

Telephone or integrated contraception counselling before abortion: impact on method choice and receipt

Patricia A Lohr,¹ Abigail R A Aiken,² Tracey Forsyth,¹ James Trussell^{3,4}

¹Clinical Department, British Pregnancy Advisory Service (BPAS), Stratford upon Avon, UK

²LBJ School of Public Affairs, University of Texas at Austin, Austin, Texas, USA

³Office of Population Research, Princeton University, Princeton, New Jersey, USA

⁴Clinical Effectiveness Unit, Chalmers Centre, University of Edinburgh, Edinburgh, UK

Correspondence to

Dr Patricia A Lohr, Clinical Department, British Pregnancy Advisory Service (BPAS), Stratford upon Avon, CV37 9BF, UK; patricia.lohr@bpas.org

Received 4 May 2017

Revised 12 January 2018

Accepted 15 January 2018

ABSTRACT

Background Incorporating thorough contraception counselling into an abortion consultation is challenging. We compared contraceptive choices and methods received between two counselling models: (1) telephone counselling separate from the abortion consultation and (2) face-to-face counselling integrated into the consultation.

Methods We obtained de-identified data on demographic characteristics and contraceptive methods that had been chosen and received by women who had an abortion at British Pregnancy Advisory Service between 2011 and 2014 and had a choice of counselling models. We compared the characteristics of women who chose each model of counselling and the contraceptive methods they chose and received using Fisher's exact test, and used logistic regression to explore associations between counselling model and choice and receipt of Tier 1 contraceptive methods (intrauterine contraception, implant, sterilisation), controlling for covariates.

Results The sample included 18573 women. Women choosing telephone counselling were more likely to be non-White (34% vs 22%, $P<0.001$), to report prior difficulty obtaining contraception (40% vs 3%, $P<0.001$), and to have not used contraception at conception (37.1% vs 33.8%, $P<0.001$). Overall, 93% of women chose a contraceptive method after counselling. Telephone counselling was significantly associated with both choosing and receiving a Tier 1 method (OR 1.80, 95% CI 1.66 to 1.96 and OR 1.60, 95% CI 1.42 to 1.71, respectively). Fewer women who had telephone counselling received a less effective method (eg, condom, diaphragm) compared with those who chose integrated counselling (6.0% vs 19.2%, $P<0.001$).

Discussion Telephone-based contraception counselling separate from the abortion consultation may serve some women better than integrated counselling, particularly those reporting past difficulty obtaining contraception.

Key messages

- ▶ Contraception counselling over the phone prior to an abortion consultation was significantly associated with both choosing (OR 1.80) and receiving (OR 1.60) a Tier 1 method (intrauterine contraceptive or implant).
- ▶ Women choosing telephone counselling were significantly more likely to report difficulty obtaining contraception in the past than women choosing integrated counselling (40.4% vs 3.0%) and more likely to report not using a method of contraception at conception (37.1% vs 33.8%).
- ▶ A randomised comparison between telephone and integrated contraception counselling in the context of abortion care is needed to test these observational findings.

INTRODUCTION

Many women welcome the opportunity to discuss future contraception when presenting for abortion care.¹⁻³ However, incorporating enough time for thorough contraception counselling into an abortion assessment has been identified as operationally challenging.⁴⁻⁶ This problem may lead to cursory and unsatisfactory discussions about contraception.^{5,7}

It has been proposed that discussions about post-abortion contraception may be improved if undertaken by a nurse attached to an abortion service in a dedicated session.⁵ Such a model may enhance a woman's experience by defining a neutral space in which to discuss pregnancy prevention, reduce the amount of information delivered during



To cite: Lohr PA, Aiken ARA, Forsyth T, et al. *J Fam Plann Reprod Health Care* Epub ahead of print: [please include Day Month Year]. doi:10.1136/bmjshr-2017-101818

a single visit, and allow more time to discuss available methods.

British Pregnancy Advisory Service (BPAS) performs approximately 60 000 abortions annually, over 95% of which are subcontracted by the National Health Service (NHS). Guidance from the Royal College of Obstetricians and Gynaecologists (RCOG) states that all NHS abortion contracts should require that contraception counselling forms part of the pre-abortion assessment and that method initiation immediately post-abortion should be advised.⁸ Advantages of immediate contraception provision are that the woman is known not to be pregnant and immediate protection against pregnancy is conferred. Receipt of an implant or intrauterine contraceptive (IUC) is also more likely if placement occurs at the time of abortion rather than if scheduled at a later date.⁹⁻¹¹ All NHS contracts held by BPAS meet the RCOG's recommendations for contraception counselling and post-abortion provision of contraceptive methods.

At BPAS, contraception counselling conventionally occurs during the abortion consultation. This visit, which is nurse-led, also includes a pregnancy-options discussion, medical assessment, ultrasound, abortion-options discussion, consent, blood testing, and screening for sexually transmitted infections. Increasingly, treatment is provided on the same day. Since 2009, some NHS abortion contracts have included the option of telephone-based contraception counselling with a trained nurse prior to the abortion consultation. A woman's eligibility for this service is determined by a BPAS contact centre advisor when she telephones to schedule a consultation. The advisor checks the contract details on BPAS' Booking and Invoicing System and uses the following script if the telephone-based contraception counselling is included: 'To save you time at your consultation, I can also book you a separate appointment to discuss contraception

over the phone with a specialist nurse'. In a minority of cases, a woman's consultation may be booked by a third party (eg, general practitioner (GP) or family member). The nurses who run the telephone counselling service receive a list of third party bookings each day and contact the women who are eligible for telephone counselling to offer the option to them directly. In either circumstance, if a woman chooses telephone counselling, a mutually convenient date and time for the session is booked by the advisor or the nurse. If the woman does not want telephone counselling her preference is noted on her booking record and counselling is integrated into the abortion consultation according to standard practice.

Whether delivered over the phone or in the unit, counselling combines informed-choice and shared decision-making.¹² In order to ensure clients' understanding of effectiveness, methods are grouped in tiers defined by typical-use failure rates (figure 1).^{13 14} Effectiveness and method characteristics are discussed, with the goal of identifying the one both suitable for and acceptable to the woman.

In order to evaluate these two models of pre-abortion contraceptive counselling, we: (1) compared characteristics of women choosing telephone and integrated counselling; (2) compared the contraceptive methods chosen and received by counselling model; and (3) examined the association between counselling model and choice and receipt of the most effective contraceptive methods (Tier 1: IUC, implant and sterilisation), controlling for key covariates.

METHODS

De-identified data for women who presented for an abortion at BPAS clinics between 1 January 2011 and 31 December 2014 and whose NHS funding contract included the option of telephone contraception counselling in addition to in-person integrated counselling

Tier	Contraceptive Methods	Failure rate within the first year of typical use
1	Implant Intrauterine contraception Male sterilisation (vasectomy) Female sterilisation (abdominal, laparoscopic, hysteroscopic)	Less than 1 pregnancy per 100 women
2	Injectable Pill Patch Ring Diaphragm	6-12 pregnancies per 100 women
3	Male condom Female condom Withdrawal Sponge Fertility-based awareness methods Spermicide	18 or more pregnancies per 100 women

Adapted from: Trussell J. Contraceptive Efficacy. In Hatcher RA, Trussell J, Nelson AL, Cates W, Kowal D, Policar M. Contraceptive Technology: Twentieth Revised Edition. New York NY: Ardent Media, 2011.

Figure 1 Contraceptive effectiveness chart organised in tiers by typical-use failure rates.

were extracted from BPAS' Booking and Invoicing System. We obtained information on

- ▶ The contraception counselling model chosen, or whether counselling was declined or not offered
- ▶ The outcome of counselling: method chosen, all methods declined, or preference expressed for receipt elsewhere, for example, GP
- ▶ The contraceptive method chosen and received.

Other demographic and clinical variables that may influence method choice or receipt were also extracted. These included age, relationship status, race/ethnicity, previous difficulty obtaining contraception, self-reported method of contraception used at conception, history of prior abortion, type of abortion received, and gestational age at treatment.

Only those women who chose to receive contraception from BPAS were included in the analysis. A prior study of contraceptive method choice and receipt among all women treated at BPAS over the same 4-year period found that the only clinically and statistically significant differences between women who chose to receive contraception from BPAS and those who either declined contraception or chose to receive it elsewhere were that the latter group were more likely to have had a medical abortion and to have a lower gestational age, and that women who declined contraception were more likely to identify as belonging to a racial/ethnic minority group.¹⁵

We compared demographic characteristics, as well as the clinical characteristics detailed above, between those who chose telephone and integrated counselling using either Fisher's exact test or the Fisher-Freeman-Halton test, as appropriate. The Fisher-Freeman-Halton test is a generalisation of Fisher's exact test that gives exact P values when comparing distributions of more than two independent categories between two groups.

The contraceptive methods women chose and received were then compared by counselling model. The proportions of women choosing to receive each type of contraceptive method, as well as the proportion who either did not choose a method or who were unsure of which method to choose, were compared using Fisher's exact test. The distributions of methods chosen and received, grouped by tiers of effectiveness, were compared using Fisher-Freeman-Halton tests. The tiers, in order of decreasing effectiveness, were as shown in [figure 1](#): Tier 1=intrauterine contraception (IUC), implant, male or female sterilisation; Tier 2=injection, pill, ring, patch; and Tier 3=condom, diaphragm, rhythm method (14).

We then examined the association between mode of counselling (as an independent variable) and both choice and receipt of a Tier 1 method (as separate dependent variables) using multivariable binary logistic regression models controlling for clinical and demographic characteristics that may influence the relationship between mode of counselling and method choice and receipt. In the model examining the relationship

between mode of counselling and method receipt, method choice was excluded as an independent variable because virtually all women who received a method received their chosen method. Post-abortion sterilisation was not offered by BPAS during this time period and so was not included in the options for methods received, although women could still choose this method and be referred for provision elsewhere.

The protocol was granted exemption from full review on the basis that no identifying data were collected and that all data were retrospective and held in an existing electronic database by BPAS's Research and Ethics Committee and the Institutional Review Board of Princeton University (IRB #7075). All analyses were performed using Stata version 13.1 (College Station, Texas, USA: StataCorp LP).

RESULTS

In the 4-year study period, 34 280 women undergoing a consultation for an abortion at BPAS were eligible for both telephone and integrated contraception counselling. We excluded 48 women who did not receive an abortion; 976 who declined or did not receive contraception counselling; 14 683 who chose not to receive contraception from BPAS (ie, declined contraception or preferred to attend another provider for receipt); 345 for whom no post-counselling method choice was recorded; 79 for whom no information on the method used at conception was recorded; and 66 for whom no information on prior difficulty getting contraception was recorded. The final sample was therefore limited to the 18 573 women who received contraception counselling, an abortion, and contraception within the service. Of these 31.2% (n=5786) chose telephone counselling and 68.8% (n=12 787) chose integrated counselling. The contraceptive method selected post-counselling was recorded for all women in the sample. Of those who chose to receive contraception from BPAS, the method received was recorded for 80% (n=14 844).

The characteristics of women in the sample are compared by counselling model in [table 1](#). Due to our large sample size, many of the differences between the groups that are statistically significant are not substantively different or clinically relevant. However, a significantly larger proportion of women choosing telephone counselling identified with a non-White racial/ethnic group (33.8% vs 22.1%, $P<0.001$) and were more likely to report difficulty obtaining contraception in the past than women choosing integrated counselling (40.4% vs 3.0%, $P<0.001$). More women choosing telephone counselling reported not using a method of contraception at the time of conception than those choosing integrated counselling (37.1% vs 33.8%, $P<0.001$). The proportion who self-reported using Tier 1 methods at the time of conception was 2.5% in the telephone counselling group and 3.8% in the integrated counselling group ($P<0.001$).

Research

Table 1 Descriptive characteristics of women in the sample by model of contraceptive counselling (n=18 573)

Descriptive characteristics	Telephone (%) (n=5786)	Integrated (%) (n=12 787)
Type of abortion***		
Medical	32.7	30.1
Surgical	67.3	69.9
Weeks' gestation***		
≤9	80.6	77.2
10–15	15.3	18.1
16–23	4.1	4.7
Age (years)**		
12–19	19.3	18.1
20–24	31.7	29.5
25–29	21.5	23.5
30–34	15.1	15.4
35–39	8.8	9.2
40–51	3.7	4.3
Relationship status***		
Married	13.6	13.9
Single	85.0	83.4
Divorced/separated/ widowed	1.4	2.8
Race/ethnicity***		
White	66.2	77.9
South Asian	7.3	6.3
Black	12.4	7.9
East Asian	1.5	1.4
Mixed/other	12.5	6.6
Previous abortion		
0	60.3	60.1
1+	39.7	39.9
*Previous difficulty obtaining contraception***		
No	59.6	97.0
Yes	40.4	3.0
†Method use at conception***		
Tier 1	2.5	3.8
Tier 2	27.6	26.6
Tier 3	32.8	35.8
No method	37.1	33.8

Method type: Tier 1 = intrauterine contraception, implant, sterilisation; Tier 2 = injection, pill, ring, patch; Tier 3 = condom, diaphragm, fertility awareness based method, emergency contraception.

***P<0.001, **P<0.01.

*Information not recorded for 66 women, who were excluded from the sample.

†Information not recorded for 79 women, who were excluded from the sample.

The contraceptive methods that women chose after counselling and received at the time of their abortion are compared by counselling model in [table 2](#).

Table 2 Contraceptive methods chosen and methods received by model of counselling (n=18 228)

Method chosen*	Telephone (%) (n=5761)	Integrated (%) (n=12 467)
Implant	29.3	23.2
Intrauterine contraception	24.8	19.3
Injection	9.8	9.9
Oral contraception	21.4	18.6
Patch	3.3	2.0
Ring	0.1	0.1
Less effective methods	5.1	19.5
Sterilisation	0.0	0.1
Unsure	6.1	7.3
Tier 1	54.1	42.6
Tier 2	34.7	30.7
Tier 3	5.1	19.4
No method/unsure	6.1	7.3
Method received	Telephone (%) (n=4325)	Integrated (%) (n=10 519)
Implant	29.6	25.6
Intrauterine contraception	28.1	22.6
Injection	10.8	10.8
Oral contraception	21.8	19.4
Patch	3.6	2.3
Ring	0.1	0.1
Less effective methods	6.0	19.2
Tier 1	57.6	48.2
Tier 2	36.4	32.6
Tier 3	6.0	19.2

Difference in tier distributions between telephone and integrated for method chosen and received: P<0.001.

Method type: Tier 1 = intrauterine contraception, implant, sterilisation (for method chosen only); Tier 2 = injection, pill, ring, patch; Tier 3 = condom, diaphragm, fertility awareness based method, emergency contraception.

*Information on method chosen not recorded for 345 (1.9%) women, who were excluded from the sample.

Overall, 93.0% of women chose a method of contraception after counselling. The most frequently chosen methods were the implant (25.1%), IUC (21.0%) and oral contraception (19.5%). Although most women in either group chose a method of contraception post-counselling, fewer in the telephone group ended the counselling session unsure of what method they wanted or declining a contraceptive method than those who had integrated counselling (6.1% vs 7.3%, respectively). In addition, fewer in the telephone group compared with the integrated group chose a less effective/Tier 3 method (5.1% vs 19.4%, respectively).

Most women who wanted to receive their method of contraception at the time of the abortion received it as planned (89.6% of the telephone counselling group and 85.4% of those who had integrated counselling,

data not shown). The proportion of women who reported previous difficulty obtaining contraception that received their chosen method at the time of the abortion was 89.2% (data not shown).

Overall, 50.9% of women received a Tier 1 method. The proportion who received a Tier 1 method was higher for women who had telephone counselling as compared with those who had integrated counselling (57.7% vs 48.2%, $P < 0.001$). Significantly fewer women who had telephone counselling received a Tier 3 method after their abortion compared with those who had integrated counselling (6.0% vs 19.2%, $P < 0.001$).

Table 3 shows the associations between counselling model and choice and receipt of a Tier 1 method versus any other method, adjusting for clinical and demographic covariates. Women who had telephone counselling were significantly more likely to choose a Tier 1 method compared with women who had integrated counselling (OR 1.80, 95% CI 1.66 to 1.96). Covariates associated with choosing a Tier 1 method were having had one or more abortions (OR 1.17, 95% CI 1.09 to 1.25), having used a Tier 1 or Tier 2 method at conception (OR 2.42, 95% CI 2.00 to 2.93 and OR 1.11, 95% CI 1.02 to 1.21, respectively), and planning a surgical abortion (OR 3.29, 95% CI 3.04 to 3.57). Identifying as South Asian, East Asian or Black, being single, and not having used a method at conception were associated with a lower likelihood of receiving a Tier 1 method.

Women who had telephone counselling were also more likely to receive a Tier 1 method compared with women who had integrated counselling (OR 1.60, 95% CI 1.42 to 1.71). Covariates associated with receiving a Tier 1 method were similar to those associated with choosing a Tier 1 method, but also included age; women aged 12–19 years were more likely than those aged 20–24 years to receive a Tier 1 method (OR 1.16, 95% CI 1.05 to 1.29). The association between receiving a Tier 1 method and having a surgical as opposed to a medical abortion was also particularly strong (OR 6.16, 95% CI 5.58 to 6.80).

DISCUSSION

In this retrospective comparison of two models of contraception counselling before abortion we found that women who had telephone counselling separate from the abortion consultation were more likely both to choose and to receive the most effective reversible birth control methods – an IUC or an implant. More women who identified as non-White, who had experienced difficulty obtaining contraception in the past, or who were not using a method at the time of conception chose telephone over integrated counselling.

A key strength of this study is our ability to assess contraceptive choices after both counselling models, as well as the actual contraceptive method received, in a large sample of women obtaining abortion care.

Method choices were available for the entire sample and method received was available for 80% of women who were booked to get contraception at the time of their abortion. Of these, nearly 90% received their planned method. Among those who did not receive their planned method, possible reasons include lack of availability of a trained professional on the day of the abortion, the client changing her mind, or failure by the clinician to record method receipt. We do not know what methods, if any, women may have received elsewhere after the abortion and thus we were unable to assess differences in method receipt between counselling models in other settings.

The main limitation of our study is that it was not a randomised trial. We are therefore unable to state conclusively that telephone counselling influences contraceptive choice and receipt in a different way to integrated counselling. However, we endeavoured to control for possible confounding influences in our regression models. In addition, the interventions were not standardised. We lack detailed information on women's knowledge about contraceptive methods, nor was information on women's educational level or socioeconomic status collected. Therefore, we cannot account for the influence of these factors on choice of counselling method or contraceptive method. It was also notable that a higher than expected proportion of women self-reported use of Tier 1 method at the time of conception. The method reported was recorded as relayed to the counsellor and without further questions about whether it had been used continuously, which may explain this finding. There may, however, have been misreporting.

Several studies in recent years have explored interventions to increase the uptake of long-acting reversible contraception (LARC) methods (typically defined as intrauterine contraception, subdermal contraceptive implants and progestogen-only injections) in order to reduce the risk of subsequent unintended pregnancy and abortion. While some randomised trials have shown that 'enhanced' peri-abortion contraception counselling (eg, provision by a doctor or nurse with specialist training in contraception; or pre- as well as post-abortion counselling) can increase women's choice of LARC, a recent meta-analysis found no significant association between a range of specialist interventions and receipt of LARC.¹⁶ Our goal was to provide an alternative model for counselling that would allow a woman to choose the best method for her, not to alter the proportions of women opting for any particular method. However, we did find that women who had telephone-based counselling separate from their abortion consultation were more likely to choose and receive a Tier 1 method. It may have been the case that a dedicated counselling session remote from the abortion consultation facilitated choice of these methods because a fuller discussion about the various benefits and risks of the options available could take place.

Research

Table 3 Binary logistic regression examining the association between counselling model and key covariates on choice and receipt of a Tier 1 contraceptive method versus any other method

	Method chosen (n=16 929)		Method received (n=14 803)	
	OR (95% CI)	P value	OR (95% CI)	P value
Counselling model				
Integrated	Ref		Ref	
Telephone	1.80 (1.66 to 1.96)	<0.001	1.60 (1.42 to 1.71)	<0.001
Type of abortion				
Medical	Ref		Ref	
Surgical	3.29 (3.04 to 3.57)	<0.001	6.16 (5.58 to 6.80)	<0.001
Weeks' gestation				
0–9	Ref		Ref	
10–15	0.98 (0.90 to 1.08)	0.713	1.00 (0.91 to 1.10)	0.997
16–24	0.96 (0.82 to 1.12)	0.578	0.86 (0.72 to 1.01)	0.071
Age (years)				
20–24	Ref		Ref	
12–19	1.05 (0.96 to 1.16)	0.303	1.16 (1.05 to 1.29)	0.005
25–29	1.02 (0.94 to 1.12)	0.634	1.08 (0.97 to 1.19)	0.148
30–34	1.05 (0.94 to 1.21)	0.394	1.07 (0.96 to 1.21)	0.218
35–39	1.07 (0.94 to 1.21)	0.321	1.14 (0.99 to 1.31)	0.072
40–51	1.09 (0.91 to 1.29)	0.360	1.07 (0.90 to 1.30)	0.453
Relationship status				
Married	Ref		Ref	
Single	0.78 (0.70 to 0.87)	<0.001	0.78 (0.70 to 0.88)	<0.001
Divorced/separated/widowed	0.83 (0.66 to 1.05)	0.116	0.84 (0.66 to 1.08)	0.171
Race/ethnicity				
White	Ref		ref	
South Asian	0.69 (0.60 to 0.87)	<0.001	0.63 (0.54 to 0.74)	<0.001
Black	0.85 (0.75 to 0.96)	0.007	0.89 (0.78 to 1.02)	0.087
East Asian	0.48 (0.36 to 0.64)	<0.001	0.47 (0.34 to 0.65)	<0.001
Mixed/other	0.92 (0.81 to 1.03)	0.155	0.91 (0.80 to 1.04)	0.185
Previous abortion				
0	Ref		ref	
1+	0.17 (1.09 to 1.25)	<0.001	1.12 (1.04 to 1.21)	0.004
Previous difficulty obtaining contraception				
No	Ref		Ref	
Yes	1.08 (0.96 to 1.25)	0.228	1.10 (0.97 to 1.23)	0.137
Method use at conception				
Tier 3	Ref		Ref	
None	0.91 (0.84 to 0.98)	0.020	0.93 (0.85 to 1.01)	0.094
Tier 2	1.11 (1.02 to 1.21)	0.015	1.15 (1.05 to 1.26)	0.003
Tier 1	2.42 (2.00 to 2.93)	<0.001	2.10 (1.71 to 2.59)	<0.001

The model controls for funding primary care organisation and year (coefficients not shown but available on request). Women who did not choose a method or who were unsure of which method to choose post-counselling were excluded from the model.

Method type: Tier 1 = intrauterine contraception, implant, sterilisation (for method chosen only); Tier 2 = injection, pill, ring, patch; Tier 3 = condom, diaphragm, fertility awareness based method, emergency contraception.

However, it was notable that a higher proportion of women who expressed difficulty obtaining a contraceptive method in the past and who were less likely to be using a method at the time of conception were drawn to this model of care. While the convenience of telephone-based contraceptive counselling may have been seen as a particular benefit to this group of women, it may also have been that they were already motivated to obtain a method that would not require regular visits to a healthcare provider for renewal.

Tier 1 methods were also chosen more frequently by women with a history of an abortion. This finding, demonstrated elsewhere,^{17 18} emphasises the need for responsive, women-centred abortion services to provide access to the full range of contraceptive methods. Women undergoing surgical abortion were also more likely to choose and much more likely to receive a Tier 1 method. This association has also been identified in other studies^{19 20} but the reasons for it are unclear. It may, particularly for IUC, simply reflect the convenience of provision at the time of a surgical abortion as opposed to after a medical abortion where a woman must attend a clinic 1–2 weeks after treatment for insertion.²¹ However, it may reflect a preference for certain characteristics that translate across their choice of abortion and contraception methods. Women who choose a non-interventional form of abortion may prefer methods of contraception that do not require a procedure for insertion or removal, for example.

A large number of studies and systematic reviews on the use of telecommunications technology to facilitate a range of healthcare interventions have been published.²² While a few have evaluated mobile phone-based interventions for improving contraception use,²³ we are unaware of any study which evaluates the impact of focused contraception counselling over the telephone before an abortion. One randomised trial of post-abortion contraception counselling and support delivered by mobile phone was identified.²⁴ In that trial, all participants received standard care which included post-abortion family planning counselling at the clinic in accordance with national guidelines, the offer of a follow-up appointment at the clinic, and details of the clinic's phone number and a hotline number. Those allocated to the intervention also received six automated, interactive voice messages and were provided with phone support from a counsellor depending on their responses to the messages. The investigators found that significantly more women in the intervention than the control group reported effective contraception use at 4 months (64% vs 46%, respectively) and greater use of a long-acting contraceptive method at 4 (29% vs 9%, respectively) and 12 months (25% vs 12%, respectively). Although this intervention was delivered post-abortion, it demonstrates the effectiveness of telecommunications technology for contraception care in the peri-abortion period.

The present study provides support for a randomised comparison between telephone and integrated contraception counselling in the context of abortion care. Such a project could also explore stand-alone counselling undertaken face-to-face, as opposed to during a telephone session, as well as reasons for choosing either method. A qualitative or mixed-methods approach may also provide greater insight into women's choices and the impact of certain demographic factors.

In conclusion, a large proportion of women who have contraception counselling before an abortion chose a method of contraception to be provided at the time of the termination and just under half chose the most effective reversible methods (IUC or implant). A model where contraception counselling is provided over the telephone and separately from the abortion consultation may serve some women better than integrated counselling. This model of care appears particularly appealing to women who have had trouble obtaining contraception in the past.

Acknowledgements Steve Cheung and Sue Sarson who assisted with data acquisition.

Contributors PAL, ARAA & JT originated the study and contributed to the study design. ARAA conducted the analyses and prepared the tables and figures. PAL, ARAA, JT & TF contributed to the interpretation of results. PAL wrote the first draft the manuscript. PAL, ARAA, JT & TF contributed to several rounds of manuscript drafting and approved the final manuscript.

Funding Support was provided in part by infrastructure grants for population research from the Eunice Kennedy Shriver National Institute of Child Health and Human Development of the National Institutes of Health R24HD04284 (ARAA) and P2C HD047879 (JT). The content of this article is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Competing interests PAL is the Medical Director of British Pregnancy Advisory Service. TF is the Nurse Manager of the telephone-based contraception counselling service at BPAS. ARAA reports grants from National Institutes of Health during the conduct of the study.

Ethics approval The protocol for this project was submitted to BPAS's Research and Ethics Committee and the Institutional Review Board of Princeton University (IRB #7075) and was granted exemption from full review on the basis that no identifying data were collected and that all data were retrospective and held in an existing electronic database.

Provenance and peer review Not commissioned; externally peer reviewed.

© Article author(s) (or their employer(s) unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

REFERENCES

- 1 Kavanaugh ML, Carlin EE, Jones RK. Patients' attitudes and experiences related to receiving contraception during abortion care. *Contraception* 2011;84:585–93.
- 2 Matulich M, Cansino C, Culwell KR, *et al.* Understanding women's desires for contraceptive counseling at the time of first-trimester surgical abortion. *Contraception* 2014;89:36–41.

- 3 Purcell C, Cameron S, Lawton J, *et al.* Contraceptive care at the time of medical abortion: experiences of women and health professionals in a hospital or community sexual and reproductive health context. *Contraception* 2016;93:170–7.
- 4 Kavanaugh ML, Jones RK, Finer LB. Perceived and insurance-related barriers to the provision of contraceptive services in U.S. abortion care settings. *Womens Health Issues* 2011;21(3 Suppl):S26–31.
- 5 Kumar U, Baraitser P, Morton S, *et al.* Peri-abortion contraception: a qualitative study of users' experiences. *J Fam Plann Reprod Health Care* 2004;30:55–6.
- 6 Kilander H, Salomonsson B, Thor J, *et al.* Contraceptive counselling of women seeking abortion - a qualitative interview study of health professionals' experiences. *Eur J Contracept Reprod Health Care* 2017;22:3–10.
- 7 Dehlendorf C, Levy K, Kelley A, *et al.* Women's preferences for contraceptive counseling and decision making. *Contraception* 2013;88:250–6.
- 8 Royal College of Obstetricians and Gynaecologists (RCOG). *The care of women requesting induced abortion*. London: RCOG, 2011.
- 9 Raymond EG, Weaver MA, Tan YL, *et al.* Effect of immediate compared with delayed insertion of etonogestrel implants on medical abortion efficacy and repeat pregnancy: a randomized controlled trial. *Obstet Gynecol* 2016;127:306–12.
- 10 Hognert H, Kopp Kallner H, Cameron S, *et al.* Immediate versus delayed insertion of an etonogestrel releasing implant at medical abortion - a randomized controlled equivalence trial. *Hum Reprod* 2016;31:2484–90.
- 11 Okusanya BO, Oduwale O, Effa EE. Immediate postabortal insertion of intrauterine devices. *Cochrane Database Syst Rev* 2014;7:CD001777.
- 12 Dehlendorf C, Krajewski C, Borrero S. Contraceptive counseling: best practices to ensure quality communication and enable effective contraceptive use. *Clin Obstet Gynecol* 2014;57:659–73.
- 13 Steiner MJ, Trussell J, Mehta N, *et al.* Communicating contraceptive effectiveness: a randomized controlled trial to inform a World Health Organization family planning handbook. *Am J Obstet Gynecol* 2006;195:85–91.
- 14 Trussell J. Contraceptive failure in the United States. *Contraception* 2011;83:397–404.
- 15 Aiken A, Lohr PA, Aiken CE, *et al.* Contraceptive method preferences and provision after termination of pregnancy: a population-based analysis of women obtaining care with the British Pregnancy Advisory Service. *BJOG* 2017;124:815–24.
- 16 Stewart H, McCall SJ, McPherson C, *et al.* Effectiveness of peri-abortion counselling in preventing subsequent unplanned pregnancy: a systematic review of randomised controlled trials. *J Fam Plann Reprod Health Care* 2016;42:59–67.
- 17 Madden T, Secura GM, Allsworth JE, *et al.* Comparison of contraceptive method chosen by women with and without a recent history of induced abortion. *Contraception* 2011;84:571–7.
- 18 Keene M, Roston A, Keith L, *et al.* Effect of previous induced abortions on postabortion contraception selection. *Contraception* 2015;91:398–402.
- 19 Goldstone P, Mehta YH, McGeechan K, *et al.* Factors predicting uptake of long-acting reversible methods of contraception among women presenting for abortion. *Med J Aust* 2014;201:412–6.
- 20 Benson J, Andersen K, Brahmi D, *et al.* What contraception do women use after abortion? An analysis of 319,385 cases from eight countries. *Glob Public Health* 2016;18:1–16.
- 21 Cameron ST, Berugoda N, Johnstone A, *et al.* Assessment of a 'fast-track' referral service for intrauterine contraception following early medical abortion. *J Fam Plann Reprod Health Care* 2012;38:175–8.
- 22 Totten AM, Womack DM, Eden KB, *et al.* *Telehealth: mapping the evidence for patient outcomes from systematic reviews*. Rockville (MD): Agency for Healthcare Research and Quality (US), 2016. <http://www.ncbi.nlm.nih.gov/books/NBK379320/> (accessed 28 Oct 2016).
- 23 Smith C, Gold J, Ngo TD, *et al.* Mobile phone-based interventions for improving contraception use. *Cochrane Database Syst Rev* 2015;6:CD011159.
- 24 Smith C, Ngo TD, Gold J, *et al.* Effect of a mobile phone-based intervention on post-abortion contraception: a randomized controlled trial in Cambodia. *Bull World Health Organ* 2015;93:842–50.