

# Women and the COVID-19 Pandemic: Consequences of Disrupted Access to Contraception in Nigeria

Omotade Adebimpe Ijarotimi<sup>1, 2, \*</sup>, Akaninyene Esemé Ubom<sup>2</sup>, Emeka Philip Igbo-dike<sup>3</sup>, Ernest Okechuwu Orji<sup>1, 2</sup>

<sup>1</sup>Department of Obstetrics, Gynaecology, and Perinatology, Faculty of Clinical Sciences, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria

<sup>2</sup>Department of Obstetrics, Gynaecology, and Perinatology, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria

<sup>3</sup>Georges Memorial Medical Centre, Lekki Phase I, Lagos, Nigeria

## Email address:

[oijarotimi@cartafrica.org](mailto:oijarotimi@cartafrica.org) (O. A. Ijarotimi), [bedom2001@yahoo.com](mailto:bedom2001@yahoo.com) (A. E. Ubom), [dr.igbodike@gmail.com](mailto:dr.igbodike@gmail.com) (E. P. Igbo-dike),

[oorji11@yahoo.com](mailto:oorji11@yahoo.com) (E. O. Orji)

\*Corresponding author

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**Abstract:** The COVID-19 pandemic has disrupted access to sexual and reproductive health services, including family planning, globally. This study sought to assess the effect of the COVID-19 pandemic on access to contraception amongst reproductive age women in Nigeria, and make recommendations that will improve access. A cross-sectional survey of sexually active, reproductive age women on modern methods of contraception was conducted in Nigeria. A structured questionnaire designed using the free software Google Forms<sup>®</sup> was utilised for the study. The questionnaire was electronically administered. The data obtained was analysed using SPSS version 24. Ethical approval for this study was obtained from the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria. One-fourth (73, 24.7%) of the respondents reported difficult access to contraception, citing fear of COVID-19 exposure at the health facility (21, 28.8%) as the most common reason for this difficulty. Forced abstinence from sexual intercourse (28, 38.4%) and unintended pregnancy (21, 28.8%) were the most common consequences of impeded contraceptive access. Women using short-acting methods were significantly more likely than those on long-acting reversible contraception (LARC) to report difficult access to contraception (35.1% vs. 14.6%,  $P=0.001$ ). The COVID-19 pandemic has disrupted access to contraception in Nigeria, affecting more women on short acting methods than those on LARC, with the potential of increasing unintended pregnancy and abortion rates.

**Keywords:** Access, Contraception, COVID-19, Family Planning, Nigeria, Women's Health

## 1. Introduction

The coronavirus disease 2019 (COVID-19), which emerged in Wuhan, China, in late December 2019, and declared a pandemic by the World Health Organization (WHO) on 11 March 2020, presently affects 225 countries and territories worldwide, with more than 135 million cases and 2 million related deaths [1]. Lockdowns, social distancing, quarantine, and recently, the COVID-19 vaccines, constitute disease containment measures instituted globally to mitigate the spread of the virus. In Nigeria, there was a total

lockdown between 30 March and 27 April 2020, when the total lockdown was eased, to allow for minimal essential activities. The country continued to be under partial lockdown until January 2021 [2, 3].

In many countries, including Nigeria, disease containment measures had necessitated the closure of outpatient clinics, as well as cancellation/postponement of elective operations and other hospital services, including family planning services, not considered essential, with the aim of mitigating in-hospital transmission of the virus, preserve scarce personal protective equipment, and make hospital beds and wards available to

accommodate the rising number of COVID-19 cases [2, 4]. With more than 135 million COVID-19 cases recorded worldwide, the global health care focus is currently on mitigating further spread of the virus and development of novel treatments and vaccines [5]. This has significantly distracted attention from, and deprioritized other essential health care services including contraception [5]. Besides, lockdowns and movement restrictions delayed the transportation of contraceptives, thereby adversely affecting their supply chain [6]. Disruptions in sexual and reproductive health services, especially family planning, at a time when people are likely to be more sexually active, has major implications and consequences, especially in developing countries, including sub-Saharan Africa (SSA), with high unmet need for contraception and unintended pregnancy rate even before the pandemic [6, 7].

The United Nations Population Fund predicted that 7 million unplanned pregnancies could result from the inability of women to access contraception during the pandemic [8]. Riley et al estimated that a 10% decline in contraceptive use, following disruption of access to sexual and reproductive health services, occasioned by the COVID-19 pandemic, would increase the number of women with unmet need for contraception and unintended pregnancies by 49 million and 15 million, respectively, in one year [6]. Marie Stopes International equally projected that closure of their services in the 37 countries where they operate, would prevent 9.5 million females from accessing family planning and safe abortion services in 2000, potentially resulting in 2.7 million unsafe abortions and 11,000 pregnancy-related deaths [9].

Nigeria, like most SSA countries, currently has a very low contraceptive prevalence rate (CPR) of 17%, a high fertility rate of 5.3, with an estimated 19% contribution to the global burden of maternal deaths [10, 11]. With further disruption of access to contraception due to the COVID-19 pandemic, rates of unintended pregnancies, unsafe abortions, and maternal deaths would potentially increase exponentially.

There is therefore, an urgent need to evaluate the effects of the COVID-19 pandemic on access to contraception in Nigeria, with a view to focusing attention on the problem and making recommendations that will mitigate the disruptive effects of the COVID-19 pandemic on reproductive health services. It is expected that findings from this study will inform guidelines that will improve access to contraception during the present and future public health emergency situations. Recommendations based on the findings from this study can also help to improve the CPR in Nigeria, thereby contributing to efforts targeted at reducing maternal mortality and achieving the sustainable development goals (SDGs), as family planning is central to the actualization of SDGs 1, 2, 3 and 5 [12].

## 2. Materials and Methods

### 2.1. Study Design

A cross-sectional descriptive survey of sexually active, reproductive age women on modern methods of

contraception was conducted in Nigeria, between 27 February 2021 and 15 April 2021.

### 2.2. Sample Size Determination

The study sample size was calculated using the formula for calculating single proportion:  $n = z^2 \times pq / e^2$ , where  $n$ =minimum sample size,  $z$ =standard normal variate, which is 1.96 for a confidence level of 95%,  $p$ =contraceptive prevalence (of 17%, 0.17) from the 2018 Nigeria Demographic and Health Survey (NDHS) [10],  $q=1-p$ ,  $e$ =margin of error, which is 0.05 at 95% confidence level.

$n = 1.96^2 \times 0.17 \times (1-0.17) / 0.05^2 = 216.82 \approx 217$ . Allowing for 10% attrition rate, and adjusting for level of education and geopolitical zone of residence as possible confounders, at 10% each, the calculated minimum sample size was 282.1, rounded up to 290.

### 2.3. Inclusion Criteria

All sexually active women, aged 18-49 years, on modern methods of contraception, resident in Nigeria, with access to, and ability to use a smartphone or computer and the internet.

### 2.4. Exclusion Criteria

All women who met the inclusion criteria but failed to consent to participate in the study, were excluded.

### 2.5. Study Instrument

Data was collected using a 19-item study-specific electronic structured questionnaire designed using the free software Google Forms®. Most of the items were multiple-choice questions, while a couple were open-ended. The questionnaire gathered information on socio-demographic characteristics, difficulty experienced in accessing contraception services, current/alternative/back-up contraceptive methods used during the pandemic, and consequences of difficulty in accessing preferred contraceptive methods.

The questionnaire was electronically distributed to respondents via emails, and social media platforms including WhatsApp, Telegram and Facebook messenger. Reminders were sent to non-responders a week after. To optimize survey integrity, the online survey platform was structured to permit only one response per respondent.

### 2.6. Data Analysis

Independent variables included age, parity, level of education, marital status, and geopolitical zone of residence. Dependent or outcome variables were current modern contraceptive use, access to modern contraception, alternative measures employed, and effects of lack of access to modern contraception. Data obtained was analysed using the Statistical Package for the Social Sciences (SPSS), version 24. Calculated frequencies and percentages were presented in tables, and associations between categorical independent variables and outcome variables compared

where applicable, using chi-square with level of significance set at  $<0.05$ .

## 2.7. Ethics

Participants were informed in the questionnaire that their participation was voluntary, and that they reserved the right to decline filling of the questionnaire. No incentive was offered for participation. The questionnaire was anonymous, with no personal identifying information. Consent to participate in the study was implied by clicking on the agree button, completing the questionnaire and submitting the survey responses. Ethical approval for this study (HREC NO: IPH/OAU/12/1597) was obtained from the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.

## 3. Results

The total number of study participants was 324. Of these, 296 questionnaires were found suitable for analysis based on the inclusion criteria.

The age range of the respondents was between 20 years and 48 years, with a modal age of 30 years (29, 9.8%) and mean age of  $33.36 \pm 5.35$  years. Most of them were married (255, 86.1%), with tertiary level of education (243, 82.1%), and belonged to the high socioeconomic class (234, 79.1%). Majority (183, 61.8%) of the women resided in South-West Nigeria, while the least number lived in the North-West (4, 1.4%), as can be seen in Table 1.

**Table 1.** Sociodemographic characteristics of the study respondents.

Characteristics	Frequency, n=296	Percentage (%)
Age (years)		
20-29	69	23.3
30-39	188	63.5
40-49	39	13.2
Marital status		
Married	255	86.1
Single	38	12.8
Divorced	1	0.3
Separated	2	0.7
Highest level of education		
Primary	8	2.7
Secondary	45	15.2
Tertiary	243	82.1
Socioeconomic status		
High	234	79.1
Middle	38	12.8
Low	24	8.1
Geopolitical zone of residence		
North-East	13	4.4
North-West	4	1.4
North-Central	16	5.4
South-East	29	9.8
South-West	183	61.8
South-South	51	17.2
Total	296	100

The respondents had a modal parity of 2 (102, 34.5%). A third (99, 33.4%) had had a miscarriage. An overwhelming

majority (282, 95.3%) of the respondents had one sexual partner, as reflected in Table 2.

**Table 2.** Reproductive and sexual characteristics of the study respondents.

Characteristics	Frequency, n=296	Percentage (%)
Gravidity		
0	33	11.1
1-2	98	33.1
3-4	116	39.2
$\geq 5$	49	16.6
Parity		
0	49	16.6
1-2	137	46.3
3-4	101	34.1
$\geq 5$	9	3.0
Number of miscarriages		
0	197	66.6
1-2	80	27.0
3-4	17	5.7
$\geq 5$	2	0.7
Number of sexual partners		
1	282	95.3
2	6	2.0
3	1	0.3
Unspecified	7	2.4
Total	296	100

The most common method of contraception used by the women was barrier method (male/female condoms) (111, 37.5%). This was also the most popular method amongst unmarried women (25, 61%). Nearly two-third (171, 57.8%) of the respondents used long-acting reversible contraceptives (LARCs) (implants, intrauterine contraceptive devices, and injectables), which were also the most commonly used methods amongst married women (163, 63.9%). Of the LARCs, intrauterine devices (IUDs) (73, 24.7%) and implants (71, 24.0%) were more commonly used than injectables (27, 9.1%). Only one respondent had tubal sterilization. Amongst those who used barrier methods, one-third (36, 32.4%), also used another contraceptive method (Dual contraception/Double Dutch). The contraceptive choices of the respondents are as shown in Table 3.

**Table 3.** Contraceptive choices of the study respondents.

Type of contraceptive	Frequency, n=296 <sup>a</sup>	Percentage (%)
Barrier methods	111	37.5
IUDs	73	24.7
Implants	71	24.0
Emergency contraception	44	14.9
Injectables	27	9.1
Pills	16	5.4
Transdermal patch	3	1.0
Tubal sterilization	1	0.3

<sup>a</sup>Many respondents reported using more than one contraceptive method, hence, the total number of responses  $> 296$

One-fourth (73, 24.7%) of the women reported difficulty accessing their preferred contraceptive during the COVID-19 pandemic, citing fear of contracting COVID-19 at the health facility (21, 28.8%) as the most common reason for this difficulty. Women in Northern Nigeria were significantly more likely than those in the South to report difficult access

to contraception (42.4% vs. 22.4%;  $P=0.037$ ). Also, unmarried women were significantly more likely than married women to have impeded access to contraception (48.8% vs. 20.8%;  $P=0.01$ ). Furthermore, women using LARC were significantly less likely than those using short acting methods to have difficulty accessing their preferred contraceptive (14.6% vs. 35.1%;  $P<0.001$ ). Of respondents who reported disrupted access to contraception, forced abstinence from sexual intercourse (28, 38.4%) and unplanned/unwanted pregnancy (21, 28.8%) were the most

common consequences. Amongst those who reported unplanned/unwanted pregnancy, almost two-thirds (13, 61.9%) had had an abortion. Women who had had an abortion were significantly more likely than those who had not had an abortion to report difficulty accessing contraception (31.3% vs. 21.3%;  $P=0.009$ ). More than one-fifth (17, 23.3%) of the respondents reported psychological consequences of impeded access to contraception, including emotional distress and depression/anxiety. These findings are summarized in Tables 4 and 5.

**Table 4.** Consequences of disrupted access to contraception during the COVID-19 pandemic.

Characteristics	Frequency, $n=296$	Percentage (%)
Has it been difficult getting your preferred contraceptive during the COVID-19 pandemic?		
Yes	73	24.7
No	223	75.3
If Yes, how difficult? ( $n=73$ )		
Somewhat	35	47.9
Very	38	52.1
What difficulty have you experienced? ( $n=73$ )		
Fear of contracting COVID-19 at the health facility	21	28.8
Getting to the health facility/pharmacy/drug shop	19	26.0
Unavailability of the preferred contraceptive	9	12.3
Closure of the health facility/pharmacy/drug shop	7	9.6
Lack of money to procure contraceptive/pay for transportation to the health facility/pharmacy/drug shop	3	4.1
Unspecified	14	19.2
In case of difficulty accessing your preferred contraceptive, do you use a backup/alternative contraceptive? ( $n=73$ )		
Yes	41	56.2
No	32	43.8
Consequences of disrupted access to contraception during the COVID-19 pandemic ( $n=73$ ) <sup>a</sup>		
Forced abstinence from sexual intercourse	28	38.4
Unplanned/unwanted pregnancy	21	28.8
Forced to use a less effective contraceptive to prevent pregnancy	18	24.7
Emotional distress	10	13.7
Depression/anxiety	7	9.6
Relationship disharmony	4	5.5

<sup>a</sup>Multiple consequences reported by some respondents, hence total responses > 73.

**Table 5.** Relationship between sociodemographic characteristics, type of contraceptive, previous abortion and difficult access to contraception

Characteristics	Difficult access to contraception		P value
	Yes	No	
Geopolitical zone of residence			
North	14 (42.4%)	19 (57.6%)	0.037
South	59 (22.4%)	204 (77.6%)	
Marital status			
Unmarried	20 (48.8%)	21 (51.2%)	0.01
Married	53 (20.8%)	202 (79.2%)	
Type of contraceptive			
LARC	25 (14.6%)	146 (85.4%)	<0.001
Short acting methods	61 (35.1%)	113 (64.9%)	
Previous abortion			
Yes	31 (31.3%)	68 (68.7%)	0.009
No	42 (21.3%)	155 (78.7%)	

## 4. Discussion

The predominantly young, married, educated, and high socioeconomic demographics of our study respondents has been corroborated by other studies in Nigeria [10, 13, 14]. The 2018 NDHS found that use of contraception was highest

in South-West Nigeria and lowest in the North-West [10]. This was also the finding in our study. Sociodemographic/economic, ideational, cultural and religious factors are responsible for the disparity in contraceptive use between Northern and Southern Nigeria [15]. Poverty and lower levels of formal education, both associated with low uptake of contraception, are predominant

in Northern Nigeria [15]. More so, in the predominantly Muslim Northern Nigeria, widespread pronatalism, fuelled by polygamy, which the religion and culture permit, encourage high fertility rates and low contraceptive use [15, 16]. Moreover, the religious practice of *purdah* in Northern Nigeria, which secludes and isolates women, impedes their access to reproductive health services, including family planning [15].

Barrier method was the most common contraceptive method in our study, similar to the findings of Onwujekwe et al and the 2018 NDHS [10, 14]. This is not unconnected with the fact that more than 70% of condoms are accessed over-the-counter in Nigeria [17, 18]. Condoms are also extensively marketed for the prevention of human immunodeficiency virus (HIV) and other sexually transmitted diseases, hence the increased public awareness and use of condoms [17].

Only a fourth of our study participants reported difficulty accessing contraception during the COVID-19 pandemic. This may not be unconnected with the fact that nearly two-third of them were using LARC, and our study found that women who were using short acting reversible contraceptives were more than two times more likely than those on LARC to suffer disruption in access to contraception during the COVID-19 pandemic. This also possibly explains why more unmarried than married women in our study reported difficult access to contraception. From our study, unmarried women most commonly used barrier methods, whereas LARCs were more popular amongst married women, a corroboration of the 2018 NDHS findings [10].

Long-acting reversible methods have the advantage of providing long lasting effective contraception. Implants and IUDs, which were the more common LARC used by our study respondents, are effective for at least three years and up to 10 years, and therefore require less frequent hospital visits for renewal [13]. This possibly explains why most of our respondents, the bulk of whom were using LARC, did not report impaired access to contraception during the pandemic, more so, as those who suffered disruptions in contraceptive access cited fear of contracting COVID-19 at the health facility as the most common reason for these disruptions. Reluctance to visit health facilities due to fear of COVID-19 exposure has negatively impacted women's access to, and continuation of contraception during the pandemic [8].

Compulsion to abstain from sexual intercourse and unplanned/unwanted pregnancy were the most common consequences of impaired access to contraception in our study. Sixty percent of unplanned pregnancies occur amongst women who are not on any form of modern contraception [14]. Many unplanned pregnancies in Nigeria are aborted [19]. This was corroborated by our study findings, which indicated that more than 60% of women who reported unplanned/unwanted pregnancy had had an abortion. Given the restrictive abortion laws in Nigeria, many abortions are unsafe, accounting for 20-40% of maternal deaths in Nigeria [20]. Furthermore, from the findings of our study, women who had had an abortion were

significantly more likely than those who had never had an abortion to report difficult access to contraception. The implication of these findings is that reduction in access to contraception due to the COVID-19 crisis would potentially increase the already high unmet need for contraception, rates of unintended pregnancies, unsafe abortions and maternal deaths in Nigeria, further worsening her already poor reproductive health outcomes and indices.

## 5. Conclusion/Recommendations

The COVID-19 pandemic has disrupted access to contraception in Nigeria, with unplanned/unwanted pregnancies being amongst the most common consequences. Women on LARC are less likely than those on short acting reversible contraceptives to suffer an impediment in access to contraception, given the long-term efficacy of the former, and hence, less need to visit health facilities (which were mostly shutdown, in line with lockdown and social distancing measures to curb the spread of COVID-19) for renewal. Based on the findings of this study, it is the recommendation of the authors that contraception services should be included among essential services during pandemics/emergency situations. This will help to prioritize access to these services, because the freedom to make informed decisions about whether and when to have children does not end in a time of crisis [21]. Women should also be encouraged to adopt LARCs during this pandemic. Current users of IUDs and implants should be counselled and reassured that these methods remain effective for 1-2 years after their licenced durations [22]. Those on injectables should be encouraged to use self-administered subcutaneous formulations. These are important given the fact that most of our study respondents cited fear of COVID-19 exposure at health facilities as the reason for the disruption in their access to contraception during the pandemic. In line with this, and in consonance with social distancing, telephone and online prescriptions of emergency contraception, pills, patches, and vaginal rings would significantly improve access to these contraceptives. Prescription of pills for extended durations (6-12 months) is also advised. Where women are unable to access their preferred contraceptive, use of effective alternative/back up methods should be encouraged.

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## References

- [1] Africa Centre for Disease Control. Outbreak Brief 65: COVID-19 Pandemic. 2021. [www.africacdc.org](http://www.africacdc.org). Accessed 15 April 2021.
- [2] Adesunkanmi AO, Ubom AE, Olasehinde O, Wuraola FO, Ijarotimi OA, Okon NE, et al. Impact of the COVID-19 Pandemic on Surgical Residency Training: Perspective from a Low-Middle Income Country. *World J Surg*. 2020; 45 (1): 10-17.
- [3] Premium Times. COVID-19: Schools to remain closed until January 18 – Nigerian govt. 22 December 2020. Accessed 15 April 2021.
- [4] Negopdiev D, Collaborative C, Hoste E. Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans. *Br J Surg*. 2020; 107 (11): 1440-9.
- [5] Aly J, Haeger KO, Christy A, Johnson AM. Contraception access during the COVID-19 pandemic. *Contracept Reprod Med*. 2020; 5: 17. <https://doi.org/10.1186/s40834-020-00114-9>.
- [6] Riley T, Sully E, Ahmed Z, Biddlecom A. Estimates of the potential impact of the COVID-19 pandemic on sexual and reproductive health in low-and middle-income countries. *Int Perspect Sex Reprod Health* 2020; 46: 73-6.
- [7] Yuksel B, Ozgor F. Effect of the COVID-19 pandemic on female sexual behaviour. *Int J Gynecol Obstet*. 2020; 150 (1): 98-102.
- [8] Impact of the COVID-19 pandemic on family planning and ending gender-based violence, female genital mutilation and child marriage. In: Interim Technical Note. New York: United Nations Population Fund; 2020. p. 1-7.
- [9] Cousins S. COVID-19 has “devastating” effect on women and girls. *The Lancet* 2020; 396 (10247): 301-2.
- [10] National Population Commission [Nigeria] and ICF International. Nigeria Demographic and Health Survey 2018. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.
- [11] World Health Organization. Trends in maternal mortality: 1990-2015: estimates from WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. World Health Organization; 2015.
- [12] Assembly G. United Nations: Transforming our world: The 2030 agenda for sustainable development. UN: New York, NY, USA. 2015.
- [13] Bolarinwa OA, Olagunju OS. Knowledge and factors influencing long-acting reversible contraceptives use among women of reproductive age in Nigeria. *Gates Open Res*. 2019; 3.
- [14] Onwujekwe OE, Enemuoh JC, Ogbonna C, Mbachu C, Uzochukwu BS, Lawson A, Ndyabangi B. Are modern contraceptives acceptable to people and where do they source them from across Nigeria?. *BMC Int Health Hum Rights* 2013; 13 (1): 1-0.
- [15] Babalola S, Oyenubi O. Factors explaining the North-South differentials in contraceptive use in Nigeria: A nonlinear decomposition analysis. *Demogr Res*. 2018; 38: 287-308.
- [16] Baschieri A, Cleland J, Floyd S, Dube A, Msona, A, Molesworth A, et al. Reproductive preferences and contraceptive use: A comparison of monogamous and polygamous couples in northern Malawi. *J Biosoc Sci*. 2013; 45 (2): 145.
- [17] Monjok E, Smesny A, Ekabua JE, Essien EJ. Contraceptive practices in Nigeria: Literature review and recommendation for future policy decisions. *Open Access J Contracept*. 2010; 1: 9-22.
- [18] National Population Commission (NPC) [Nigeria] and ICF International. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International 2014.
- [19] Otoide VO, Oronsaye F, Okonofua FE. Why Nigerian adolescents seek abortion rather than contraception: Evidence from focus-group discussions. *Int Fam Plan Perspect*. 2001; 27 (2): 77–81.
- [20] Abiodun OM, Balogun OR. Sexual activity and contraceptive use among young female students of tertiary educational institution in Ilorin, Nigeria. *Contraception* 2009; 79: 146–149. q.
- [21] World Health Organization. Coronavirus disease (COVID-19): Contraception and family planning [Internet]. Q and A. 2020. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-COVID-19-contraception-and-family-planning>. Accessed 21 April 2021.
- [22] Ferreira-Filho ES, de Melo NR, Sorpreso IC, Bahamondes L, Simões RD, Soares-Júnior JM, Baracat EC. Contraception and reproductive planning during the COVID-19 pandemic. *Expert Rev Clin Pharmacol*. 2020; 13 (6): 615-22.