

# Self-reported contraceptive method use at conception among patients presenting for abortion in England: a cross-sectional analysis comparing 2018 and 2023

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## ABSTRACT

**Background** Recent media attention has been given to an apparent shift away from hormonal methods of contraception. While an increase in fertility awareness-based or ‘natural’ family planning methods is reported in the grey literature, there are no robust data to determine any such trend in the UK.

**Methods** We compared self-reported contraceptive use at conception among patients presenting for abortion at British Pregnancy Advisory Service from January to June 2018 (N=33 495) and January to June 2023 (N=55 055) using chi-square ( $\chi^2$ ) tests of association.

**Results** Reported use of fertility awareness-based methods of contraception around the time of conception increased from 0.4% in 2018 to 2.5% in 2023 ( $p<0.001$ ). In contrast, use of hormonal methods of contraception decreased from 18.8% in 2018 to 11.3% in 2023 ( $p<0.001$ ) and use of long-acting reversible contraception fell from 3% to 0.6% ( $p<0.001$ ). Those reporting using no contraception at the time of conception significantly increased by 14% ( $p<0.001$ ) when comparing data from 2018 (55.8%) with data from 2023 (69.6%).

**Conclusions** Significantly fewer abortion patients report using effective methods of contraception around conception while also reporting an increased use of fertility awareness-based methods. Further research is needed to understand the reasons for this change.

## INTRODUCTION

Contraception users worldwide appear to be increasingly hesitant to use hormonal methods. In 2010, around half the female population of reproductive age in the UK were taking the combined oral

## WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Contraceptive users in the UK appear hesitant to use hormonal methods.
- ⇒ Qualitative data demonstrate an increasing trend towards fertility awareness-based methods of contraception, in particular, mobile phone fertility tracking apps.

## WHAT THIS STUDY ADDS

- ⇒ We found a shift in contraception use from more reliable hormonal methods of contraception to less reliable fertility awareness-based methods of contraception among abortion patients in England and Wales in 2018 and 2023.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ The decline in use of effective contraception and increase in abortion rates have wider implications for healthcare services. While further research is required to investigate the underlying driving forces of this shift, in the interim, investment will be needed for accessible abortion and contraception services to meet demand.



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contraceptive pill (COCP).<sup>1</sup> After this point, use began to decline, with rates dropping from 26% to 14% between 2000 and 2018.<sup>2</sup> Largely anecdotal and some qualitative data suggest that younger women are turning towards more ‘natural’ methods of contraception including withdrawal and the use of mobile phone apps

(so-called ‘period tracking apps’) to facilitate use of the calendar method and track fertility, hereafter referred to as fertility awareness-based methods (FABM).<sup>3–6</sup> Hormone hesitancy attributed to the influence of social media has been reported in other European countries.<sup>7 8</sup>

In the same period, statistics from Great Britain demonstrate a trend of increasing abortion rates across all ethnicities, levels of deprivation and age groups.<sup>9 10</sup> The reasons for this are likely multifactorial. However, greater use of less-effective methods could lead to a higher rate of unintended pregnancy and demand for abortion. The typical use failure rate for FABM ranges from 2 to 23 in 100 in the first year of use compared with 7 in 100 for combined hormonal methods and less than 1 in 100 for intrauterine contraception.<sup>11</sup>

We aimed to investigate whether there has been a change in the contraceptive methods used around the time of conception among patients seeking abortion in England and Wales in 2018 (period 1) and 2023 (period 2). We also sought to compare the prevalence of FABM as compared with hormonal and other contraceptives between these time periods.

## METHODS

British Pregnancy Advisory Service (BPAS) is an independent healthcare charity that provides medical and surgical abortion through a network of clinics and telemedicine hubs in England and Wales. In addition to abortion, BPAS provides pre- and post-abortion counselling, pregnancy testing, screening and treatment for sexually transmitted infections, contraception and vasectomy services. Almost all of BPAS’s services are delivered under contract to the National Health Service (NHS).

At BPAS, consultations for abortion are carried out by nurses or midwives. Contraception is routinely discussed including the method used at the time of conception. In 2018, the method used at conception was documented by the healthcare practitioner during the consultation, which was usually in person. By 2023, most consultations were conducted by telephone. The contraception used at conception was recorded by a non-clinical appointment advisor during booking or self-reported by the patient on an online booking form and confirmed by the healthcare practitioner during consultation.

### Statistical analysis

We grouped contraceptive methods into FABM, hormonal contraceptive methods, long-acting reversible contraception (LARC), other methods, and no method or unsure as shown in [table 1](#).

We used a cross-sectional design to compare contraceptive method use at conception in two time periods – Period 1: 1 January to 30 June 2018 and Period 2: 1 January to 30 June 2023. These time periods were chosen as a 5-year interval with the most recent

**Table 1** Groupings of methods of contraception

Category	Inclusion and exclusion groups
FABM	FABM are defined by BPAS as recording menstrual cycles, body temperature, vaginal secretions, and may use fertility prediction devices; withdrawal method or lactational amenorrhoea are not included
Hormonal contraception	Combined oral contraceptive pill, progestogen-only pill, emergency hormonal contraception, patch, vaginal ring
LARC	Intrauterine contraception, intrauterine device, intrauterine system, injectable
Other	Condoms (male and female), diaphragm, vasectomy, sterilisation (female), other method not specified
None	No method reported or unsure if any method being used

BPAS, British Pregnancy Advisory Service; FABM, fertility awareness-based methods; LARC, long-acting reversible contraception.

complete data set available for a 6-month period and a time point prior to 2020 to reduce confounding by the COVID-19 pandemic.

We compared data with means and parametric tests where normally distributed. We undertook statistical analysis using Microsoft Office Excel 2007. We present categorical data in frequency and percentage tables with p-values derived from chi-square ( $\chi^2$ ) tests of association.

### Patient and public involvement statement

We developed this study in collaboration with the third sector, Scottish Government and the NHS. The research question was influenced by The Young Women’s Movement. We did not involve patients directly in the design of the study since it simply comprises data analysis.

## RESULTS

### Descriptive statistics

Period 1 comprised 33 495 patients and Period 2 included 55 055 patients. There were no data exclusions. Demographic variables, abortion method and gestation at the time of treatment are shown in [table 2](#). The age of presentation for abortion at BPAS increased between Period 1 and Period 2, with fewer patients aged  $\leq 25$  years in 2023 ( $p < 0.01$ ). The proportion of patients reporting that they had no history of a prior abortion decreased from 62% in Period 1 to 59% in Period 2 ( $p < 0.01$ ). The proportion of those from ethnic minority backgrounds compared with those reporting White ethnicity increased between Period 1 and Period 2 ( $p < 0.01$ ). The proportion of medical abortions in Period 2 is significantly greater than the proportion of medical abortions performed in Period 1 ( $p < 0.01$ ). There was a statistically significant difference in the gestation at time of abortion, with the proportion of those patients under 7 weeks’ gestation being significantly higher in Period 2 compared with Period 1 ( $p < 0.01$ ).

**Table 2** Demographic and other characteristics of abortion patients at British Pregnancy Advisory Service from January–June 2018 (Period 1) and January–June 2023 (Period 2)

Characteristic	Period 1: January–June 2018 (N=33 495)		Period 2: January–June 2023 (N=55 055)	
	n	%	n	%
Age (years)				
≤25	15 272	45.6	22 817	41.4
26–35	13 775	41.1	24 283	44.1
>35	4448	13.3	7955	14.4
Previous abortions				
None	20 818	62.2	32 245	58.6
One or more	12 677	37.8	22 810	41.4
Ethnicity				
White	26 425	78.9	40 556	73.7
Black	1951	5.8	3931	7.1
Asian	2514	7.5	5758	10.5
Mixed	1343	4.0	3041	5.5
Other	808	2.4	1052	1.9
Not recorded	454	1.4	717	1.3
Type of abortion				
Medical	23 127	69.0	47 144	85.6
Surgical	10 368	31.0	7911	14.4
Gestation (weeks)				
≤7	11 916	35.6	32 715	59.4
8–12	17 486	52.2	18 238	33.1
13–17	2753	8.2	2900	5.3
17+	1340	4	1202	2.2
Total	33 495	100.0	55 055	100.0

**Table 3** shows the contraceptive method use reported at the time of conception. The percentage of patients reporting use of a FABM increased from 0.4% in period 1 to 2.5% in period 2 ( $p<0.001$ ). The use of hormonal contraceptive methods decreased from 18.8% in period 1 to 11.3% in period 2 ( $p<0.001$ ) as did LARC from 3% to 0.6% ( $p<0.001$ ). The percentage of patients reporting using no contraception at the time of conception increased by 14% when

comparing those presenting for abortion in period 1 (55.8%) with those presenting in period 2 (69.6%) ( $p<0.001$ ). The age of patients reporting use of FABM at time of conception decreased from 29.8 years in period 1 to 27.4 years in period 2 ( $p<0.01$ ).

## DISCUSSION

Among patients presenting for abortion at BPAS in period 2 compared with period 1 we found a significant reduction in the reported use of hormonal methods of contraception and an increase in the number reporting FABM. In addition, we found a significant increase in the number of individuals reporting no method of contraception at time of conception. This requires further investigation as FABM are less efficacious at preventing unintended pregnancies compared with LARC and hormonal methods.<sup>12</sup>

Recent research has suggested a move away from hormonal methods of contraception due to a preference for more natural methods and in particular hesitancy around hormonal methods.<sup>3 4 13</sup> Traditional FABM encompass a wide variety of techniques with varying degrees of efficacy.<sup>14</sup> Within the umbrella of FABM are mobile phone apps, where an algorithm is used to combine an individual's calendar tracking of menstrual cycles and their daily body temperature to predict fertile days. Under the same umbrella are period tracker apps that only use calendar tracking of menstrual cycles to predict ovulation. The accuracy of these apps in predicting the window of fertility has been reported as low as 21%<sup>15</sup> and in some cases as low as 8%,<sup>16</sup> which is not in keeping with the failure rates of 8.3% reported.<sup>12</sup>

The shift in preference towards FABM is coupled with reported increases in difficulty in accessing the more effective methods of contraception following the COVID-19 pandemic due to workforce changes and a reduction in primary care and sexual healthcare capabilities.<sup>4 17–19</sup> This is particularly true for younger cohorts.<sup>4 20–23</sup> Prescribing data demonstrate the shift from pre-pandemic provision of LARC in primary care to the post-pandemic service now primarily driven by already stretched sexual health clinics.<sup>24</sup> Survey data demonstrate difficulty in accessing prescribed methods of contraception during and following the COVID-19 pandemic. The amalgamation of a shift in attitudes and difficulty in accessing certain methods have

**Table 3** Method of contraception around time of conception in period 1 and period 2

Contraception method	Period 1: January–June 2018 (N=33 495)		Period 2: January–June 2023 (N=55 055)		P-value
	n	%	n	%	
Fertility awareness-based methods	129	0.4	1364	2.5	<0.001
Hormonal contraceptive methods	6289	18.8	6215	11.3	<0.001
Long-acting reversible contraception	1008	3.0	315	0.6	<0.001
Other method	7366	22.0	8825	16.0	<0.001
No method	18 703	55.8	38 336	69.6	<0.001
Total	33 495	100.0	55 055	100.0	

led to increasing use of less reliable methods, which in turn has a potential to increase unintended pregnancies.<sup>25</sup>

While the rise in abortion rates is multifactorial,<sup>26</sup> one aspect that needs scrutiny is any change in contraceptive use and particularly this surge in the use of ehealth including fertility apps, period tracker apps and natural family planning apps. The possible relationship between these less effective methods of contraception and unplanned pregnancy requires further investigation. However, informing the public about the efficacy of such methods in order to facilitate informed contraceptive choices is needed.<sup>27</sup> Where these apps are being chosen, there is potential to use the apps as an additional source of health information to a disenfranchised cohort.<sup>28</sup>

Our study was a large cross-sectional study, with a robust sample size. Between 2018 and 2023, due in part to the global COVID-19 pandemic, the methods of service delivery, data collection and available contraceptive methods changed.<sup>19 29</sup> In addition, BPAS is only one provider of abortion in England and Wales, and between period 1 and period 2, the proportion of the total number of abortions that BPAS delivered increased. Until December 2018, both abortion medications (miso-prostol and mifepristone) could only be taken in clinic or hospital settings, and so multiple in-person visits were required for those having a medical abortion. Since the introduction of the home use of misoprostol (December 2018) and mifepristone (March 2020), patients can now follow remote pathways, whereby they can have a tele-consultation and abortion medications delivered by post.<sup>29</sup> Therefore, compared with those accessing care in period 1, a substantial proportion of patients in period 2 will have a single consultation over the telephone, without ever attending a clinic. Patients may be less willing to disclose no use of contraception when speaking directly to a healthcare provider. These factors may have introduced a systematic bias into the data. Certainly it has impacted post-abortion contraception access, a change which needs wider consideration. Over the two time periods, the significant shift to medical abortions carried out at less than 7 weeks' gestation was likely related to increased access to medical abortion at home; however, an alternative explanation requiring further research may wish to examine the potential role of FABM in aiding early identification of pregnancy. While we can make assumptions about the wider population using abortion services, it is difficult to draw conclusions about the sexually active population in general. In addition, another limitation was the inability to determine which method of FABM was being used; so while we can make assumptions about the rise in use of app technologies, this is not specifically cited within the data. However, as all methods of FABM are less effective than hormonal and LARC methods, the outcome remains the same, that there is an increased risk of repeat unintended pregnancies after abortion if individuals continue with their preferred chosen method at the time of conception. More research is required to explore the rationale for using certain methods of contraception and to investigate

the rise in use of no methods of contraception. Methods to investigate this need to ensure that the voices of those with lived experience are included, so that service design and policies for sexual healthcare provision are fit for purpose.

## CONCLUSIONS

There appears to have been a significant increase in the proportion of individuals attending BPAS for abortion who use FABM as a form of contraception and are using no method of contraception. This may be a result of preference or it may be related to difficulties with access to more effective methods of contraception in the pre-conception and post-abortion periods. Further research needs to be undertaken to investigate these hypotheses.

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**Contributors** AG conceived the idea for the study. RM and AG planned the study methodology in consultation with HM and PAL. HM and RM designed the data management plan, including data privacy assessment. HM supplied the data. RM analysed the data. RM wrote the first draft of the manuscript and all authors contributed to revisions. All authors approved the final draft for publication. RM is responsible for the overall content as guarantor.

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**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Ethics approval** British Pregnancy Advisory Service (BPAS) have an internal process for assessing ethical considerations, and in accordance with this the authors completed the Data Privacy Impact Assessment protocol. As the research was using routinely collected anonymous data, internal ethical review deemed a wider ethical process unnecessary. In addition, the Third Sector Research Forum Applying Ethical Research Principles was referred to in the study design.

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**Data availability statement** Data are available upon reasonable request. Data were derived from routinely collected information during the BPAS consultation process.

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