)
25–39	412	(16.5)	2080	(83.5)		1		1	
40–49	39	(33.1)	79	(66.9)		2.49	(1.67–3.71)	2.26	(1.65–3.08)
Total	733	(23.6)	2373	(76.4)	<0.01				
Cohabitation									
Yes	319	(12.8)	2,165	(87.2)		1		1	
No	454	(88.3)	60	(11.7)		51.35	(38.28–68.89)	40.89	(29.76–56.18)
Total	773	(25.8)	2225	(74.2)	<0.01				
Education									
< Primary	143	(63.3)	83	(36.7)		9.36	(6.81–12.87)	7.87	(5.26–11.79)
Middle	469	(26.6)	1,292	(73.4)		1.97	(1.62–2.41)	1.57	(1.20–2.05)
University	175	(15.5)	875	(84.5)		1		1	
Total	773	(25.6)	2,250	(74.4)	<0.01				
Unintended pregnancies									
Age									
15–24	282	(74.2)	98	(25.8)		2.58	(1.97–3.38)	1.04	(0.73–1.47)
25–39	412	(52.7)	370	(47.3)		1		1	
40–49	39	(63.9)	22	(36.1)		1.59	(0.93–2.73)	2.14	(1.19–3.84)
Total	733	(59.9)	490	(40.1)	<0.01				
Cohabitation									
Yes	319	(42.0)	440	(58.0)		1		1	
No	454	(92.3)	38	(7.7)		16.48	(11.49–23.64)	17.82	(12.01–26.42)
Total	773	(61.8)	478	(38.2)	<0.01				
Education									
< Primary	143	(79.9)	36	(20.1)		3.08	(2.00–4.76)	3.23	(1.98–5.28)
Middle	469	(59.5)	319	(40.5)		1.14	(0.87–1.50)	1.08	(0.77–1.50)
University	175	(56.3)	125	(43.7)		1		1	
Total	773	(61.7)	480	(38.3)	<0.01				

¹All pregnancies includes both unintended and intended pregnancies.

age, although the interaction with age is not statistically significant. Again, IA become more frequent as educational level decreases in women living with their partners (Table 4). In women not living with their partners, this association reverses and, again, those with no university studies less frequently end their pregnancies in IA (Table 4).

TABLE 4 Association between pregnancy outcome and educational level, according to pregnancy intendedness, and stratified by age and partner cohabitation, Barcelona, Spain, 1994–2003

ALL PREGNANCIES ¹	Induced Abortion OR			
	Cohabiting women		Single women	
	OR	CI 95%	OR	CI 95%
Age				
15-24 years old				
Education				
< Primary	2.19	(0.70-6.84)	0.25	(0.06-0.99)
Middle	0.75	(0.28-2.02)	0.25	(0.08-0.80)
University	1		1	
25-39 years old				
Education				
< Primary	16.01	(9.86-26.01)	1.81	(0.59-5.58)
Middle	1.89	(1.35-2.64)	0.63	(0.28-1.40)
University	1		1	
40-49 years old				
Education				
< Primary	4.82	(1.27-18.33)	0.55	(0.10-3.04)
Middle	4.40	(1.49-13.00)	1.47	(0.39-5.67)
University	1		1	
UNINTENDED PREGNANCIES	Cohabiting women		Single women	
	OR	CI 95%	OR	CI 95%
Age				
15-24 years old				
Education				
< Primary	2.06	(0.53-7.89)	0.15	(0.01-1.47)
Middle	0.87	(0.27-2.82)	0.16	(0.05-2.91)
University	1		1	
25-39 years old				
Education				
< Primary	6.13	(3.26-11.52)	0.46	(0.08-2.69)
Middle	1.28	(0.86-1.90)	0.23	(0.05-1.05)
University	1		1	
40-49 years old				
Education				
< Primary	1.90	(0.39-9.28)	0.14	(0.01-1.47)
Middle	2.19	(0.60-7.97)	0.40	(0.05-2.91)
University	1		1	

¹All pregnancies includes both unintended and intended pregnancies. For all pregnancies, the multivariate model includes two statistically significant interaction terms (cohabitation–educational level and age–educational level). For unintended pregnancy, only the interaction between educational level and cohabitation is statistically significant.

DISCUSSION

This study shows that two in five pregnancies in the city of Barcelona between 1994 and 2003 were unintended and that one in four pregnancies ended in IA. This proportion lies between the rates found in the United States (49% of pregnancies being unintended¹⁵ and 27% of pregnancies ending in IA)⁵ and in Europe (21% ending in IA).²⁸

As other studies have reported,^{5,9,15,17,29} women in less privileged SEP in Barcelona have more unintended pregnancies than women in better SEP. One of the main causes of this inequality could be the difference in the rate of contraception use, which is lower in women in less privileged SEP than in more privileged women,¹⁸ even considering that in southern European countries the use of effective contraception, such as oral contraception, is not as usual as in northern European countries.³⁰

According to other studies,¹⁶ partner cohabitation is the strongest determinant of unintended pregnancy. Furthermore, in Barcelona few women go ahead with their pregnancy in the absence of a “stable” partnership, contrary to northern European countries where the proportion of single women that have a baby is much higher (6.4 in The Netherlands or Sweden vs. 1.7 in Spain).³¹

As in studies carried out in France¹⁷ and Italy,¹¹ the association between educational level and abortion decision varies depending on age and partner cohabitation. Young women with higher educational level end their pregnancies more frequently in an IA, but this association disappears in older women. A study in the US pointed out that the association between SEP (measured with income) and unintended pregnancy was only significant in married women.⁹ These data are concordant with this study, where SEP inequalities in pregnancy outcome are strong in women living with their partners and they disappear or reverse in single women.

Women in less favored SEP not living with their partner end their pregnancies in IA less often, especially when they are young. One possible reason could be that these women may have problems accessing abortion services. Another reason, pointed out in previous studies,²⁹ could be that teenagers or young women in affluent situations may have more future expectations than girls in less favored situations and then they may choose more often to terminate the pregnancy in an abortion. On the other hand, among pregnant women who live with their partner, which are the wide majority (82.9%), the lower their educational level, the more likely they are to end pregnancies in IA. This is partly because women with lower educational level have more unintended pregnancies, but when these women have an unintended pregnancy they also tend to choose IA more often than do women with a higher educational level in this situation. A possible reason for this could be that when women face an unintended pregnancy and they have a stable relationship, those with more resources feel more economically able to go ahead with the pregnancy than women having fewer resources. A study conducted in the north of Spain during the 1980s¹³ found that an advantaged SEP was associated with a higher abortion rate, whereas more recently in Switzerland,¹² Sweden,¹⁴ or the United States³² the highest abortion rates were found among immigrant or poor women. Our results suggest that abortion inequalities in Barcelona at the turn of the century are more similar to those found more recently (where disadvantaged SEP is associated with higher abortion rates) than the trend reported in the 1980s.

Unlike other studies,^{9,17} the present one has been carried out with city registries. Registries are less biased than population-based interviews, where it is usual to find a certain amount of recall bias¹⁶ as well as under declaration of abortion³³ (as women may be ashamed to report an abortion when interviewed), which in turn

depends on socioeconomic factors.³⁴ However, the information available in registries is more limited and therefore some potentially influential variables^{17,35} in our study (such as parity or woman's income) could not be obtained. Educational level is a widely used and valid PSE indicator³⁶ and may be especially useful for our study of pregnant women as it is relevant for people regardless of age or working circumstances.⁶ Furthermore, it is closely related to the knowledge and skills that women have to manage avoiding unintended pregnancies and also plays a strong role in determining abortion behavior.³⁷

The concept "Intendedness of pregnancy" is complex and it would probably be better to treat it as a continuous rather than a bicategorical variable.³⁸ As the intention to plan a pregnancy is not a universal wish, but is related to sociocultural and religious values,³⁹ women are often ambivalent about their intention to become pregnant or not.¹⁵ It has been shown that the perception of intendedness of pregnancy that women have varies during the gestational period and after the delivery.¹⁶ The registry used in this study recorded the intendedness of pregnancies at the same time for all women (just after the delivery). In that sense, our study must be less biased than other studies that interview women at different times after delivery.

To sum up, two groups of women are identified to be at a higher risk of having an unintended pregnancy and IA: single women and women in disadvantaged SEP. Socioeconomic inequalities may not affect abortion services accessibility (with the exception of young single women), but mainly affect: (1) the capacity to plan pregnancies and to avoid those that are not intended and commonly not wanted and (2) the resources that women have to raise a child.

Further research into the specific difficulties that disadvantaged women have to plan their pregnancies would help policy makers to make interventions to decrease these inequalities in the city. It seems necessary to promote effective and universal pregnancy planning that includes all social layers, improves accessibility to effective contraception, and promotes information about how to use them to improve their effectiveness. Emergency contraception has a big potential to avoid unplanned pregnancies and to reduce the abortion rate,⁴⁰ but women and their partners must know during what time it is effective and where and how they can get it.⁴¹ As our study suggests that socioeconomically disadvantaged women have more difficulties to bring up a child from an unplanned pregnancy, it would be interesting to analyze if there are inequalities in the birth rate between women in different SEP, especially in Spain where the birth rate is so low and family benefits are one of the lowest in Europe.⁴² In that sense, social policies should also be implemented to help families or women wishing to have children but unable to do so for economic reasons.

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