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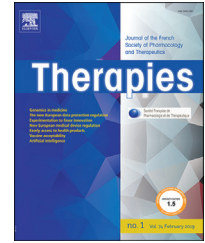


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PHARMACOEPIDEMIOLOGY

Impact of coronavirus disease 2019 on contraception use in France

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Summary To limit the spread of the coronavirus disease 2019 (COVID 19), sanitary restrictions have been established since March 2020 in France. These restrictions and the waves of contamination may have had consequences on the use of health products in general, and on the use of contraceptives in particular. We aimed to assess the impact of COVID 19 pandemic from March 16th 2020 to April 30th 2021 in France on reimbursed contraceptives. We analyzed data from the French national health insurance database (SNDS) by extracting all oral contraception (OC), emergency contraception (EC), levonorgestrel-intrauterine system (LNG-IUS), copper-intrauterine device (C-IUD) and contraceptive implant dispensations in 2018, 2019, 2020 and to April 30th 2021. We computed the expected use of contraceptives in 2020 and 2021 without pandemic and its associated sanitary restrictions, by taking the annual trend into account. We assessed the evolution of dispensations by type of contraceptive and by age-groups (≤ 25 years old, between 25 and 35 and > 35 years old) between observed and expected dispensations. After 15 months of pandemic, a decrease of all reimbursed contraceptives dispensations had been

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estimated, compared with what was expected: -2.0% for OC, -5.0% for EC, -9.5% for LNG-IUS, -8.6% for C-IUD, -16.4% for implant. Women under 25 years old were the most impacted by the decrease. This national study showed that the impact of the COVID 19 crisis was global on all reimbursed contraceptives, with different levels of impact depending on the type of contraceptive, the age-group and the severity of the restriction. OC dispensing decreased marginally compared with expectations. The decrease in long-acting contraceptives dispensing was more pronounced, especially for the implant. These results call for continued monitoring of contraceptive use over the long term and for prioritizing access to sexual health services during crises, especially among the youngest women who were most affected in this study.

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Abbreviations

ACOG	American College of Obstetricians and Gynecologists
ATC	anatomical therapeutic chemical classification
C-IUD	copper intra-uterine device
CNGOF	National College of French Gynecologists and Obstetricians
COVID 19	coronavirus disease 2019
EC	emergency contraception
LARC	long-acting reversible contraception
LPP	medical devices and services (<i>liste des produits et prestations</i>)
LNG-IUS	levonorgestrel-intrauterine system
OC	oral contraception
SNDS	French National Health Insurance Database
WHO	World Health Organization

Introduction

Worldwide, health systems have been overwhelmed by the coronavirus disease 2019 (COVID 19) pandemic, and difficulties in maintaining access to sexual and reproductive health services have been reported in both developing [1] and developed countries [2]. It has been previously documented that health crises increase gender inequalities [3]. A decline in the use of female contraception and difficulties to access to family planning centers have already been observed in previous epidemic crises such as Ebola outbreak [4] (65% decline in use in Liberia and 23% in Sierra Leone [5]). As an indirect consequence, this decline has increased the maternal and neonatal mortality [6], with a long return to normal after the crisis. Similar phenomena have been observed during the Zika epidemic [7] or during non-infectious health crises such as Hurricane Katrina [8] or the Japanese earthquakes [9].

First studies in 2020 showed a decline in contraceptive use during the COVID 19 pandemic but in small samples, as in Jordan [10]. The Guttmacher Institute has estimated that a 10% decline in contraceptive use due to limited access

during the COVID 19 pandemic would result in an increase of 15 million unintended pregnancies in a year worldwide, with an increase of more than 3 million unsafe abortions and more than 1,000 maternal deaths [11]. Moreover, the United Nations has estimated that for every 3 months of lockdown, 2 million more women worldwide will have their contraceptive needs unsatisfied [12].

Early concerns about access to contraception worldwide

The World Health Organization (WHO) recommended the continuity of sexual and reproductive health care during the pandemic as "essential health services" [13]. Yet family planning and contraceptive services were among the most frequently closed services worldwide (68% of cases) [14]. Moreover, Asian production and delivery of contraceptives (such as condoms [15], pills, and intra-uterine devices (IUD) [16]), slowed by the pandemic, was one of the primary reasons for difficulties in access to contraception for developing countries.

In France, there was no shortage of contraceptives, but it is possible that contraceptive use was affected by the epidemic because of the restrictions on travel and social life, the fear of contamination, and the impossibility of visiting a doctor because of office closures or increased appointment times.

Health restrictive measures in France

The first cases of COVID 19 in France were officially recorded on January 24, 2020. The rapid spread of the virus has led the French authorities to take exceptional health measures to prevent overcrowding in hospitals. A first lockdown was decided from March 17 to May 11, 2020 by the French government [17]. This was the longest and most restrictive lockdown of the health crisis: French people had to stay at home, schools and universities were closed, and teleworking was imposed. Only the so-called "essential" businesses (such as pharmacies) were open. The activity of hospital services was dedicated to emergencies and to the management of the epidemic, and the other care activities were

slowed down or stopped. Medical appointments were possible if they could not be rescheduled, and telemedicine consultations were encouraged.

After this first lockdown, healthcare activities outside of COVID 19 care have gradually recovered between May and October 2020. A second lockdown was then decided between October 29 and December 15, during the second wave of contamination [18]. This lockdown was less restrictive: teleworking was imposed but schools, universities and public services were open, as well as “essential” shops according to a new, broader list.

Following this second lockdown, the government imposed a curfew, first regional and then national, from 8 p.m. to 6 a.m. and then from 6 p.m. to 6 a.m., in order to limit social interaction [19].

Finally, a third and final lockdown in 2021 was decided between April 3 and May 3 [20]. All shops were open, but teleworking was again mandated and schools and universities were closed.

Professional recommendations

Policy recommendations have been developed around the world to ensure access to contraceptives during the pandemic [21]. Teleconsultation for contraceptive issues was one of the first measures recommended by the WHO and the American College of Obstetricians and Gynecologists (ACOG) [22]. Prescription recommendations have also been formalized: addition use of condom in the case of oral contraceptive use [23], preventive prescription of emergency contraceptives [22], prescriptions of oral contraceptives for at least one year, and the recommendation of a progestin-only pill prescription (which does not require in-depth clinical or pharmacological follow-up) rather than a combined one [24,25], continuing to offer long-acting reversible contraception (LARC) and postponing LARC withdrawals beyond the deadline [26,27], facilitating access to contraception at the pharmacy (“over the counter”) [28].

In France, the National College of French Gynecologists and Obstetricians (CNGOF) has also recommended telemedicine for contraception and the postponement of the withdrawal of the contraceptive implant beyond 3 years (up to 5 years) and beyond 5 years for the Mirena® (up to 7 years) [29]. The French government has also extended the legal limit for medically induced abortion at home from 7 weeks to 9 weeks of amenorrhea [30]. A decree also authorized pharmacists to refill expired prescriptions during lockdowns, without going through the prescriber [30]. The effectiveness of these recommendations has not yet been studied.

We aimed to assess the impact of the COVID 19 crisis and associated health restrictions on the use of reimbursed contraceptives in France in 2020 and through April 2021.

Methods

Data sources

This study analyzed data from the French National Health Data System (SNDS), which provides information on health insurance claims for 99.5% of the population living in France. The SNDS is regularly used for drug surveillance and

pharmacoepidemiological studies [31–34]. This database includes especially information on outpatient care and reimbursed drugs. Drugs (such as oral contraception [OC], emergency contraception [EC], levonorgestrel intra-uterine systems (LNG-IUS) and contraceptive implants) are coded according to the anatomical therapeutic chemical (ATC) classification, and medical devices (such as copper intra-uterine devices [C-IUD]) are coded according to the list of medical devices and services (*liste des produits et prestations* – LPP).

We extracted all dispensing of OC, EC, implant, C-IUD and LNG-IUS in pharmacies in 2018, 2019, 2020, and from January 1 to April 30, 2021.

Data analysis

The explanation of the method used and described hereafter is available online [35–37]. We calculated an annual trend coefficient for each contraceptive based on the use of contraceptives in 2018 and 2019. Then, expected dispensing numbers were computed per fortnight in 2020 and 2021 in the absence of the pandemic and health restrictive measures, based on the dispensing numbers observed in 2018 and 2019 and taking annual trends and public holidays into account.

For each contraceptive, expected dispensing numbers in 2020 were calculated by multiplying the dispensing numbers observed in the corresponding fortnight in 2019 and 2018 by the trend coefficient. Similarly, expected dispensing numbers in 2021 were calculated by multiplying the observed numbers in 2019 and 2018 by the double trend coefficient.

We assessed the difference between expected and observed dispensing numbers per fortnight, and the corresponding percentage changes. Finally, we calculated the percentage change between observed and expected dispensing numbers according to three age-groups (≤ 25 years old, between 25 and 35 and > 35 years old) during the follow-up period.

All analyses were performed with SAS Enterprise Guide software 7.1 (SAS Institute, Cary, NC).

Ethics

The EPI-PHARE team has permanent regulatory access to the anonymized data from the French national health data system (French decree No. 2016-1871, French law articles Art. R. 1461-13/14, French data protection authority decision CNIL-2016-316) [38]. Thus, no informed consent or specific approval by an ethics committee was required.

Results

All results are presented in details in two publications [36,37]. The main results will be described below.

Oral contraception

According to what we have already published, CO dispensing increased during the first two weeks of the 1st lockdown compared to what was expected [36] and then decreased

during the rest of the lockdown. At the end of the first lockdown, a decrease of 4.4% in CO dispensations was computed.

This same phenomenon of initial increase in consumption was also evident during the 2nd lockdown [37], with a final increase of 1.0% at the end of the 2nd lockdown.

CO dispensations decreased slightly between lockdowns compared to what was expected, with a 2.0% overall decrease at the end of the follow-up period. At the end of the follow-up period, we estimated that 317,495 OC dispensations were missed compared to what was expected.

CO dispensations for women under 25 years of age were the most impacted, with a 6.9% decrease in dispensations from what was expected after 15 months of pandemic, followed by dispensations for women aged 18–25 years (–1.2%) (Table 1).

Emergency contraception

EC dispensations declined sharply throughout the first lockdown compared to what was expected (–31.2%). Then, dispensing of EC did not increase between lockdowns in 2020. An increase in dispensing was observed compared to what was expected during the first two weeks of the 2nd lockdown in November 2020 [37], then dispensing decreased again until April 2021.

At the end of the follow-up period, a decrease of 37,884 EC dispensations (–5.0%) was estimated compared to what was expected (–10.9% for ≤ 25 years old, –15.8% for 26–35 years old, –3.5% for > 35 years old) (Table 2).

Intra-uterine contraceptives

IUD dispensations declined sharply during the first lockdown in March 2020 compared with what was expected (–60.7% for LNG-IUS, –61.6% for C-IUD).

Observed dispensations then stabilized compared with what was expected during the 2nd lockdown and in 2021. At the end of the study period, LNG-IUS and Cu-IUD dispensing declined by –9.5% and –8.6%, respectively. We estimated that 39,521 LNG-IUS and 46,244 Cu-IUD dispensations were missed after 15 months of pandemic. The largest decline in dispensing was among women under 25 years of age (–20.3% for LNG-IUDs, –17.7% for Cu-IUDs) (Table 3; Table 4).

Contraceptive implants

Like IUDs and EC, implant dispensations fell sharply during the first lockdown: –55.1% compared with expectations. But unlike the IUDs, these dispensations remained very low compared to the expected numbers in 2020 and 2021, resulting in a negative balance at the end of the follow-up period (–41,683 dispensations corresponding to a decrease of –16.4%).

This decrease was observed for all age groups: –19.7% for women under 25 years of age, –16.8% for women 26–35 years of age, and –15.5% for women over 36 years of age (Table 5).

Discussion

Health systems have been overwhelmed by the COVID 19 pandemic worldwide, leading to difficulties in maintaining routine care. In France, the use of reimbursed contraceptive has been strongly impacted, first during the first lockdown, and then in the long term in 2020 and 2021 when the health crisis persisted. The dispensing of OC, EC, LNG-IUS, C-IUD and contraceptive implants decrease with varied levels according to the type of contraceptive, the age-group of the users, and the degree of restrictions implemented to limit the spread of COVID 19.

Differences of decreases by type of contraceptives

OC dispensing decreased marginally compared with expected contraceptive use. The decrease in LARC dispensing was more pronounced, especially for the contraceptive implant.

The EPI-PHARE team has quantified and monitored the evolution of medical acts and drug use (whether or not linked to COVID 19) throughout the epidemic [36,37,39–44]. The first utilization report, released on 21 April 2020 and covering the period of the first lockdown, showed a sharp increase in the dispensing of drugs for chronic diseases during the first two weeks of the first lockdown [45]. This can be explained by the authorization of pharmacists to dispense drugs from expired prescriptions from the beginning of the first lockdown [30]. In the same way, the increase in OC dispensing at the beginning of lockdown is likely due to this exceptional authorization and to a “stockpiling behavior”.

On the other hand, the use of medicines and care requiring the intervention of a health professional, such as vaccinations and the practice of diagnostic and therapeutic procedures, fell significantly during the first lockdown. The recovery observed during 2020 and then in the first quarter of 2021 was not sufficient to compensate for the delay in drug use and care procedures expected since the start of the epidemic [40,41]. The same phenomenon has been observed in our study concerning the dispensing of LARC, yet with a difference between the three types of LARC. Compared to intrauterine contraceptive devices, a significant decrease of the dispensing of implants was observed throughout the pandemic. Implants are rarely used in France and concern mainly women under 25 years old (4.3% of all French women concerned by contraception, but 9.6% of the women aged 20–24 years old [46]). It is possible that younger women's sex lives were more affected than older women's during the lockdowns and curfews (due to the decrease of festive social interactions, closure of the universities...). This may have delayed their decision to have an implant.

In accordance with WHO recommendations, the CNGOF encouraged practitioners to use telemedicine to initiate or renew OC prescriptions, to propose LARC insertions during face-to-face consultations in the safest possible conditions, and to postpone LARC withdrawals [29]. The use of telemedicine was not well established in France before the pandemic, and was little studied. There are no French data so far concerning the acceptance of telemedicine for gynecological reasons, either for patients or for health

Table 1 Use of oral contraceptives in 2020 and 2021: observed and expected dispensations and percent changes by age-groups.

Type of contraception	Age (years)	1st lockdown (03/16– 05/11/20) W12– W19 2020	Between lockdowns (05/12– 10/29/20) W20– W43 2020	2nd lockdown (10/30– 12/15/20) W44– W51 2020	Total pandemic 2020 (03/16– 12/15/20) W12– W51 2020	Curfew 2021 (01/01– 04/02/21) W1– W12 2021	3rd lockdown (04/05– 04/30/21) W13– W16 2021	Total pandemic 2021 (01/01 – 04/30/21) W1–W16 2021	Total pandemic (03/16/20–04/30/21)	O–E
		% change	% change	% change	% change	% change	% change	% change	% change	
Oral Contraception	All	–4.4%	–3.1%	1.0%	–2.6%	–0.9%	–0.5%	–0.8%	–2.0%	–317495
	≤25	–11.5%	–7.0%	0.3%	–6.4%	–8.7%	–5.7%	–8.0%	–6.9%	–346170
	25 < age ≤35	–2.4%	–2.4%	0.2%	–1.9%	0.5%	–0.3%	0.3%	–1.2%	–43784
	>35	0.9%	–1.0%	0.7%	–0.3%	7.8%	5.9%	7.3%	1.9%	72459
% change: percent changes = (observed-expected dispensations)/expected dispensations. O–E: observed dispensations minus expected dispensations; W: weeks.										

Table 2 Use of emergency contraception in 2020 and 2021: observed and expected dispensations, percent changes.

Type of contraception	Age (years)	1st lockdown (03/16– 05/11/20) W12– W19 2020	Between lockdowns (05/12– 10/29/20) W20– W43 2020	2nd lockdown (10/30– 12/15/20) W44– W51 2020	Total pandemic 2020 (03/16– 12/15/20) W12– W51 2020	Curfew 2021 (01/01– 04/02/21) W1– W12 2021	3rd lockdown (04/05– 04/30/21) W13– W16 2021	Total pandemic 2021 (01/01– 04/30/21) W1– W16 2021	Total pandemic (03/16/20–04/30/21)	O–E
		% change	% change	% change	% change	% change	% change	% change	% change	
Emergency Contraception	All	–31.2%	–1.6%	–1.2%	–7.1%	0.2%	–1.4%	–0.2%	–5.0%	–37884
	≤25	–53.0%	–5.8%	–5.1%	–14.7%	–3.0%	–0.2%	–2.2%	–10.9%	–15646
	25 < age ≤35	–35.8%	–15.3%	–13.3%	–18.6%	–7.4%	–13.1%	–8.8%	–15.8%	–16692
	>35	–18.5%	–3.2%	–4.2%	–6.3%	4.6%	1.6%	3.8%	–3.5%	–5546
% change: percent change = (observed-expected dispensations)/expected dispensations; O–E: observed dispensations minus expected dispensations; W: weeks.										

Type of contraception	Age (years)	1st lockdown (03/16–05/11/20) W12– W19 2020	Between lockdowns (05/12–10/29/20) W20– W43 2020	2nd lockdown (10/30–12/15/20) W44– W51 2020	Total pandemic 2020 (03/16–12/15/20) W12– W51 2020	Curfew 2021 (01/01–04/02/21) W1– W12 2021	3rd lockdown (04/05–04/30/21) W13– W16 2021	Total pandemic 2021 (01/01–04/30/21) W1– W16 2021	Total pandemic (03/16/20–04/30/21)	
		% change	% change	% change	% change	% change	% change	% change	% change	O–E
LNG-IUS	All	–60.7%	–3.9%	3.0%	–14.1%	0.3%	1.9%	0.7%	–9.5%	–39,521
	≤25	–64.7%	–15.1%	–6.7%	–22.9%	–17.7%	–3.5%	–14.3%	–20.3%	–7739
	25 < age ≤35	–60.8%	–12.4%	–4.2%	–20.4%	–17.3%	–18.2%	–17.5%	–19.5%	–18,191
	>35	–61.2%	–0.6%	3.6%	–12.4%	3.3%	2.3%	3.1%	–7.7%	–13,591
% change: percent change = (observed-expected dispensations)/expected dispensations; O–E: observed dispensations minus expected dispensations; W: weeks.										

Type of contraception	Age (years)	1st lockdown (03/16–05/11/20) W12– W19 2020	Between lockdowns (05/12–10/29/20) W20– W43 2020	2nd lockdown (10/30–12/15/20) W44– W51 2020	Total pandemic (03/16–12/15/20) W12– W51 2020	Curfew 2021 (01/01–04/02/21) W1– W12 2021	3rd lockdown (04/05–04/30/21) W13– W16 2021	Total pandemic 2021 (01/01–04/30/21) W1– W16 2021	Total pandemic (03/16/20–04/30/21)	
		% change	% change	% change	% change	% change	% change	% change	% change	O–E
C-IUD	All	–61.6%	–1.1%	2.2%	–12.5%	0.2%	0.9%	0.4%	–8.6%	–46,244
	≤25	–71.1%	–10.1%	–2.2%	–20.7%	–14.6%	0.9%	–10.9%	–17.7%	–14,972
	25 < age ≤35	–60.3%	–4.8%	–2.1%	–15.3%	–10.7%	–12.0%	–11.0%	–14.0%	–25,391
	>35	–61.0%	3.5%	4.2%	–9.7%	9.2%	5.1%	8.2%	–4.3%	–5881
% change: percent change = (observed-expected dispensations)/expected dispensations; O–E: observed dispensations minus expected dispensations; W: weeks.										

Table 5 Use of contraceptive implant in 2020 and 2021: observed and expected dispensations, percent changes.

Type of contraception	Age (years)	1st lockdown (03/16– 05/11/20) W12– W19 2020	Between lockdowns (05/12– 10/29/20) W20– W43,2020	2nd lockdown (10/30– 12/15/20) W44– W51 2020	Total pandemic 2020 (03/16– 12/15/20) W12–W51 2020	Curfew 2021 (01/01– 04/02/21) W1– W12 2021	3rd lockdown (04/05– 04/30/21) W13– W16 2021	Total pandemic 2021 (01/01– 04/30/21) W1– W16 2021	Total pandemic (03/16/20–04/30/21)	
		% change	% change	% change	% change	% change	% change	% change	% change	O–E
Implant	All	–55.1%	–11.9%	–6.5%	–19.5%	–9.3%	–10.4%	–9.6%	–16.4%	–41,683
	≤25	–59.9%	–16.1%	–13.1%	–23.9%	–10.1%	–7.9%	–9.5%	–19.7%	–18,211
	25 < age ≤35	–51.5%	–12.8%	–5.8%	–19.2%	–11.4%	–11.4%	–11.4%	–16.8%	–13,541
	>35	–55.9%	–10.8%	–4.5%	–19.2%	–5.8%	–12.5%	–7.4%	–15.5%	–9931
% change: percent change = (observed-expected dispensations)/expected dispensations; O–E: observed dispensations minus expected dispensations; W: weeks.										

professionals. A review of the literature showed that teleconsultations could help with obstetric problems but not with gynecological problems [47], although there was an overall positive experience with telemedicine for contraceptive counseling during the pandemic in New York [48]. However, it is possible that teleconsultations may have exacerbated health inequalities due to unequal access to technology, especially in a context of social and health crisis [49]. Female frontline workers, for example, may not have been able to benefit from the same ease of teleconsultation as female teleworkers. Young women may also have been harmed because they may have been locked down in their parents' homes, where it was more difficult to find sufficient privacy for a contraceptive teleconsultation. The proportion of contraceptive prescriptions via teleconsultation was not quantified in this study; further studies would be needed to assess this proportion and its impact.

The issue of unwanted pregnancies

The decline in the use of EC and LARC during lockdown and overall during the 15-months pandemic, especially among younger people, may have raised concerns about an increase in unplanned pregnancies. In addition, nations other than France have described difficulties in accessing abortion [50]. In the United States, low socioeconomic women who were most affected economically by the COVID 19 crisis had the most difficulty accessing contraception, yet they are the ones most affected by unwanted pregnancies [51].

In France, the government decided to increase the legal deadline for ambulatory medical abortion (from 7 weeks of amenorrhea at the time to 9 weeks) during and after the 2020 lockdowns. In 2020, approximately 220,000 abortions were performed, which corresponds to a 4% decrease in abortion procedures compared to 2019 [52]. At the same time, the birth rate fell by 1.8% between 2020 and 2019 [53]. We can hypothesize that the decrease in EC use, without an increase in desired or unintended pregnancies, reflects a decrease in women's sexual activity during the pandemic due to decreased social interactions, rather than an unmet need of contraception. A decrease in sexuality during lockdown in Australia was already highlighted [54], as well as in Turkey [55].

The pandemic and the health restrictions may have had a significant impact on the sexuality of French women. For single women, the restriction of social life and the fear of contamination may have slowed down sexual encounters and activities. For women in heterosexual relationships and confined to their spouses, the impact is more difficult to estimate and little work has been done on the subject in France [56]. The frequency of sexual intercourse seems to have been related to the positive or negative experience of confinement in France. The stress of infection, illness, death, and economic and professional difficulties may have had a negative impact on sexual desire. Worldwide, both decreases and increases in sexual desire during confinement have been observed in different studies [57,58] making it difficult to conclude on the impact of the pandemic on sexuality. Finally, the obligation to live permanently with one's partner, the limitation of space, and the custody of children may have increased conflicts [59,60]. Violence against women, including sexual violence, increased worldwide in

2020, with an increase of more than 30% in reports of violence in France [61].

Study limitations

The SNDS database does not include information about contraceptives not reimbursed by the National Health Insurance such as condoms and third- and fourth-generation pills. Women in our study may have stopped their contraception and switched to non-reimbursed contraceptives. However, users of non-reimbursed hormonal contraceptives (pills containing 3rd and 4th generation progestin, patches, contraceptive rings) have been declining since the pill crisis and are now in a minority [62]. The proportion of sales of third- and fourth-generation oral contraceptives is in fact approximately 15% of all pills sold in 2020, compared with the proportion of 48% in 2012. The dispensing of rings and patches have fallen by 50% over the past 10 years.

Finally, some important information for the study of contraception, such as data on the sexuality, the marital status, or the desire for children of women is not recorded in the SNDS. The SNDS only reflects the dispensing of contraceptives, but does not provide information on women's contraceptive needs (and whether these needs are satisfied or not), on the indication for these contraceptives, and on patient satisfaction, which is a major factor in compliance and adherence to a long-term contraceptive. Our results must be supplemented by observational survey studies and sociological studies to provide the best possible account of contraceptives users' behaviors and needs.

In conclusion, this national study showed that the impact of the COVID 19 crisis was global on all reimbursed contraceptives. For the first time since the "pill crisis" in France in 2012–2013, oral contraception is experiencing a smaller decline than LARCs, with among them a notable decrease in implant dispensing. Further studies are needed to assess this trend after the crisis. These results call for continued monitoring of contraceptive use over the long term and for prioritizing access to sexual health services during crises, especially among the youngest women who were the most affected in this study.

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Author contributions

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Disclosure of interest

The authors declare that they have no competing interest.

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