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Prevalence and inequalities in contraceptive use among adolescents and young women: data from a birth cohort in Brazil

Prevalência e desigualdades no uso de métodos contraceptivos entre adolescentes e mulheres jovens: dados de uma coorte de nascimentos no Brasil

Prevalencia y desigualdades en el uso de métodos contraceptivos entre adolescentes y mujeres jóvenes: datos de una cohorte de nacimientos en Brasil

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Abstract

Monitoring trends of contraceptive use and identifying the groups with less coverage are needed to guide public policies and make them more efficient. But, in Brazil, recent data about these aspects are limited. This study aimed to investigate the prevalence of contraceptive use and its inequalities during adolescence and early adulthood. Data from the 1993 Pelotas birth cohort, Rio Grande do Sul State, Brazil, were used. At 15, 18 and 22 years, respectively, 335, 1,458 and 1,711 women reported having started their sexual lives and were included in analysis. Prevalence and 95% confidence intervals were obtained to describe the most used contraceptive methods. Inequalities in modern contraceptive use were evaluated according to wealth index, scholastic backwardness and ethnicity. In all follow-ups, more than 80% of women used at least one modern method. The use of barrier methods decreased with age; at 22 this prevalence was 36.3%. Such use concomitant with other modern methods was lower than 50% in all follow-ups. We observed inequalities in the use of modern contraceptive methods, mainly in barrier methods used with other modern methods. These findings may contribute and improve the public policies in family planning.

Contraceptive Agents; Health Inequality Monitoring; Women's Health

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Introduction

Family planning has several health benefits such as preventing unintended pregnancies, spacing births, reducing maternal and child morbidity and mortality, empowering women, offering protection against sexually transmitted diseases, and decreasing unsafe abortion cases [1,2].

One of the milestones of the *United Nations Sustainable Development Goals* (SDGs) is the universal access to sexual and reproductive health [3]. Adolescents are the priority in achieving this goal, since teenage pregnancy is associated with a range of adverse health and social outcomes [4,5]. Projections indicate that the number of unintended births, abortions, and maternal deaths would annually decrease by 6 million, 3.2 million, and 5,600, respectively, if all unmet needs for modern contraception in adolescents were satisfied [4]. Among the available contraceptive methods, modern methods – those which involve medical or technological resources [6] – are usually prioritized since they are the only methods which offer protection from sexually transmitted infections and are recognized as having the lowest failure rates [7,8].

Modern contraceptive methods have many advantages, such as giving couples safety and more reliability to follow their family planning choices. However, it is estimated that 60% of adolescents from low- and middle-income countries who would like to avoid pregnancies fail to use modern contraceptive methods [5]. Some adolescents and young adults opt to use traditional methods, such as coitus interruptus, whereas others use no contraceptive method, which is even more concerning [7,9]. There is evidence that the failure rates of traditional contraceptive methods – considerably higher than modern contraceptives – are higher among adolescents and young adults [7,8]. For example, the 12-month failure rate for coitus interruptus was 17.3 (95%CI: 15.9; 18.7). Nevertheless, for modern contraceptive methods such as the pill, condoms, and intrauterine devices (IUDs), the respective values were 6.3 (95%CI: 5.9; 6.8), 8.6 (95%CI: 7.6; 9.6), and 1.2 (95%CI: 0.9; 1.5) [7].

Although there is evidence of progressive increases in contraceptive use, the literature shows inequalities in their use [10]. In several low- and middle-income countries, poorer and less educated women showed a lower prevalence of contraceptive use [11]. Moreover, parity and marital status were also associated with this use. A study using surveys from 73 low- and middle-income countries identified that married women and those without children showed the lowest median of modern contraceptive prevalence worldwide, ranging from 2.9% in West and Central Africa to 29% in Latin America and the Caribbean [12].

In Brazil, data from the 2013 *National Health Survey* indicates that 79.4% of women in reproductive age were using some modern contraceptive method with similar levels of prevalence among all groups of wealth [13]. Among adolescents, a national school-based study conducted in 2013 and 2014 evaluating boys and girls aged 12 to 17 years observed that around 80% used some contraceptive method in their last sexual intercourse [14]. A study conducted in São Paulo, Brazil [15], in 2015 with adolescent girls aged 15 to 19 years showed that condoms and oral contraceptives were the most used methods (28.2% and 23%, respectively).

Monitoring the use of contraceptive methods in different population subgroups is fundamental for a more efficient planning of public policies in the area. However, recent population-based studies with a more detailed description of the different kinds of contraceptive methods, investigating groups with less coverage are limited in Brazil and are mainly performed with schoolchildren. Despite the limitation of where information was collected – which may interfere in answers related to sexual behavior – adolescents and young people who dropped out of school were ignored in these studies. It provides a limited point of view since family planning choices and the use of contraceptive methods may differ between those who are enrolled in school and those who dropped out. One study showed the lower prevalence of contraceptive use among adolescents and young adults who dropped out of school, for example [16]. Our study uses data from a birth cohort conducted in Brazil, allowing us to investigate modern contraceptive use in different periods and in adolescent and young women subgroups. It is also essential to identify inequalities to highlight possible pathways to achieve universal access to sexual and reproductive health care.

Therefore, this study aims our to evaluate the prevalence of contraceptive methods use (traditional, modern, hormonal and barrier), and its inequalities among adolescents and young women in the 1993 Pelotas birth cohort, Rio Grande do Sul State, Brazil.

Material and methods

Participants

In 1993, all live births from mothers who gave birth from January 1st to December 31st and dwelled in the urban area of Pelotas, Southern Brazil, were invited to participate in this cohort study. Among the 5,265 live births, 5,249 mothers agreed to participate. Mothers were interviewed soon after delivery (perinatal study) providing information on their demographic, socioeconomic, behavioral, and other characteristics. From birth to the 11-year follow-up, subsamples were evaluated, and all cohort members were sought when they reached the mean age of 11, 15, 18, and 22 years. Follow-up rates were 87.5%, 85.7%, 81.4%, and 76.3%, respectively. A detailed description of the cohort can be found elsewhere [17,18,19].

Our study was based on data collected during the 15-, 18- and 22-year follow-ups. We included only female participants who had already started their sexual lives at the time of each follow-up and those who were not pregnant.

Outcomes

All information regarding contraception use was collected using a confidential questionnaire. At the 15-year follow-up, contraceptive use was assessed by asking the following question: "In your last sexual intercourse, did you use any of these methods to avoid pregnancy or to protect yourself?" Answer options were: condoms, oral contraceptives, coitus interruptus, none, others (which one?), whereas at the 18 and 22-year follow-ups contraceptive use was assessed as follows: "In your last sexual intercourse, what did you use to avoid pregnancy?" Answer options were the same as mentioned above plus: the calendar method, contraceptive injections, IUDs, emergency contraceptive pills, others (which one?). Moreover, some extra contraceptive method options were evaluated at the 22-year follow-up: vaginal rings, female sterilization, male sterilization, subdermal implants, diaphragms, spermicidal agents and male and female condoms. A summary of the methods assessed in each follow-up is shown in the Table 1.

Table 1

Contraceptive methods assessed in which follow-ups at 15, 18 and 22 years. 1993 Pelotas birth cohort, Rio Grande do Sul State, Brazil.

Contraceptive method	Follow-up		
	15 years	18 years	22 years
Coitus interruptus	✔	✔	✔
Calendar method	✘	✔	✔
Condoms	✔	✔	✔
Female condoms	✘	✘	✔
Diaphragms	✘	✘	✔
Oral contraceptives	✔	✔	✔
Emergency contraceptive pills	✘	✔	✔
Contraceptive injections	✘	✔	✔
Intrauterine devices (IUDs)	✘	✔	✔
Vaginal rings	✘	✘	✔
Subdermal implants	✘	✘	✔
Spermicidal agents	✘	✘	✔
Male sterilization	✘	✘	✔
Female sterilization	✘	✘	✔

✔: assessed; ✘: not assessed.

Contraceptive methods were divided into modern and traditional methods. The traditional methods evaluated were: coitus interruptus and the calendar method. However, if these methods were used with any modern method, we considered only the use of the modern method. The modern methods evaluated were: condoms (male or female), oral contraceptives, emergency contraceptive pills, injectable contraceptives, IUDs, diaphragms, vaginal rings, subdermal implants, spermicidal agents, and female/male sterilization [6].

Furthermore, we also evaluated if the modern contraceptive method was a hormonal or a barrier method. The following methods were considered hormonal: oral contraceptives, emergency contraceptive pills, injectable contraceptives, vaginal rings, and subdermal implants, whereas condoms (male or female) and diaphragms were considered barrier methods.

Covariables

Information on self-reported ethnicity was collected at the 15-year follow-up (white, black or other), whereas the following variables were assessed in all follow-ups (15-, 18- and 22-year): schooling in completed years of formal education (0-4, 5-8, 9 or more), wealth index (generated using a principal component analysis based on possession of assets and divided into quintiles, in which the first quintile was the poorest and the last, the richest), having children (no; yes), relationship status (single; having a boyfriend; living with a partner) and school backwardness (no; yes). According to Sampaio & Nespoli [20], the individual is considered school backward if there is a difference of two or more years between the current schooling of the individual and the age considered adequate for that schooling level. Thus, at ages 15, 18 and 22 women who showed, respectively, ≤ 6 years, ≤ 9 years and, ≤ 10 years of schooling (unfinished high school) were considered school backward.

Statistical analysis

Firstly, we described (in absolute and relative frequencies) the sample according to independent variables for each follow-up. Secondly, we showed the prevalence and a 95% confidence interval (95%CI) of the most used contraceptive methods according to the year of the study. We also showed the prevalence and 95%CI of the use of any contraceptive method according to type (traditional, modern, hormonal, barrier). Furthermore, the use of barrier methods combined with other modern methods, as recommended by specialists, was also evaluated [21,22]. As supplementary material, we showed an adjusted analysis. The prevalence of contraceptive use at 18 years was adjusted for the prevalence of contraceptive use at 15 years, whereas contraceptive use at 22 was adjusted for the prevalence of contraceptive use at 15 and 18 years. We used Poisson regression followed by the "margins" post estimation command to express the results as prevalence and 95%CI.

Lastly, inequalities in the use of modern methods and barrier methods along other modern methods, according to wealth index, school backwardness and ethnicity for all follow-ups were evaluated. All analyses were performed using Stata version 16.1 (https://www.stata.com).

Ethics

Ethical approval was obtained from the Ethics Research Committee of the School of Medicine of the Federal University of Pelotas for all stages of the study. A written Informed Consent Form was signed by participants' mothers or tutors in every follow-up, and verbal consent was given by the adolescents in the 15-year follow-up. At the 18-year follow-up, the cohort members signed the informed consent form. The 18- and 22-year follow-ups have protocol numbers 05/11 and 1,250,366, respectively.

Results

At the 15-, 18- and 22-year follow-ups, we included 335, 1,458, and 1,711 women, respectively, who reported having started their sexual lives and were not pregnant at the moment of the study. In all follow-ups, white women made up about 60% of the sample. At the 15- and 18-year follow-ups, more than half of the girls were school backward (50.4% and 53.7%, respectively), whereas at the 22-year, this occurrence was lower (34.6%). At the 22-year follow-up, 45% of participants reported living with a partner and 35.8% had children (Table 2).

Table 3 shows the prevalence of contraceptive use according to the follow-ups. At age 15, the most used method were condoms (85.4%, 95%CI: 80.9; 89.0), whereas at 18 and 22 years, oral contraceptives (57.5%, 95%CI: 54.9; 60.1) and (59.8%, 95%CI: 57.3; 62.0), respectively. The use of at least one modern contraceptive method was lower at 22 years (83.8%, 95%CI: 81.9; 85.4). The use of barrier methods decreased as age increased, from 85.4% (95%CI: 80.9; 89.0) at 15 to 36.3% (95%CI: 34.0; 38.6) at 22 years. The use of barrier methods with other modern methods was lower than 50% in all follow-ups and decreased as age increased. At 15 years, its prevalence was 47.7% (95%CI: 41.0; 54.4), whereas at 22, 19.9% (95%CI: 18.1; 21.9). On the other hand, the prevalence of at least one hormonal

Table 2

Socioeconomic and demographic characteristics of the sample at ages 15, 18 and 22 years. 1993 Pelotas birth cohort, Rio Grande do Sul State, Brazil.

Characteristic	Follow-ups		
	15 years [N = 335] n (%)	18 years [N = 1,458] n (%)	22 years [N = 1,711] n (%)
Ethnicity			
White	202 (60.3)	902 (63.2)	1,036 (63.5)
Black	41 (12.2)	196 (13.7)	246 (15.1)
Other	92 (27.5)	330 (23.1)	349 (21.4)
Schooling (complete years)			
0 to 4	50 (14.9)	34 (2.3)	22 (1.3)
5 to 8	269 (80.3)	557 (38.2)	357 (20.9)
9 or more	16 (4.8)	866 (59.5)	1332 (77.9)
School backwardness			
No	166 (49.6)	675 (46.3)	1119 (65.4)
Yes	169 (50.4)	782 (53.7)	592 (34.6)
Wealth index (quintiles)			
Q1 (poorest)	90 (27.1)	385 (26.5)	392 (22.9)
Q2	88 (26.4)	286 (19.6)	365 (21.4)
Q3	62 (18.6)	284 (19.5)	344 (20.1)
Q4	57 (17.1)	264 (18.1)	310 (18.1)
Q5 (richest)	36 (10.8)	238 (16.3)	298 (17.4)
Have children			
No	320 (95.5)	1,211 (83.6)	1,077 (64.2)
Yes	15 (4.5)	247 (16.9)	600 (35.8)
Relationship status *			
Single	104 (33.9)	438 (30.2)	466 (27.3)
Having a boyfriend	203 (66.1)	681 (47.0)	473 (27.7)
Living with a partner	**	330 (22.8)	769 (45.0)

* Variable with more missing values;

** Not evaluated at this age.

Table 3

Prevalence of contraceptive use among female participants of the 1993 Pelotas birth cohort, Rio Grande do Sul State, Brazil. Follow-ups at 15, 18 and 22 years.

Prevalence of contraceptive use	Follow-ups					
	15 years		18 years		22 years	
	Total (n)	% (95%CI)	Total (n)	% (95%CI)	Total (n)	% (95%CI)
Use of at least one contraceptive method (any)	312	95.8 (92.9; 97.6)	1,371	94 (92.6; 95.1)	1,711	85.5 (83.8; 87.1)
Use of traditional methods only *						
Coitus interruptus	309	0.0	1,377	2.2 (1.6; 3.1)	1,711	1.7 (1.2; 2.4)
Calendar method	**	**	1,374	0.9 (0.5; 1.5)	1,711	0.23 (0.1; 0.6)
Modern methods						
Condoms	301	85.4 (80.9; 89.0)	1,385	56.6 (54.0; 59.2)	1,711	36.3 (34.0; 38.6)
Oral contraceptives	226	62.4 (55.9; 68.5)	1,387	57.5 (54.9; 60.1)	1,711	59.7 (57.3; 62.0)
Emergency contraceptive pills	**	**	1,360	3.1 (2.3; 4.2)	1,711	1.3 (0.8; 1.9)
Contraceptive injections	**	**	1,372	4.5 (3.5; 5.8)	1,711	6 (5.0; 7.3)
Intrauterine devices (IUDs)	**	**	1,370	0.9 (0.5; 1.2)	1,711	0.6 (0.4; 1.2)
Use of at least one modern contraceptive method	313	94.6 (91.4; 96.6)	1,368	90.9 (89.3; 92.3)	1,711	83.8 (81.9; 85.4)
Use of hormonal methods	226	62.4 (55.9; 68.5)	1,378	63.9 (61.4; 66.4)	1,711	64.9 (64.9; 69.4)
Use of barrier methods	312	82.3 (77.7; 86.2)	1,387	56.5 (53.9; 59.1)	1,711	36.3 (34.0; 38.6)
Use of barrier methods together with hormonal methods ***	214	47.7 (41.0; 54.4)	1,379	31 (28.6; 33.5)	1,711	19.9 (18.1; 21.9)

95%CI: 95% confidence interval.

* Use of traditional methods not accompanied by a modern contraceptive method;

** Not evaluated at this age;

** Comprise barrier contraceptive methods used concomitantly with other modern methods.

method remained constant according to age. We observed few significant changes after adjusting for contraceptive use prevalence in previous follow-ups. Table 4 shows the prevalence of coitus interruptus (not accompanied by modern contraceptive methods) at 22 years; the use of hormonal methods at 18 and 22 years increased, whereas the prevalence of condoms or any barrier method at 18 and 22 years decreased even more.

Table 5 shows the prevalence of at least one modern contraceptive method according to stratifiers. The two upper quintiles showed slightly higher coverage than the lower quintiles, specially at the 22-year follow-up (79.9% vs. 87.9% in the poorest and richest quintiles, respectively). Furthermore, at 18- and 22-year follow-ups show significantly lower prevalence of modern contraceptive use among school backward women and this difference was more pronounced at 22 years (77% vs. 87.3%). Regarding ethnicity, we observed no significant differences.

Table 5 shows the use of barrier contraceptive methods concomitantly with other modern methods, at 15-, 18- and 22-year sollow-ups according to stratifiers. We observed no differences among wealth indices at the 15-year follow-up, whereas in the other two, those in the richest quintile showed the highest prevalence. This difference was more pronounced at 18 years, in which those in the poorest and in the richest quintile showed a prevalence of 24.9% and 46.7%, respectively. The prevalence of the use of barrier methods concomitantly with other modern methods was lower among women who were school backward at 18 and 22 years. Regarding ethnicity, significant differences were observed at the 22-year follow-up, in which black women showed lower prevalence of coverage than white women (12.2% vs. 21.6, respectively).

Table 4

Adjusted prevalence of contraceptive use among female participants of the 1993 Pelotas birth cohort, Rio Grande do Sul State, Brazil. Follow-ups at 15, 18 and 22 years.

Prevalence of contraceptive use	Follow-ups					
	15 years		18 years *		22 years **	
	Total (n)	% (95%CI)	Total (n)	% (95%CI)	Total (n)	% (95%CI)
Use of at least one contraceptive method (any)	312	95.8 (92.9; 97.6)	257	93.4 (90.3; 96.4)	213	84.5 (79.6; 89.4)
Use of traditional methods only ***						
Coitus interruptus			256	3.5 (1.4; 5.7)	212	4.2 (1.5; 6.9)
Calendar method	#	#	1,374	0.9 (0.5; 1.5)	1,120	0.4 (0.06; 0.8)
Modern methods						
Condoms	301	85.4 (80.9; 89.0)	250	45.6 (39.4; 51.8)	204	29.4 (23.3; 35.6)
Oral contraceptives	226	62.4 (55.9; 68.5)	188	61.2 (54.2; 68.1)	158	54.4 (46.6; 62.2)
Emergency contraceptive pills	#	#	1,360	3.1 (2.3; 4.2)	1,108	1.2 (0.5; 1.8)
Contraceptive injections	#	#	1,372	4.5 (3.5; 5.8)	120	6.9 (5.4; 8.3)
Intrauterine devices (IUDs)	#	#	1,370	0.9 (0.5; 1.2)	1,118	0.8 (0.2; 1.3)
Use of at least one modern contraceptive method	313	94.6 (91.4; 96.6)	257	88.7 (84.8; 92.6)	213	79.8 (74.4; 85.2)
Use of hormonal methods	226	62.4 (55.9; 68.5)	186	71.5 (65.0; 78.0)	156	71.8 (64.7; 78.9)
Use of barrier methods	312	82.3 (77.7; 86.2)	260	45 (38.9; 51.0)	215	28.8 (23.0; 34.8)
Use of barrier methods together with a hormonal methods ##	214	47.7 (41.0; 54.4)	177	29.4 (22.7; 36.1)	140	18.6 (12.6; 24.6)

95%CI: 95% confidence interval.

* Adjusted for 15-year contraceptive variables (except coitus interruptus, the calendar method, emergency contraceptive pills, contraceptive injections and IUDs which were not evaluated at 15 years);

** Adjusted for 15- and 18-year contraceptive variables (coitus interruptus, the calendar method, emergency contraceptive pills, contraceptive injections and IUDs, adjusted only for 18 years variables);

*** Use of traditional methods not accompanied by modern contraceptive methods;

Not evaluated at this age;

Comprise barrier contraceptive methods used concomitantly with other modern methods.

Discussion

Using a simple approach, we estimated the prevalence of contraceptive use and inequalities in modern contraceptive use among women at 15-, 18-, and 22-year follow-ups. Condoms were the most used method at the 15-year follow-up, whereas oral contraceptives, the most used at the 18- and 22-year ones. Modern contraceptive use decreased with age, mainly due to the decrease in barrier method use. Less than half of the participants reported using barrier methods concomitantly with other modern methods in their last sexual intercourse and the lowest prevalence was observed at the 22-year follow-up (19.9%). Moreover, we observed some inequalities in its use.

The prevalence of modern contraceptive use in adolescents has increased globally and appears to be the primary proximal determinant of the decline in adolescent pregnancy and birth rates [23,24]. However, countries show important differences in the prevalence of contraceptive use. In the United States, a study with data from 2014 showed that 88% of girls aged 15 to 19 years reported using contraceptive methods, 27% reported using the pill and 55%, condoms in their last sexual intercourse [25]. On the other hand, another study shows lower prevalence in data from 46 low- and middle-income countries, in which 32.4% of girls aged 15 to 19 years reported current use of contraception methods and 24.6%, modern short-term methods [26].

In Brazil, studies have showed high prevalence in the use of at least one contraceptive method. Population-based studies conducted in 2009, 2013-2014 and 2015 showed that 75%, 85.2% and 81%,

Table 5

Modern contraceptive use and barrier methods used combined with other modern contraceptive methods according to stratifiers. 1993 Pelotas birth cohort, Rio Grande do Sul State, Brazil.

Characteristic	Modern contraceptive methods use			Barrier method used combine with other modern contraceptive method		
	15 years [% (95%CI)]	18 years [% (95%CI)]	22 years [% (95%CI)]	15 years [% (95%CI)]	18 years [% (95%CI)]	22 years [% (95%CI)]
Wealth index (quintiles)						
1 (poorest)	96.3 (88.8; 98.8)	87.9 (84.0; 90.9)	79.8 (75.6; 83.5)	47.2 (34.0; 60.8)	24.9 (20.6; 29.7)	14.0 (10.9; 17.8)
2	90.6 (82.1; 95.3)	89.6 (85.3; 92.7)	81.4 (77.0; 85.1)	44.0 (30.7; 58.2)	27.0 (22.1; 32.6)	14.8 (11.5, 18.8)
3	98.2 (88.1; 99.8)	93.0 (89.3; 95.5)	83.7 (79.4; 87.3)	51.2 (36.1; 66.0)	29.8 (24.7; 35.5)	20.9 (16.9; 25.6)
4	94.5 (84.1; 98.3)	92.8 (88.8; 95.4)	87.4 (83.2; 90.7)	59 (42.7; 73.5)	31.2 (25.7; 37.2)	21.9 (17.7; 26.9)
5 (richest)	94.1 (78.4; 98.6)	92.6 (88.4; 95.4)	87.9 (83.7; 91.2)	37 (20.6; 57.2)	46.7 (40.3; 53.2)	30.2 (25.2; 35.7)
Skin color						
White	93.6 (89.1; 96.4)	92.3 (90.3; 93.9)	84.7 (82.3; 86.7)	47.8 (39.6; 56.2)	32.2 (29.1; 35.4)	21.6 (19.2; 24.2)
Black	97.6 (83.8; 99.7)	88.5 (82.8; 92.5)	80.9 (75.5; 85.4)	52.2 (31.4; 72.2)	27.9 (21.8; 35)	12.2 (8.6; 16.9)
Other	95.2 (87.8; 98.2)	88.5 (84.5; 91.6)	82.5 (78.2; 86.2)	45.3 (32.2; 59)	30.2 (25.3; 35.5)	18.3 (14.6; 22.8)
School backwardness						
No	95.6 (90.9; 97.9)	92.9 (90.7; 94.7)	87.3 (85.2; 89.1)	46.4 (37.2; 55.8)	39.1 (35.4; 42.9)	23.3 (20.9; 25.9)
Yes	93.5 (88.4; 96.5)	89.1 (86.6; 91.2)	77.0 (73.4; 80.2)	49.0 (39.5; 58.7)	23.8 (20.8; 27.0)	13.5 (11.0; 16.5)

%: prevalence; 95%CI: 95% confidence interval.

respectively, of young women used contraceptive methods [14,15,27], a prevalence similar to our findings (higher than 85% in all follow-ups). In our study, as well as in other national and international studies, oral contraceptives and condoms were the most used methods [15,25]. The strong dominance of the pill may be in part due to cultural and individual choices, but it also relates to health programs and professional preferences. Fundamental aspects of family planning services include providing counselling on all contraceptive methods without any form of coercion and providing a wide range of contraceptive methods, allowing women and couples to choose the best one for their needs and circumstances. Furthermore, as in a Finnish study, we observed a decrease in the use of modern contraceptives with age, due to a substantial reduction in the use of barrier methods [28].

When we compare women from different age groups, we should consider differences regarding attitudes and experiences. In our study, the prevalence of living with a partner increased considerably between ages 18 and 22 (from 22.8% to 45%, respectively). This could explain the substantial decrease in the use of barrier methods. With increasing age and in a more stable relationship, women tend to switch to hormonal methods [28]. A decrease in the use of condoms is expected with an increase in age. However, the importance of condoms should not be underestimated since they prevent not only unintended pregnancies but also decrease the risks of STIs, including HIV [29]. The main barrier for condom use in a stable relationship is the implied lack of trust in the partner [30]. However, infidelity may occur even after marriage [31]. There is evidence that in severe, generalised HIV epidemics, up to 20% of couples may be HIV-discordant. Despite providing information and contraceptive commodities, family planning services need to focus on men's attitude and women's empowerment regarding contraceptive choices.

To prevent pregnancies, the perfect failure rate of condoms is 2%, the typical, 15% for all age groups and may be higher among adolescents [32]. Therefore, dual contraception is recommended for a better protection against STIs and pregnancies, such as condoms in addition to a highly effective hormonal or other long-acting methods [21,22]. Despite this recommendation, studies have shown that this double contraception is largely unused. In a Finnish study with data from 2009 and 2010, only

7% of secondary school students used condoms combined with oral contraceptives in their last sexual intercourse [28]. In the United States, this prevalence was slightly higher (9.1%) among High School students in 2019 [33]. A study conducted in Canada, Israel and Europe in 2013 and 2014 showed that 20.8% of girls and boys aged 14 to 16 years used this combination of methods [34]. In comparison with these studies, our results showed higher prevalence at the 15- and 18-year follow-ups (47.7% and 31%, respectively), and similar prevalence to the study performed by Looze et al. [34] at 22 years (19.9%). Nevertheless, this coverage needs to be improved, mainly, in some specific groups.

When we considered data dependency, adjusting the prevalence of contraceptive use for the prevalence of the previous follow-up, we observed significant changes in coitus interruptus (increased at 22 years), barrier (decreased at 18 and 22 years) and hormonal methods (increased at 18 and 22 years), and no significant changes for the other estimates. These few alterations could be explained by only 216 women participating in all 3 follow-ups, resulting in low data dependency.

Adolescents, especially those from lower socioeconomic positions, still suffer from lack of access to contraceptive methods and knowledge about contraception. In Brazil, the Unified National Health System (SUS) and other public policies, such as the Family Health Strategy, are making progress in reducing health inequalities over time [35]. However, our results showed a persistent pro-rich pattern of inequality in the use of barrier methods combined with hormonal methods or IUDs/implants, finding a substantially higher prevalence among the richest quintile, especially at ages 18 and 22. Furthermore, those in school backwardness and with black skin color also showed lower coverage at 18 and 22 years. Women with less schooling may show lower access to information and health services, impacting their contraceptive use [36]. Moreover, data from a national population-based study conducted with women aged 15 to 20 years showed that those from lower economic positions and lower education levels reported more frequently the desire to leave their parents' home, to get married and to be a mother [37]. Furthermore, ethnicity is a marker of vulnerable social condition in Brazil, since black and brown people usually show lower wages, lower education levels, higher unemployment rates, lower access to health services, and worse health than white people [38,39].

In our study, less than 1% of women reported using LARCs (long-acting reversible contraceptives), a much smaller prevalence than in high-income countries [33]. LARCs are more effective in avoiding unintended pregnancies than condoms and pills, since they do not depend on adherence and correct daily use. In Brazil, pills and male condoms are the most frequently used methods. They are, however, usually associated with high discontinuation rates and, consequently, more unintended pregnancies. The offer of LARCs in the Brazilian public health system could modify the Brazilian contraceptive profile, with positive effects in decreasing the occurrence of unintended pregnancies and induced abortions [14].

Our study has some limitations. The questions used to assess contraceptive use were not standardized over the follow-ups, which may have underestimated condom use at 18 and 22 years. Non-reporting may have been associated with non-use of contraceptive methods. The possible effect of this limitation on our results is especially important in the first follow-up, due to the social pressure over sexual activity among young adolescents. Nevertheless, we used confidential questionnaries to measure contraceptive methods, which probably minimized the non-reporting bias. Furthermore, we assessed contraceptive use in their last sexual intercourse, which may not necessarily represent ongoing contraceptive practices. Summarizing contraceptive behavior may be difficult sometimes, especially among adolescents. Therefore, most of the previous studies used the same information.

Conclusions

Regular monitoring of trends in the sexual health behavior of women and its inequalities are needed to guide evidence-based intervention programs and health policies. In our study, we showed that the prevalence of contraceptive use in adolescents was high and decreased with age, mainly the use of barrier methods. Moreover, there are some differences regarding method choice and socioeconomic and demographic characteristics. Improvements in the use of condoms combined with other methods, as well as the use of LARCs in young women should be considered in future sexual and reproductive health policies in Brazil, mainly for more vulnerable groups.

Contributors

A. K. F. Machado, D. D. Gräf, F. Hellwig and P. A. Crespo contributed in the conception of the study, data analysis and interpretation, writing and critically reviewing the intellectual contents of the manuscript. F. Höfs, K. S. Barros, L. R. Moreira and M. F. Silveira contributed in the conception of the study, writing and critically reviewing the intellectual contents of the manuscript.

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Resumo

É necessário monitorar as tendências no uso de métodos contraceptivos e identificar os grupos com menor cobertura, a fim de orientar as políticas públicas e torná-las mais eficientes. Entretanto, no Brasil, são limitados os dados recentes sobre a cobertura dos métodos contraceptivos. O estudo buscou investigar a prevalência do uso de métodos contraceptivos e as desigualdades no uso durante a adolescência e início da vida adulta. Foram usados dados da coorte de nascimentos de Pelotas de 1993, Rio Grande do Sul, Brasil. Aos 15, 18 e 22 anos, respectivamente, 335, 1.458 e 1.711 mulheres informaram já terem iniciado a vida sexual e foram incluídas na análise. Foram obtidas as prevalências e intervalos de 95% de confiança para descrever os métodos contraceptivos mais utilizados. As desigualdades no uso de métodos contraceptivos modernos foram avaliadas de acordo com o índice de riqueza, atraso escolar e cor da pele. Em todos os seguimentos, mais de 80% das mulheres informavam usar pelo menos um método moderno. O uso de métodos de barreira diminuiu com a idade (prevalência de 36,3% aos 22 anos). Esse uso junto com outro método moderno era menos de 50% em todos os seguimentos. Foram observadas desigualdades no uso de métodos contraceptivos modernos, principalmente no uso de método de barreira junto com outro método moderno. Os achados podem contribuir para melhorar as políticas públicas em planejamento familiar.

Anticoncepcionais; Monitoramento das Desigualdades em Saúde; Saúde da Mulher

Resumen

Es necesario monitorizar las tendencias en el uso de métodos contraceptivos e identificar los grupos con menor cobertura, a fin de orientar las políticas públicas y hacerlas más eficientes. Sin embargo, en Brasil, son limitados los datos recientes sobre la cobertura de los métodos contraceptivos. El estudio buscó investigar la prevalencia del uso de métodos contraceptivos y las desigualdades en su uso, durante la adolescencia e inicio de la vida adulta. Se usaron datos de la cohorte de nacimientos de 1993 en Pelotas, Río Grande do Sul, Brasil. A los 15, 18 y 22 años, respectivamente, 335, 1.458 y 1.711 mujeres informaron ya haber iniciado la vida sexual y fueron incluidas en el análisis. Se obtuvieron las prevalencias e intervalos de 95% de confianza para describir los métodos contraceptivos más utilizados. Las desigualdades en el uso de métodos contraceptivos modernos fueron evaluadas de acuerdo con el índice de riqueza, atraso escolar y color de piel. En todos los seguimientos, más de un 80% de las mujeres informaban usar por lo menos un método moderno. El uso de métodos de barrera disminuía con la edad (prevalencia de 36,3% a los 22 años). Ese uso junto con otro método moderno era menos de un 50% en todos los seguimientos. Se observaron desigualdades en el uso de métodos contraceptivos modernos, principalmente en el uso del método de barrera junto a otro método moderno. Los hallazgos pueden contribuir a mejorar las políticas públicas en la planificación familiar.

Anticonceptivos; Monitoreo de las Desigualdades en Salud; Salud de la Mujer

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